



Follow-up of *Bushfire prevention and preparedness*

Report 5: 2018–19



Your ref:
Our ref: 9175P
David Toma—3149 6050

9 October 2018

The Honourable C Pitt MP
Speaker of the Legislative Assembly
Parliament House
BRISBANE QLD 4000

Dear Speaker

Report to parliament

This report is prepared under Part 3 Division 3 of the *Auditor-General Act 2009*, and is titled Follow-up of *Bushfire prevention and preparedness* (Report 5: 2018–19).

In accordance with s.67 of the Act, would you please arrange for the report to be tabled in the Legislative Assembly.

Yours sincerely

A handwritten signature in blue ink, appearing to read "B. Worrall".

Brendan Worrall
Auditor-General

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Audit objective and scope

In this follow-up audit, we examined whether Queensland Fire and Emergency Services has effectively implemented the recommendations we made in *Bushfire prevention and preparedness* (Report 10: 2014–15). We also assessed whether the actions taken have addressed the underlying issues that led to our recommendations in that report.

Our scope included a detailed review and analysis of work undertaken by Queensland Fire and Emergency Services in addressing our original audit recommendations.

Appendix B contains more information about our audit objectives and methods.

Reference to comments

In accordance with s. 64 of the *Auditor-General Act 2009*, we provided a copy of this report to Queensland Fire and Emergency Services (QFES). In reaching our conclusions, we considered its views and represented them to the extent we deemed relevant and warranted. QFES's response is at Appendix A.



Key facts

Local governments in Queensland are primarily responsible for managing disaster events at the community level

Source: Disaster Management Act 2003

Queensland Fire and Emergency Services is the primary provider of fire and emergency services in Queensland

Source: Fire and Emergency Services Act 1990

Managing bushfires is vital for protecting our communities and maintaining environmental habitats

Up to 50 per cent of bushfires in Australia are deliberately lit or start under suspicious circumstances

Source: Queensland Fire and Emergency Services (2017)

The total insured loss from bushfires in Australia from 1966–67 to 2012–13 was \$5.6 billion in 2011–12 dollars

Source: The Climate Institute (2013)

The 2009 ‘Black Saturday’ bushfires in Victoria were the most devastating in Australia’s history, causing 173 deaths

Source: Victorian Bushfires Royal Commission (2009)

Introduction

Australia experiences many large, devastating natural disasters, including catastrophic bushfires. Bushfires are among the world's most dangerous natural phenomena, although they can be caused by human activity too. Since 1901, over 700 civilians and 90 firefighters have lost their lives, and over 11 000 homes have been destroyed in bushfires across Australia. On average, bushfires cause \$80–100 million of insurable damage each year in Australia.

Queensland's bushfire threat is not as acute as in Australia's southern states. Queensland experiences its hottest weather during its wet season. Current research indicates bushfire seasons will lengthen in the coming decade and fire frequency and intensity may increase during these longer seasons. Queensland's bushfire season typically extends from mid to late winter to early summer.

Queensland Fire and Emergency Services (QFES) is the primary provider of fire and emergency services in Queensland. Section 8B of the *Fire and Emergency Services Act 1990* sets out QFES's responsibility to prepare for and respond to bushfires. It states that some of QFES's key functions include protecting persons, property, and the environment from fire and hazardous materials' emergencies. It also states that QFES is required to provide an advisory service and undertake other measures to promote fire prevention and fire control.

One of the key strategies QFES uses annually in mitigating bushfire risk is 'Operation Cool Burn'. It is an operational period, generally from April to August each year, when QFES and key stakeholders (such as local governments) focus on identifying and preparing bushfire-prone areas against the threat of bushfires across the state. Whilst Operation Cool Burn is a focused operational period, bushfire risk-mitigating activities also occur at other appropriate times of the year.

QFES operations are divided into seven regions: South Eastern, Brisbane, North Coast, South Western, Central, Northern and Far Northern. QFES has about 36 000 rural fire service volunteers, 6 000 state emergency service volunteers and more than 4 000 paid firefighters (permanent and auxiliary). To measure the level of preparedness for fire and emergency events in Queensland, QFES conducts annual surveys with households across all its seven regions.

Report 10: 2014–15

In *Bushfire prevention and preparedness* (Report 10: 2014–15), we examined whether Queensland was better able to prevent and prepare for bushfires following the 2009 Victorian Bushfires Royal Commission, the Malone Review into Rural Fire Services in Queensland 2013, and the (Queensland) Police and Community Safety Review 2013.

The three reviews identified improvements that could strengthen Queensland's bushfire preparedness. The reviews made a total of 287 recommendations, of which 168 related to bushfire safety, QFES and its organisational capability.

In Report 10: 2014–15, we focused on whether:

- QFES and the Public Safety Business Agency had taken effective actions to address the relevant issues that led to the recommendations from the Victorian Bushfires Royal Commission



- these agencies were taking effective actions to address the recommendations related to bushfire prevention and preparedness from the Malone Review and the Police and Community Safety Review.

We concluded

Queensland was not as prepared for the threat of bushfires as it could be because QFES was response-focused, to the detriment of coordinating effective mitigation programs. Without a central authority coordinating and overseeing mitigation activities statewide, QFES's ability to respond to a bushfire event effectively and efficiently was hampered.

Communities in high-risk bushfire-prone locations remained exposed to a higher level of risk than they should be. The inability of QFES to target effective educational activities efficiently meant QFES was unaware if community members were prepared for bushfires.

We found

We found that while QFES had the legislative responsibility, its visibility and oversight of the state's bushfire risks was limited. As QFES's bushfire planning was response-focused, its plans contained minimal information about bushfire prevention and preparedness. QFES also was not recording fire hazard inspections or appropriately documenting its assessment of the bushfire hazard. QFES was unaware if required hazard-reduction burns (burn-offs) occurred and whether they were effective. It also didn't know if Queensland's fuel loads were being managed effectively (fuel loads refer to the volume of vegetation that is available to burn during a bushfire such as dry grass, fallen bark and leaf litter).

We also found that individual communities located in high-risk bushfire-prone areas did not have local bushfire plans and were less prepared for the threat of bushfires than they could be. Flaws in the bushfire warning systems also meant residents could receive inaccurate and conflicting advice about the action to take before and during a bushfire. Finally, QFES did not coordinate its educational activities well or direct them to communities most at risk.

We recommended

We made two recommendations (with seven parts) in *Bushfire prevention and preparedness* (Report 10: 2014–15). QFES fully agreed to five parts of the recommendations and partially agreed to two parts of the recommendations where they needed input or expertise from other stakeholders to completely address the recommended action.

Figure A lists the recommendations and gives our 2018 assessment of the progress towards their implementation.

Summary of audit findings

Progress made by QFES

In March 2018, we set out to establish whether QFES had effectively implemented the recommendations we made in Report 10: 2014–15. We found that QFES has made some progress but has only partially implemented them. Figure A shows our recommendations and whether they have been implemented.

Figure A
Implementation status of recommendations made in Report 10: 2014–15

Recommendation made in original audit		QFES agreed/ disagreed	QFES implementation timeframe	QAO 2018 assessment of status
1. QFES strengthens its oversight role as lead agency for mitigating Queensland's bushfire risk to acceptable levels by:				
1.1	Coordinating land managers' efforts to assess and mitigate bushfire risk	Agreed	Ongoing	Recommendation partially implemented
1.2	Formalising the role of fire management groups to manage Queensland's fuel loads, including reporting planned and conducted hazard reduction burns and effectiveness of hazard reduction burns	Partially agreed (1)	June 2015	Recommendation partially implemented
1.3	Amending its bushfire mitigation planning to address prevention, preparedness, response and recovery and to manage Queensland's residual bushfire risk	Agreed	December 2015	Recommendation partially implemented
1.4	Developing and implementing a coordinated strategy to address arson, deterring would-be offenders and rehabilitating convicted offenders	Partially agreed (2)	December 2015	Recommendation partially implemented
1.5	Working with local councils to develop and communicate local bushfire plans for communities located in high risk bushfire-prone areas	Agreed	June 2015	Recommendation partially implemented
2. QFES improves engagement with communities to better prepare and respond to bushfires by:				
2.1	Increasing focus on monitoring the effects of educational materials it develops	Agreed	Develop by June 2015. Ongoing application.	Recommendation partially implemented
2.2	Reviewing and amending its bushfire warnings and alert protocols to provide clear and consistent messages to residents about the action to be taken before and during a bushfire.	Agreed	March 2015	Recommendation partially implemented

Source: Queensland Audit Office.

Note: (1) - For recommendation 1.2, QFES partially agreed because landholders are responsible for managing fuel loads. We note that QFES has a regulatory role to ensure this occurs. Note: (2) - For recommendation 1.4, QFES partially agreed because it does not have expertise in rehabilitating convicted bushfire arson offenders.

Mitigating Queensland's bushfire risk

Understanding risks

Queensland Fire and Emergency Services (QFES) has improved its visibility and oversight of the state's bushfire risks since 2014. It is engaging better with its stakeholders, which is helping it to better understand bushfire risks and coordinate mitigation activities. QFES has set up several bodies to assist in mitigating bushfire risk: the Office of Bushfire Mitigation, the State Inter-Departmental Committee for Bushfires, and area fire management groups.

Since 2014, QFES has begun using several tools, including a bushfire simulation model, Phoenix, to help with planning and mitigating Queensland's bushfire risk. QFES provides all its regions with access to the latest fuel and fire history through its bushfire simulation products. While all regions can use these products for activities such as planning controlled burns, not all regions are actively using these products for identifying high-risk bushfire areas and prioritising mitigation activities.

Most of the regions are using their local knowledge and the REDI-Portal tool (Risk Evaluation and Disaster Information) developed in 2015–16. REDI-Portal assists land managers in coordinating bushfire risk mitigation activities. However, it does not provide current and accurate information such as recent land management practices and recent fire history. QFES is trialling its simulation-based bushfire risk planning tools for the Operation Cool Burn period in the North Coast region. It plans to apply this methodology in its other six regions in the 2019 Operation Cool Burn period.

Preparing bushfire plans

QFES's bushfire planning documents, including regional wildfire mitigation and readiness plans and bushfire risk mitigation plans, cover three elements of disaster management—prevention, preparedness and response—but not the element of recovery. QFES regions have also only started to develop bushfire risk mitigation plans at a local government level. Without these plans, and because QFES is not appropriately covering the recovery element, it is not addressing all key phases of disaster management as required by the *Queensland State Disaster Management Plan*.

QFES is now more aware of whether required hazard-reduction burns have occurred across the state, helped by formalising the role of area fire management groups and the Operation Cool Burn initiative. However, further work is required to assess whether the burns have been effective, and whether Queensland's fuel loads are reducing.

While communities in high-risk bushfire areas in Queensland still do not have local bushfire plans, QFES and local councils are using other tools to inform and prepare communities about bushfire risks. This includes encouraging individual households to develop their own bushfire survival plans.

Bushfire survival plans address many aspects of the local bushfire plan requirements at an individual household level. But local bushfire plans include some additional critical information such as local area bushfire exposure risk levels, and local area threat-maps. The purpose of local bushfire plans is to assist residents to identify their fire risk level and safety options, and to develop their own bushfire survival plans. Without these plans, households may not have access to important contextual information to prepare their own household plans.

Despite QFES's efforts in encouraging individual households to prepare their own bushfire survival plans, about half of the households QFES surveyed in bushfire risk areas do not have a bushfire survival plan. This may result in confusion and incorrect decision making by households during a bushfire, that could be life-threatening.

Deterring would-be offenders

Queensland Government agencies still do not have full oversight of arson occurring across the state and there is no coordinated strategy to address arson. Arson offenders do not receive the education and rehabilitation required to deter them from reoffending. QFES is currently exploring opportunities for sharing data regarding bushfire arson with partner agencies, but further work is needed to ensure there is a well-coordinated statewide approach to arson prevention.

Preparing communities for the threat of bushfires

Communicating and educating

Since our 2014 report, QFES has begun using tools such as REDI-Portal for identifying and targeting bushfire education to high-risk bushfire-prone areas. QFES uses a wide range of tools and media such as radio, television, social media and its website, to communicate bushfire advice and warnings to Queensland communities, including school children.

While QFES has recently completed a statewide review of its community engagement materials, it still needs to assess and ensure that its engagement materials are effective and help communities prepare for the risk of bushfires. QFES's recent review of its statewide community engagement materials identified:

- There is no formal structure for creating or reviewing community engagement materials.
- Materials are created at regional or local level without any guidance or quality control, resulting in duplication of resources and the risk of incorrect messaging.
- There is a current culture of providing educational materials without thinking about what message QFES is trying to give to the community.

QFES promotes bushfire education in schools by collaborating with the Department of Education. While QFES does not have control over the Queensland school curriculum, it has developed school-based bushfire education resources and made them available on its website. Despite these efforts, it is unclear whether schools in high risk bushfire prone areas are aware of QFES's bushfire materials. There is a risk that school children in high-risk bushfire-prone areas are not receiving the education they require to prepare effectively for bushfires.

In 2017, QFES partnered with the Queensland University of Technology to review its bushfire community warnings and implemented a series of language changes to ensure Queensland communities were better informed during fire incidents. Despite QFES's efforts in communicating bushfire advice and warnings to communities, a significant number of households QFES surveyed are still unaware of the bushfire warning levels.

Fire danger rating signs are one of the many tools QFES uses to inform communities about bushfire risks and fire dangers. These signs are not effective in communicating bushfire risks, as volunteers update the signs, with varying results. QFES cannot provide assurance that the signs across Queensland are displaying the correct fire danger rating and informing communities of the current level of risk. We acknowledge the national Fire Danger Rating system is currently under review and QFES will consider the outcomes of that review before it makes any changes to its process for fire danger rating signs.



Audit conclusions

QFES has made efforts to address the underlying issues we identified in our original 2014 audit. Through several initiatives, including establishing the Office of Bushfire Mitigation and area fire management groups, it has increased its focus on bushfire risk mitigation activities statewide. It has also improved its engagement with key stakeholders and is now able to better coordinate and manage Queensland's bushfire risk.

Despite these efforts, more work is needed to ensure Queensland communities are not exposed to higher levels of risk than they need to be. In response to our original audit, QFES committed to implement the agreed recommendations by 2015, but in this audit we found it has not yet fully implemented any of the recommendations. We acknowledge that fully implementing the recommendations is a challenge where contribution by multiple parties is required to complete them. For example, QFES in many cases is reliant on the actions of others—volunteers, other state agencies, or the federal government—to fully implement the recommendations.

QFES has not fully rolled out its new risk mitigation systems and tools across all regions. And more training and continuous improvement is needed to make sure they are effectively used to strengthen Queensland's approach to risk mitigation.

It is critical that QFES's efforts to improve its collaboration with key stakeholders continue. In particular, it should continue to engage with land managers and local governments to better identify bushfire risks and prioritise mitigation activities. Further improvements and use of evaluation systems are needed to measure the effectiveness of mitigation activities and identify improvement opportunities across Queensland. Better engagement with local communities is also needed to understand their risks and help them prepare for bushfires. These actions will enhance the ability of QFES to manage and respond to bushfires, and make our communities safer.



1. Mitigating Queensland's bushfire risk

This chapter covers progress made by Queensland Fire and Emergency Services in strengthening its oversight of efforts to mitigate Queensland's bushfire risk.

Identifying bushfire risks

In 2014–15, we recommended that QFES coordinate land managers' efforts to assess and mitigate bushfire risk.

In our original audit, we found that QFES's statewide ability to identify and capture bushfire risk and reduce it to an acceptable level was limited. Despite QFES having the legislative responsibility for identifying hazards and mitigation planning, Queensland did not have an agency responsible for managing fuel loads (such as vegetation including dry grass, shrubs and leaf litter) across the state.

This resulted in a lack of oversight of statewide fuel load levels. QFES was unable to identify current fuel loads accurately and prioritise hazard-reduction burns accordingly. Instead, QFES primarily relied on local knowledge.

Progress made

QFES is performing better at coordinating land managers' efforts to assess and mitigate bushfire risks than in 2014. It has achieved this by engaging better with stakeholders and providing new systems to help with more effective bushfire planning and mitigation. QFES provides all its regions with access to the latest fuel load and fire history data through its bushfire simulation products. However, not all regions are actively using these products for identifying high-risk bushfire-prone areas and prioritising mitigation activities.



Engaging stakeholders

Since our original audit, QFES has improved its coordination efforts by:

- establishing the Office of Bushfire Mitigation in December 2015. The office coordinates bushfire mitigation activities across the state and oversees the work that area fire management groups (AFMGs), bushfire safety officers and fire wardens undertake for local communities. In 2017, the office coordinated over 300 mitigation activities across all regions
- re-establishing the State Inter-Departmental Committee for Bushfires as a statewide forum for coordinating bushfire management policy and procedures. Members include relevant representatives of government agencies, including QFES, land managers, major stakeholders, and industries involved in bushfire management. The committee has held regular meetings of stakeholders since 2015. In 2017, it established an inter-departmental working group for managing arson-related activities. Through this working group, QFES is looking at opportunities for improving data-sharing on arson activities with stakeholders
- establishing area fire management groups in all of its 17 rural fire service areas. These groups aim to deliver a coordinated approach to bushfire mitigation between QFES, land management agencies and other stakeholders. Some Queensland rural fire service areas now have several of these groups based on local government boundaries and there are over 30 across the state. QFES is establishing more of these groups in Indigenous councils that are currently represented by one group that covers multiple local government areas. We found that the groups provided regular updates to QFES's head office in 2017 on their planned and completed bushfire mitigation activities.

Developing systems

QFES has developed new systems to enhance the bushfire planning and mitigation process. QFES is using these systems to provide enhanced accuracy in bushfire risk assessment, warnings/messaging and mitigation planning.

The new systems include:

- REDI-Portal (Risk Evaluation and Disaster Information), developed in 2015–16 to help users identify high-risk bushfire-prone areas and prioritise their mitigation activities. It is a driver for developing partnerships between QFES and other stakeholders by providing them with access to a common set of information, such as fire history and vegetation hazard mapping. We found that area fire management groups were using this tool in 2017 to identify high-risk areas and target them with relevant mitigation activities
- Phoenix (a simulation tool), piloted in 2017 to conduct bushfire risk assessments and strategic bushfire management planning. Phoenix can be used to simulate bushfires in different weather conditions and with different fire histories and fuel loads. This information supports mitigation activities.

All QFES regions are using local knowledge and REDI-Portal for Operation Cool Burn planning, including identifying hazards, and for mitigation-planning purposes such as prioritising hazard reduction burns. (The North Coast region is also using Phoenix). REDI-Portal enables AFMGs to assess local bushfire risk and determine priority mitigation activities. However, the REDI-Portal does not provide the most current and reliable information for bushfire planning and mitigation activities.

Because the data contained in REDI-Portal was mainly developed to map bushfire risk for land-use planning purposes, it does not reflect recent land management practices such as grazing or weed mitigation and seasonal variations. While its potential fuel load modelling includes fire history data, this data was last updated in 2016.

QFES updates REDI-Portal using data that it sources from various agencies. However, not all data sets are current because it either does not request the data from the other agencies in a timely manner, or the other agencies do not have current data.

QFES sees bushfire simulation tools as the most appropriate means of assessing risk to guide bushfire mitigation activities that include fuel reduction burning, fire trail upgrades and community engagement. While the Phoenix tool is available to all regions, at the time of our audit, QFES was only trialling this tool for Operation Cool Burn planning activities in the North Coast region. QFES has advised it will evaluate this trial following the 2018 Operation Cool Burn period and, if successful, will implement the process in the remaining six regions in 2019. QFES is also working to integrate the data from its bushfire simulation tools with REDI-Portal so that it can provide higher quality resources to its regions.

Collecting fuel load data

QFES regions are responsible for conducting regular inspections of vegetation fire hazards during the year and documenting the risk within their areas. In 2017, QFES began using an electronic application form, Survey123, for assessing and recording bushfire fuel hazards. This tool helps users such as QFES staff, local councils and land managers to collect and share fuel load data through online platforms such as Phoenix.

QFES advised that it has provided training in fuel hazard assessments to more than 100 QFES staff, volunteers, and land managers over the past five years. Despite these efforts, all four QFES regions we spoke to (North Coast, Far Northern, Central, and Brisbane) advised that their regions do not actively use Survey123 and that more awareness and training is needed to increase its effective usage. In these regions, fire managers record fuel load data at their discretion. Survey123 can be used to assign collection requests for fuel load data to fire managers located across all QFES regions, but QFES does not use this capability.

Next steps

QFES has developed the systems and processes to better coordinate land managers' efforts to assess and mitigate bushfire risk. However, to fully implement this recommendation, it needs to ensure these systems and processes are effectively used across all regions to mitigate bushfire risk at a statewide level. QFES needs to collaborate with stakeholders such as land managers and local councils to completely address this recommendation. To achieve this, QFES needs to:

- continue working with the local councils, particularly with Indigenous councils, to establish individual area fire management groups. Establishing more of these groups that better align with local councils and other key stakeholders would enable bushfire risks at the local level to be managed more effectively.
- continue rollout and related training of new tools such as bushfire simulation products for risk-mitigation planning purposes and Survey123 to improve assessment and mitigation of bushfire risks across the state.



Planning to prevent and mitigate

In 2014–15, we recommended that QFES amend its bushfire mitigation planning to address prevention, preparedness, response, and recovery and to manage Queensland's residual bushfire risk.

Under the *Queensland State Disaster Management Plan*, QFES is responsible for developing a hazard-specific action plan for bushfires that addresses all phases of prevention, preparedness, response, and recovery. In the original audit, we noted that none of the seven QFES regional wildfire mitigation and readiness plans addressed these four phases as the *Queensland State Disaster Management Plan* requires. The original audit also found that QFES had not appropriately developed hazard mitigation plans and provided limited assurance that Queensland's bushfire risk was being reduced.

In 2013, QFES introduced 'Operation Cool Burn' as a hazard-mitigation strategy focused on reducing bushfire risk and the effects of bushfires on the community. QFES implements this strategy through performing controlled hazard-reduction burns, upgrading fire trails, and running community engagement activities. The original audit found some limitations with this strategy, including that QFES regions did not consistently:

- provide a detailed description of the bushfire hazard to head office
- stipulate time frames for all mitigation activities to occur
- provide regular status reports on the outcome of their mitigation activities
- capture the risk remaining after hazard reduction activities.

This lack of a complete picture impeded QFES from identifying and addressing statewide bushfire risk in a timely and efficient manner and increased their reliance on regions to self-manage.

In response to our 2014 original audit, QFES only partially agreed with this recommendation. QFES advised that the management of fuel loads remains the responsibility of landholders. We note that under Section 69 of the *Fire and Emergency Services Act 1990*, QFES has a regulatory role to ensure this occurs.

Progress made

QFES has improved its bushfire mitigation planning process by using area fire management groups and tools such as REDI-Portal. But it needs to do further work to better address all phases of disaster management and to effectively manage Queensland's residual bushfire risk.

QFES's bushfire planning documents, including regional wildfire mitigation and readiness plans and bushfire risk mitigation plans, cover three elements of disaster management—prevention, preparedness, and response—but not the fourth element—recovery. QFES advised that it assisted with recovery efforts after disasters, such as cyclones Marcia and Debbie, by conducting activities to help the environment recover from the additional fuel loads resulting from the disaster. However, QFES planning documents do not cover the bushfire recovery element as required by the *Queensland State Disaster Management Plan*.

QFES regions have only started to develop bushfire risk mitigation plans at a local government level. Until bushfire risk mitigation plans are established at the local government level and QFES planning documents include the recovery element, not all key phases of disaster management will be addressed, as required by the *Queensland State Disaster Management Plan*.

Wildfire mitigation and readiness plans

We reviewed the wildfire mitigation and readiness plans for four regions: North Coast, Brisbane, Far North, and Central. As these plans focus on response, they provide information such as lists of incident classifications, alert levels, resources, and information about strike teams and incident control centres. The bushfire risk mitigation plans aim to cover prevention and preparation elements.

Hazard mitigation planning

Since the original audit, QFES has required each region to prepare bushfire risk-mitigation plans for each local government area, to identify respective high-risk localities and propose strategic actions to reduce those risks. The regions are required to review these plans annually and provide them to relevant stakeholders, including local governments, to consider in their mitigation planning processes.

The regions have only started to develop these. For example, at June 2018 the Central region had developed these plans for only three of its 14 local government areas while the Far Northern region had developed plans for four of its 21 local government areas. Both regions advised that they were behind in preparing these plans, mainly due to resource constraints.

The AFMG process which is key to preparing these plans, is still maturing in many local governments particularly in the Far Northern region. QFES advised that it is working with various stakeholders to improve this process.

The goal of these plans is to encourage stakeholders, such as land managers and owners, to be proactive about bushfire hazard-and-risk mitigation. The plans focus on prevention and preparedness and complement the wildfire mitigation readiness plans. These plans should reflect agreement by AFMGs on key locations for bushfire risk in a given year, and the activities proposed to reduce these risks.

Local action plans

QFES develops local action plans to identify key risk locations and document appropriate mitigation and response strategies. Local action plans are an internal operational tool for rapid response to fire incidents. They are different from local bushfire plans, which are external documents QFES provides to high risk communities to inform them about their bushfire risks and how to prepare and respond to bushfires.

During the original audit, QFES could not assure us that all bushfire-prone locations in Queensland had a local action plan. QFES relies on individual regions to develop local action plans for their identified high risk areas, but does not centrally monitor whether these plans exist for all bushfire-prone areas.

QFES has 544 local action plans in five of its seven regions across the state. QFES does not know what percentage coverage these 544 plans represent of high risk areas. The area of Queensland that is bushfire-prone is very large and QFES advised that a plan for every bushfire prone area is unlikely to be achieved.

Instead, QFES's focus is on the locations where there are particularly high risks with some known special requirements (for example, a particularly vulnerable population). QFES aims to ensure that there is sufficient information available, including the predictive fire-modelling tools, to support response or mitigation activities.



Next steps

For QFES to completely address this recommendation, it needs to ensure its bushfire planning documents cover all phases of disaster management. It also needs to continue to support area fire management groups in developing their bushfire risk mitigation plans. Without appropriately covering the recovery element, and without having plans at the local government level, not all key phases of disaster management are covered as required by the *Queensland State Disaster Management Plan*. QFES advised that it is developing a document to outline how its various plans fit together and cover key requirements.

Reducing bushfire risks

In 2014–15, we recommended that QFES formalise the role of fire management groups to manage Queensland's fuel loads, including reporting planned and conducted hazard-reduction burns and the effectiveness of hazard-reduction burns.

The original audit found that the area fire management groups were not operating effectively to reduce and manage the state's fuel loads. There were insufficient planning processes to ensure required hazard reduction burns were occurring. Group members were not effectively sharing their fire management plans and the existing planning arrangements did not capture each agency's planned and conducted hazard reduction burns or the level of risk remaining. There was also no process to review the effectiveness of each member's mitigation activities.

Progress made

QFES has formalised the role of area fire management groups to manage Queensland's fuel loads, including reporting planned and conducted hazard-reduction burns. However, QFES needs to make greater use of its bushfire simulation tools, such as Phoenix, so it can measure the effectiveness of hazard reduction burns.

QFES has developed terms of reference for area fire management groups to identify their role in encouraging, supporting and coordinating bushfire mitigation activities. The groups are currently using a combination of REDI-Portal information on potential risks and their local knowledge to identify priority mitigation areas and activities for protecting their communities. The group members are more effectively sharing their prescribed burning plans and wildfire response capabilities. The groups are required to compile identified risks and priority mitigation activities into bushfire risk-mitigation plans based on local government areas.

Reporting on hazard-reduction burns

During the Operation Cool Burn period, QFES regions provide fortnightly progress updates on their delivery of priority activities to head office. QFES regions report the number, type and location of each bushfire risk mitigation strategy. These strategies include priority activities such as hazard-reduction burns, upgrades of fire trails, and community education activities. These activities are based upon risk to the community and are mainly located close to communities with a higher bushfire risk. These activities do not include many prescribed burns, which are conducted for other purposes such as to encourage ecological outcomes.

At the completion of the Operation Cool Burn period, QFES develops a final statewide report that provides information on mitigation activities performed in priority areas statewide. Of the 225 planned hazard reduction burns in 2017, 131 were completed (58 per cent). QFES advised that weather conditions and resource constraints affected stakeholders' ability to complete the mitigation activities.

While many agencies contribute to bushfire hazard reduction through fuel-load management activities, landowners can play a significant role in managing fire risk on their land. But regions have advised that it is sometimes difficult to get landowners to cooperate. Under Section 69 of the *Fire and Emergency Services Act 1990*, QFES has authority to issue notices requiring any occupier of a premises to reduce the fuel load on their land. However, QFES rarely uses this authority. QFES informally asks private land occupiers with excessive fuel loads to reduce the risk on their properties, but does not record the risk level, number of requests it makes, or the outcome.

Effectiveness of hazard-reduction burns

QFES requires regions to assess and record the remaining hazard risk at the identified community hotspots after the relevant stakeholders have completed their mitigation activities. We reviewed the residual hazard exposure report for 2017 and noted that all regions had recorded their assessments. Regions advised that, while these assessments are important, they may not always be performed appropriately. The assessments require good knowledge of fuel load and considerable effort and time to make accurate evaluations of hazard reduction burns.

Bushfire simulation tools such as Phoenix can be used to provide a more effective and efficient means of assessing the success of mitigation activities. Phoenix is part of the Simulation Analysis-based Risk Evaluation (SABRE) platform. SABRE provides the ability to visualise the hazard and how a hazard-reduction burn will change the relative risk. Bushfire simulation tools can identify the residual risk by modelling the risk of bushfires to communities, infrastructure, and the environment. The latest fire history can be included to quantify current risk and this can be altered, based on burning that is completed or scheduled for the future. For example, QFES evaluated the effectiveness of a major multi-agency hazard reduction burn in 2016–17 at Tamborine using Phoenix, based on fuel loads before and after the burn. The results helped measure the effectiveness of the burn and how its impact changed over time.

Next steps

While QFES has formalised the role of area fire management groups, to completely address this recommendation, QFES needs to:

- regularly use bushfire simulation tools to evaluate and provide more accurate and timely assessments of hazard reduction burns across all regions
- continue working with stakeholders to ensure key planned mitigation activities such as hazard reduction burns are completed in a timely manner to reduce identified bushfire risks.



Developing local bushfire plans

In 2014–15, we recommended that QFES work with local councils to develop and communicate local bushfire plans for communities located in high-risk bushfire-prone areas.

Local bushfire plans help communities understand their bushfire risk and provide them with emergency information to prepare for, and respond to, this threat effectively. In our original audit, we found that the Queensland Government incorrectly assessed that local disaster management plans, developed by local councils, achieved this purpose. The local disaster management plans covered 'all hazards' in the entire council area, not specific communities within a council's borders that face bushfire risk.

Progress made

While QFES has been working with local councils to prepare high risk communities for the threat of bushfires, these communities still do not have local bushfire plans. Instead, QFES and local councils are using other channels to inform communities about bushfire risks and encourage individuals to develop their own bushfire survival plans.

Local bushfire plans

QFES advised that it is important for each household to prepare its own bushfire survival plan. This helps create ownership of the plan by the individual households, with planning designed to fit their specific circumstances. While bushfire survival plans address many aspects of the local bushfire plan requirements, some additional critical information is included in local bushfire plans. This includes information such as local area bushfire exposure risk levels, local area threat-maps, and neighbourhood safer places (pre-identified areas where people can go in the event of a bushfire). The purpose of local bushfire plans is to assist residents to identify their fire risk level and their safety options, and to develop their own bushfire survival plans. We acknowledge that QFES provides some supporting information on its website for households such as how they can know their bushfire risk.

Despite QFES's efforts in encouraging individual household to prepare their bushfire survival plans, a significant number of households surveyed in bushfire risk areas still do not have a bushfire survival plan. Based on surveys commissioned by QFES in 2017, of the people that were at risk from a bushfire, 47 per cent did not have an evacuation plan, while 37 per cent were not aware of the bushfire warning levels.

At a broader level, councils develop local disaster management plans that include information on all disasters in the whole council area. These plans do not tailor bushfire safety options to the needs of individual communities at risk of bushfire, nor do they identify for these communities specific and critical information such as evacuation and shelter options, a list of neighbourhood safer places, and bushfire warnings.

Local councils are key members of area fire management groups (AFMGs) and council officers are invited to AFMG meetings and are involved in preparing bushfire risk mitigation plans. As such, council staff are expected to be aware of the content of these plans during their development. QFES also approaches local councils to endorse these plans when it finalises them.

However, we found that, when councils do their local disaster management planning, they either do not consider the risks AFMGs have identified in the bushfire risk mitigation plans, or QFES has not provided this information and supporting data to AFMGs in a timely manner. QFES acknowledges that the understanding of the bushfire planning process and the role of AFMGs can vary between different local disaster management groups and it has identified a need to further enhance this understanding.

Vulnerable populations

Maintaining active and accurate lists of vulnerable residents and their service providers continues to be a challenge for all stakeholders involved in emergency services. Local councils, state agencies, and non-government organisations have established various arrangements to support vulnerable residents during a disaster. However, these arrangements still lack coordination.

The REDI-Portal tool includes mapping of some vulnerable-persons' buildings such as aged-care facilities to help in planning, preparation and response to bushfires. While updates as recent as 2017 for some of these datasets, such as aged-care facilities, are publicly available, the data in REDI-Portal was last updated in 2013. REDI-Portal does not include information on individual vulnerable-persons' dwellings. The existing arrangements are limited in effectively planning for the needs of vulnerable residents, which may jeopardise residents' safety during a bushfire.

Next steps

For QFES to completely address this recommendation, it needs to continue working with local councils to ensure communities in high-risk bushfire-prone areas are provided with tailored local bushfire safety information and support. This will assist residents in preparing against the threat of bushfires by understanding their risk levels and in developing their own bushfire survival plans.

Preventing arson

In 2014–15, we recommended that QFES develop and implement a coordinated strategy to address arson, with the aims of deterring would-be offenders and rehabilitating convicted offenders.

The original audit found that QFES ceased delivering its two arson prevention programs, the Fight Fire Fascination program and the Juvenile Arson Offenders program, in September 2012. This was despite independent evaluations of Queensland's arson prevention programs reporting high levels of satisfaction and low levels of subsequent fire lighting.

Our original audit also found that QFES did not have a formal process to report fires determined as incendiary (deliberately lit) or suspicious to the Queensland Police Service.

In response to our 2014 original audit, QFES only partially agreed with this recommendation. QFES advised that it does not hold expertise in rehabilitating offenders.



Progress made

Arson offenders in Queensland are still not receiving the education and rehabilitation required to deter them from engaging in arson. QFES has not yet developed and implemented a coordinated strategy to address arson and deter would-be offenders. We acknowledge QFES does not have the expertise to rehabilitate offenders, but it has not partnered with other agencies to develop a strategy to achieve this outcome.

No agency in Queensland has oversight of arson occurring across the state. With the establishment of a working group represented by various stakeholders, QFES is currently exploring opportunities for sharing information regarding bushfire arson with partner agencies.

Arson prevention programs

QFES reinstated the Fight Fire Fascination program in 2016. The program is a preventative strategy to proactively deal with the problem of fire play/setting by children and young people. In 2017, QFES delivered this program to 132 participants, but has not yet established a process to assess the program's effectiveness.

QFES does not have any plans to reinstate its Juvenile Arson Offenders program. This program was a structured rehabilitation program that educated juvenile offenders about the dangers of fire as well as the emotional, financial and community costs of arson. The judicial system and other government agencies referred individuals to the program. QFES has advised that it does not have expertise to rehabilitate offenders.

Arson data sharing

QFES has not developed a formal process to report fires determined as incendiary (deliberately lit) or suspicious to Queensland Police Service. QFES has established a working group to better understand and investigate opportunities for sharing bushfire arson information with partner agencies. This working group includes stakeholders involved in managing bushfire arson from QFES, Queensland Police Service, the Department of Environment and Science and private industry. The group held its first meeting in December 2017.

Next steps

We acknowledge that QFES needs to collaborate with key stakeholders such as Queensland Police Service to completely address this recommendation. To achieve this, QFES needs to:

- continue working with Queensland Police Service to develop and implement processes and systems to effectively share bushfire arson data. This will enable both QFES and Queensland Police Service to bring together data from various sources to help identify trends in arson, the people involved, and the places where it is happening. The data systems should also allow fire investigators to access the information they require more effectively and efficiently
- partner with agencies who have the appropriate expertise to ensure arson offenders in Queensland are provided with the education and rehabilitation required to deter them from reoffending.

2. Preparing communities for the threat of bushfires

This chapter covers progress made by Queensland Fire and Emergency Services in improving engagement with communities to better prepare and respond to bushfires.

Bushfire safety education

In 2014–15, we recommended that QFES increase its focus on monitoring the effects of the educational materials it develops.

The original audit found QFES's existing systems did not accurately capture the types of training, numbers of participants, and locations of proposed or completed bushfire education activities across the state. Regions found it difficult to accurately identify the high-risk bushfire-prone locations that received bushfire education and to use the system to target their community education activities. Nor did QFES have systems to evaluate the effectiveness of its bushfire education materials.

Progress made

QFES has increased its focus on monitoring the effects of its bushfire educational materials. It recently began a review of its community engagement materials as a first step in applying a process of continuous improvement to its educational materials. Since the original audit, QFES has also started using the REDI-Portal tool for identifying and targeting bushfire education to high-risk bushfire-prone areas.

QFES knows through its own review that it needs to improve its bushfire education materials so communities are better prepared for the risk of bushfires. There is also a risk that school children in high risk bushfire-prone areas are not being provided the knowledge and skills to prepare for and respond effectively to bushfires.

Targeting bushfire education

While QFES has delivered 71 per cent less community engagement activities since 2014 (844 in 2014 compared to 248 in 2017), its bushfire education activities are now more targeted to higher-risk areas. These activities include using rural fire brigade members (including volunteer community educators) in a face-to-face approach.

QFES regards this targeted, direct, face-to-face contact with people in high-risk areas as a particularly important education tool in communicating not only risk, but also appropriate individual planning and preparation. Also, QFES is reaching out to more people using radio, television and social media than before.



QFES is also now using a more risk-based approach by engaging stakeholders in various forums such as area fire management groups and using information from the REDI-Portal. QFES regions are using the REDI-Portal to report on planned and completed bushfire education activities.

QFES also uses its volunteer community educators (VCE) program to deliver bushfire education. This allows volunteers to play a crucial role in educating the community. This program involves training suitably interested volunteers to educate people in all phases of disaster management. However, voluntary community educators still deliver a significant number of educational activities that are not reported. QFES is currently trialling a program, 'iAuditor', which offers some options for volunteers to more easily record their community engagement activities.

Effectiveness of bushfire education

QFES has not fully developed or implemented evaluation systems to review the effectiveness of its bushfire education, including capturing feedback from participants. For its school-based programs, QFES requests feedback from people who have downloaded the programs from its website. But this process has not been fully effective because only a limited number of users have provided feedback.

Each year since 2004, QFES has undertaken research with Queensland households to measure their level of preparedness for fire and emergency events. Prior to 2017, QFES only assessed whether people who lived in an area at risk of bushfires had a bushfire survival plan. In 2017, the survey included questions to measure the proportion of Queenslanders that understood their local hazards, and their level of preparedness based on those hazards. The 2017 results showed that 25 per cent of people surveyed were at risk from a bushfire in Queensland. Of these people:

- 47 per cent did not have an evacuation plan
- 37 per cent were not aware of the bushfire warning levels.

Review of community engagement materials

In February 2018, QFES began a review of its community engagement materials as a first step in a process to develop high quality materials that are relevant to Queensland's hazards and risks.

QFES completed this review in June 2018 and identified several key issues relating to its community education materials:

- No formal structure or style guide exists for creating or reviewing community engagement materials. Materials are created at regional or local level without any guidance or quality control, resulting in duplication of resources and the risk of incorrect messaging.
- The current suite of community engagement materials is service-based, such as the Rural and Fire Service, and branded accordingly. Materials should be hazard-based and QFES branded so they can be used by all QFES staff and volunteers at any event.
- There is a culture of providing educational materials without thinking about what message QFES is trying to give to the community.
- There is evidence of 'warehousing' of products in each region, which creates problems, including stock becoming out of date, and levels being depleted and unavailable for the rest of the state.

School curricula

In our original audit we noted that the interdepartmental committee the Queensland Government established to respond to the 2009 Victorian Bushfires Royal Commission's review, failed to plan the implementation of the revised national curriculum on bushfire education in Queensland schools. This contributed to Queensland's Department of Education (formerly the Department of Education, Training and Employment) and QFES replicating each other's efforts in developing educational materials for schools. QFES and the Department of Education did not collaborate in the development of their school-based bushfire education resources.

We found that QFES uses a wide range of tools such as radio, television, social media and bushfire survival plans, to communicate bushfire advice and warnings to Queensland communities, including school children. QFES cannot contribute to the school curriculum but it has developed information about bushfires suitable for school children. It publishes this on its own website. However, it has not reviewed and updated one of its key programs, 'Bushfire Ed', on its website since it was first developed in 2014. QFES has advised that it has created a draft rewrite and is waiting for feedback and finalisation. The 'Bushfire Ed' resources were designed to help students in years five and six understand the dangers of bushfires, their causes and effects, and to promote bushfire safety awareness.

QFES also promotes community education by collaborating with the Department of Education through the State Inter-Departmental Committee for Bushfires. Despite these efforts, it is unclear whether schools in high risk bushfire prone areas are aware of QFES's bushfire materials or whether school children are receiving the education they require to prepare effectively for bushfire threats. In 2017, the QFES 'Bushfire Ed' was downloaded only 41 times from its website. QFES and its Rural Fire Service volunteers conduct educational sessions at the direct request of schools, but they primarily focus on general fire safety rather than bushfire safety.

Next steps

We acknowledge that QFES has to collaborate with stakeholders like the Department of Education to completely address this recommendation. To achieve this, it needs to:

- develop and implement evaluation systems to review the effectiveness of its bushfire education programs
- continue to collaborate with the Department of Education to ensure that school children in high-risk bushfire areas are taught the knowledge and skills to prepare for and respond effectively to bushfires
- develop and implement a project plan to address the recommendations from its review of its community engagement materials in a timely and effective manner.



Bushfire warnings and alert protocols

In 2014–15, we recommended that QFES review and amend its bushfire warnings and alert protocols to provide clear and consistent messages to residents about the action to be taken before and during a bushfire.

QFES uses various means, such as radio, television, social media, and its website to communicate bushfire advice to Queensland communities. This includes communicating the predicted passage and severity of a fire, and the action residents should take.

Our original audit identified deficiencies with QFES's bushfire warning and alert protocols, including that:

- Bushfire warning messaging for Emergency Alert was inconsistent and did not inform residents of the most appropriate action to take during a bushfire.
- Mt Glorious and Mt Nebo Early Warning Systems were not regularly tested and not operating effectively.
- QFES could not provide assurance that fire danger rating signs across Queensland were displaying the correct fire danger rating.

Progress made

Bushfire warnings provided to communities are standardised nationally. In 2017, working with the Queensland University of Technology, QFES reviewed and amended its bushfire warnings and alert protocols and is now providing consistent messages about the action communities should take before and during a bushfire.

QFES as a member of the Australasian Fire and Emergency Service Authorities Council (AFAC) warnings group, participates in continuous improvement reviews. QFES advised that it will continue to collaborate nationally and within Queensland to develop and implement new tools and technologies such as any new tools which are required as a result of the national Fire Danger Rating system review.

To improve the issue of timely and accurate warnings to communities, QFES provides training to Public Information Officers (QFES operational staff) who play a key role both in warnings and in broader communication at incidents. Despite these efforts, based on surveys commissioned by QFES in 2017, a significant number of households in high risk bushfire areas are still not aware of the bushfire warning levels.

While QFES finds mechanisms such as radio, television, social media and its website more effective in advising communities about hazard threats, it still uses other tools such as Emergency Alerts, Early Warning Systems, and fire danger rating signs. As identified in the original audit, there is still limited assurance that these tools are operating effectively.

Emergency Alert

Emergency Alert is the national telephone warning system that sends voice messages to landlines and text messages to mobile phones within a defined area about likely or actual emergencies. QFES can use this tool to inform communities about bushfire risks, but it has not used it for this purpose since it was implemented.

Our original audit found that QFES had developed Emergency Alert messaging templates to be used for issuing bushfire warnings. However, the templates had inconsistent messaging content and there was the potential that residents in the same community and under the same threat could act differently, depending on whether they receive a text warning or voice warning.

QFES is currently reviewing its Emergency Alert templates, considering some limitations of the Emergency Alert system. For example, a bushfire warning includes specific details about the type of fire, expected time of impact, and who is likely to be affected. However, QFES advised that the Emergency Alert process does not enable the 'who' to be as specific.

When sending details of required actions to people at risk, there is no guarantee the message will reach its intended audience in time, which can cause confusion and possibly send people into dangerous situations. For example, if a household receives an Emergency Alert some time after a warning is issued that advises people to leave immediately, the household may miss the opportunity to leave before it is too late. QFES advised that the current review process is favouring a generic bushfire warning message be issued in the Emergency Alert, which will point recipients to the full details of the bushfire warning.

Early Warning System

The communities of Mt Nebo and Mt Glorious within the Moreton Bay Regional Council are in high-risk bushfire-prone areas. QFES uses various means to deliver bushfire warnings to these communities including its website, radio, television, social media and Early Warning Systems.

While QFES has advised that the Early Warning Systems are not the most effective means for delivering bushfire warnings compared to other forms such as social media and its website, these systems are still used to inform communities of a bushfire threat.

According to a Memorandum of Understanding agreement signed in 2012 between various stakeholders, QFES is required to test and activate the system, which the Moreton Bay Regional Council owns. Our original audit found that QFES did not test these systems as required and they were not operating effectively. We reviewed the Mt Nebo and Mt Glorious test records from January 2017 to May 2018 and found that they show insufficient details of testing compared to 2014. We could not determine from the test records if QFES tested how well the sirens can be heard in the relevant communities.

Fire danger rating signs

One of the many channels QFES uses to inform communities about bushfire risks and fire dangers includes the fire danger rating signs. QFES advised that the fire danger rating signs are not the most effective means of communicating bushfire risks, as it is a human-based system and QFES cannot provide assurance that the signs across Queensland are displaying the correct fire danger rating and are informing communities of the current level of risk. The accuracy of each fire danger rating sign rests with the diligence of a responsible officer or brigade member.

While QFES uses various means to communicate fire danger risks to communities, inaccurate fire danger rating signs could result in conflicting messaging and lead to complacency if the appropriate level of warning is not displayed.

QFES has also not recently assessed, and does not know, how familiar members of the public are with the fire danger rating and the message for each rating. In our original audit, we noted that QFES last surveyed communities in August 2010 to assess the effectiveness of the Prepare. Act. Survive. campaign. Of respondents surveyed in 2010, 73 per cent were unaware that emergency agencies had implemented a new fire danger rating and national bushfire warning system.

The Fire Danger Rating system is currently under national review in collaboration with all jurisdictions, including Queensland. QFES is monitoring the outcomes and recommendations of the review to ensure it uses a consistent approach for its own fire danger rating system.



Next steps

While QFES continues to use traditional media such as radio and television to inform communities about bushfire threats, its use of contemporary channels such as social media is also reaching out to more communities. For example, between April and December 2017, over 500 000 people engaged with QFES's bushfire related content through Facebook.

For QFES to completely address this recommendation, it needs to:

- work with key stakeholders to review the effectiveness of various tools, such as Early Warning Systems, that QFES uses to inform communities of bushfire threats. While using a range of tools provides more channels of communication, having tools that cannot provide assurance of effective performance, could lead to inconsistent messaging and confusion, which could be life-threatening
- keep sufficient detail of its testing of the Early Warning Systems at Mt Nebo and Mt Glorious so it is clear how well the sirens can be heard
- ensure the outcomes and recommendations from the national review of the Fire Danger Rating system are addressed effectively and in a timely manner.



Appendices

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A. Full responses from agency

As mandated in Section 64 of the *Auditor-General Act 2009*, the Queensland Audit Office gave a copy of this report with a request for comments to the Commissioner of the Queensland Fire and Emergency Services.

The head of this agency is responsible for the accuracy, fairness and balance of their comments.

This appendix contains their detailed response.

Comments received from Commissioner, Queensland Fire and Emergency Services



Ph: (07) 3635 3883
Our Ref: 03501-2018



Office of the
Commissioner
**Queensland Fire and
Emergency Services**

26 SEP 2018

Mr Brendan Worrall
Auditor General
Queensland Audit Office
PO Box 15396
City East QLD 4000

Dear Mr Worrall

Thank you for your correspondence dated 6 September 2018, regarding the follow up on *Report 10: 2014-15 – Bushfire prevention and preparedness* and the opportunity to comment on the proposed report prior to its tabling in Parliament.

Queensland Fire and Emergency Services (QFES) has undergone significant change over recent years and your report provides timely feedback as this transformation progresses. QFES has increased its focus on the Prevention, Preparedness, and Recovery aspects of its work, including bushfire management, without compromising its operational Response capabilities. In this full Prevention, Preparedness, Response, and Recovery (PPRR) context, it is pleasing to see that the report confirms significant improvements in several areas while highlighting areas for further improvement.

QFES recognises that bushfire management is a dynamic, fast changing field and will continue to adapt to changing knowledge and best practice, benchmarking itself against other similar agencies nationally and internationally as well as leading in some areas. While techniques and practices may change over time, the objective remains the same; protection of Queensland's communities through the full PPRR cycle.

To aid clarity, I have addressed the various areas as they are laid out in the report and particularly focussed on the next steps recommended.

Identifying bushfire risks

It is particularly pleasing that the report recognises the increased engagement with QFES partners and stakeholders in bushfire management, as this is critical to improved coordination and leadership of bushfire mitigation and management of bushfire risk. The follow up report highlights the improved management of Area Fire Management Groups (AFMGs) and the systems developed to support these groups.

As recommended, QFES will continue to work with local government to establish further AFMGs, especially in indigenous local government areas. In addition to this, QFES is working to build partnerships with indigenous groups; similar to our partnership with the Carpentaria Land Council through the Jigija program.

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QFES recognises its role in leading and coordinating bushfire mitigation and has developed several new systems and tools since the original report. As recommended, QFES will be rolling out its updated risk assessment methodology to all regions for use in Operation Cool Burn 2019. QFES will remain engaged nationally in further developments through its connections with the Australasian Fire and Emergency Service Authorities Council (AFAC) and with other international agencies.

Since 2015, QFES has developed a leading capability to undertake quantitative bushfire simulation-based and general analytics to support best practice bushfire mitigation planning and decision support. This capability uses remote sensing data and current science from its partners to develop a regularly updated high resolution fuel map. However, as recommended in the report, the fuel load data from land managers and QFES personnel needs to be collected more effectively; QFES agrees and will continue to enhance its collection of such data.

Planning to prevent and mitigate

QFES is committed to all four stages of PPRR and will work to better demonstrate the link between its various plans. QFES has been developing a 'Queensland's Bushfire Preparedness' document which links these various plans, and this will be finalised prior to Operation Cool Burn 2019. QFES will also continue to support AFMGs in their important work and build relationships with local governments and their associated local and district disaster management groups.

Reducing bushfire risks

QFES has a continuing commitment to enhancing and maturing the workings of the AFMGs to improve mitigation planning and coordination. In doing this, QFES recognises that the land owner/manager is responsible for managing the hazards on their property and that QFES has a leadership and coordination role. QFES will continue to work collaboratively with land owners to support ongoing risk reduction, including prioritising QFES support for risk reduction activities.

QFES recognises the importance of evaluating the effectiveness of hazard mitigation activities as part of growing evidence-based methodologies. We will continue to provide tools to support our partners in evaluating their activities and to improve our own evaluations.

Developing local bushfire plans

As noted in the report, QFES does not rely on any one channel to inform Queenslanders, instead proactively using a wide variety of mediums to communicate. QFES has emphasised the development of Bushfire Survival Plans so that individuals will understand and actively plan for their circumstances and rehearse the plan.

QFES acknowledges the critical importance of local governments in disaster management and their role under Queensland's disaster management arrangements. We agree that the AFMG process is very important in this regard and will continue to improve our engagement with local governments through these groups. QFES also recognises the importance of up to date information on local risks to support planning; and will continue to ensure that current and accurate information on bushfire risk is available to local governments and the public.

Preventing arson

QFES values our partnership with the Queensland Police Service in preventing arson. QFES will continue this work through the Bushfire Arson Working Group to further develop opportunities to reduce the nature and impact of arson.

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Bushfire safety education

As recommended, QFES will continue to improve its evaluation and delivery of its education programs. As the report notes, QFES uses a variety of tools to deliver education messages, recognising the diversity of the target audience, our Queensland communities. Reaching all Queenslanders is a significant challenge requiring the collaboration of many partners. QFES will continue to build a relationship with education authorities to improve the value and effectiveness of bushfire education materials and campaigns. We do note however that bushfire education in schools is very much a shared responsibility, and QFES does not control and nor do we have expertise in balancing the many competing priorities in the education curriculum space.

Bushfire warnings and alert protocols

The report notes the critical importance of consistency in bushfire warnings. QFES is an active member of the AFAC Warnings Group, employing wording consistent with national standards for bushfire warnings to aid public understanding. As noted in the report, QFES has worked with the Queensland University of Technology to evaluate and further improve warning messages.

QFES also contributed to research with the Central Queensland University and the Bundaberg Regional Council on the public's psychological preparedness for disasters, which is linked to the public's response to warning messages. QFES presented this research at the AFAC national conference and the research paper is due to be published by the Bushfire and Natural Hazards CRC and the Australian Journal of Emergency Management shortly.

QFES is also a member of the project board for the National Review of the Fire Danger Rating System; the outcomes of this review are likely to have significant implications for the communication of fire danger. QFES is actively monitoring the progress of this review to address the outcomes effectively and in a timely manner.

The report notes that the warning siren system at Mount Nebo and Mount Glorious is owned by the Moreton Bay Regional Council, and that testing of the system needs to be considered in the context of the work on bushfire warnings across Queensland, and the new communications technologies available. QFES will continue to collaborate with the Council to support this initiative and other local solutions elsewhere. Within these shared responsibilities and roles, it is the broader warnings which can reach and be understood by an increasingly mobile Queensland community that QFES treats as the highest priority.

QFES welcomes the report and its recommendations and will strive to improve outcomes in the areas highlighted by the report. We will continue to work collaboratively with our key partners and stakeholders consistent with our shared accountabilities for bushfire prevention and preparedness.

Should you require any further assistance, please contact Superintendent James Haig, Office of Bushfire Mitigation on telephone (07) 3635 3883 or email James.Haig@qfes.qld.gov.au.

Yours sincerely



Katarina Carroll APM
Commissioner

B. Audit objectives and methods

The objective of the audit is to assess whether Queensland Fire and Emergency Services (QFES) has effectively implemented the recommendations made in Report 10: 2014–15 – *Bushfire prevention and preparedness*.

The audit addresses the objective through the sub-objectives and lines of inquiry set out in Figure B1.

Figure B1
Audit scope

Sub-objectives		Lines of inquiry	
1	QFES has actioned the recommendations.	1.1	QFES has implemented the recommendations in accordance with its response or has taken appropriate alternative actions.
		1.2	QFES has implemented the recommendations in a timely manner.
2	QFES has addressed the underlying issues that led to the recommendations.	2.1	QFES has addressed the issues that led to the recommendations.
		2.2	QFES's actions have resulted in improvements in preventing and preparing for bushfires.

Source: Queensland Audit Office

Entity subject to this audit

Queensland Fire and Emergency Services.

Audit approach

We conducted this audit in accordance with the Auditor-General of Queensland Auditing standards, which incorporate the Australian Auditing and Assurance Standards.

The audit was conducted between March 2018 and July 2018. The audit included:

- interviews with Queensland Fire and Emergency Services at its head office, four of its regions and three local councils
- documentation review, including analysis of policies, plans, reports, guidelines and manuals.

We selected four of the seven QFES regions to assess how effectively QFES had implemented our original audit recommendations at the regional level. These four regions were North Coast, Far Northern, Central and Brisbane.

Auditor-General reports to parliament

Reports tabled in 2018–19

1. **Monitoring and managing ICT projects (Report 1: 2018–19)**
10 July 2018
2. **Access to the National Disability Insurance Scheme for people with impaired-decision making capacity (Report 2: 2018–19)**
27 September 2018
3. **Delivering shared corporate services in Queensland (Report 3: 2018-19)**
27 September 2018
4. **Managing transfers in pharmacy ownership (Report 4: 2018-19)**
28 September 2018
5. **Follow-up of Bushfire prevention and preparedness (Report 5: 2018-19)**
9 October 2018



Audit and report cost

This audit and report cost \$118 000 to produce.

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Performance engagement

This audit has been performed in accordance with ASAE 3500 *Performance Engagements*.

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