

## Major Incident Review of Toodyay Fire December 2009

### Final Report

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## EXECUTIVE SUMMARY

Fire & Emergency Services Authority of Western Australia (FESA) commissioned a Major Incident Review (MIR) of the Toodyay Bushfires of 29 December 2009. Noetic Solutions Pty Ltd (Noetic) was contracted by FESA to undertake this Review. An MIR is undertaken where natural disasters cause significant damage and/or deaths occur. The Toodyay Bushfires was one of the most damaging bushfires in Western Australia's history. While no lives were lost, and only minor injuries reported, it destroyed 38 homes, burned nearly 3000 hectares of land, and caused more than \$50 million in damage.

In undertaking this Review, Noetic conducted an extensive document review including details of the incident and its impact, organisational de-briefs, and relevant legislation, plans and procedures. The Review Team consulted with over 30 stakeholders within FESA, representatives from government departments and local government, and reviewed written submissions from various organisations and members of the public. The Review Team also conducted a visit to the fire ground to gain a greater appreciation of the incident and assess the impact of the bushfire. The Review was conducted using the emergency management cycle framework – prevention, preparation, response and recovery. This report outlines a set of observations, lessons and most importantly, actions to ensure that lessons are in fact learnt.

### Key Findings

It is important to contextualise the Review findings in terms of the severity of the bushfire. The fire conditions were some of the worst seen in Western Australia in recent years. The terrain in Toodyay is complex and was significant in not only influencing the fire behaviour and winds, but also accessibility to combat the fire in certain areas. The actions of FESA, its partner agencies and the community itself contributed to no lives being lost, and only minor injuries being reported. This reflects well on the operational effectiveness of FESA. It is the Review Team's view that there was nothing further FESA could have done that would have changed the outcomes of the fire. However, it is important that FESA learns the well earned lessons from the incident and not become complacent. The Review Team has no sense that this is the case and that FESA is seeking to learn from what went well and what did not go so well. While the outcomes of the Toodyay bushfires were the best that could be expected from a fire of such magnitude, this Review identifies a range of issues that FESA needs to address.

Western Australia's decentralised emergency management arrangements are a potential source of friction between FESA and Local Government. Recently enacted legislative amendments allow FESA to take control of incidents that exceed the expertise or capability of the initial Hazard Management Agency. These changes were made to address issues associated with fires that cross agency boundaries, inconsistencies across agency emergency management plans, and an inability of FESA to issue total fire bans in a targeted way. These changes however do not fully address issues associated with different local emergency management arrangements and their respective levels of competency. The lack of interoperability between agencies also creates a potential risk to future operations. The decentralisation of command is not consistent with the tenants of effective command – 'unity of command' and 'clarity'. In the case of the Toodyay fires, the Review Team believes that strong personal relationships rather than formal emergency management arrangements helped ensure operational effectiveness.

The Review identified a range of issues associated with FESA's response to the Toodyay Fire. The Incident Management Team (IMT) for the Toodyay fires did the best possible job they could with the resources at their disposal, however, it is apparent that the IMT was insufficiently staffed for an incident of this magnitude. For instance, additional Incident Controllers were dispatched to shadow and support the IMT, however, specific deputy staff (e.g. Deputy Controller, Deputy Operations Officer etc.) were not formally appointed. This impacted on the capacity of the IMT to perform its full range of responsibilities effectively (particularly in the early stages of the incident). It is important to note, however, that the Incident Controllers were instrumental in ensuring an effective response.

Inter-agency cooperation with key agencies was generally effective and contributed to the best possible outcome being achieved in Toodyay. A critical element of this success was the strong personal relationships at all levels of emergency response, however, at times there was an over-reliance on these relationships. This highlights the requirement for FESA to strengthen existing formal inter-agency arrangements (e.g. through training and exercising) to establish a level of certainty and common understanding in relation to inter-agency cooperation.

There was poor information flow to and from a variety of levels including the fire ground, the IMT, Regional Operations Centre, State Operations Centre and FESA Media. It is the Review Team's experience that the poor passage of information through the chain of command, particularly from the fire ground to the IMT, is endemic to all rural fire services in Australia. Similarly in Toodyay, there was a lack of appreciation of the importance of information and the integrity of the chain of command. This meant that decision makers did not always have accurate and up-to-date information. As such, FESA needs to review the adequacy of its current information exchange systems to ensure its information requirements are met. A key element of this will be developing a culture that automatically passes information up and down the chain of command.

Lessons are not learnt until something is done. The observations, lessons and actions identified in this Review are the beginning of a learning process for FESA. The success of the lessons learnt process will be measured by the effectiveness of the implementation phase. Therefore, FESA needs to work in partnership with its partner agencies and the community using a whole-of-state approach to successfully implement the actions in this MIR to ensure that lessons are in fact learnt.

## Recommendations

Recommendations have been made throughout the body of the report which highlight the major findings of the MIR. The report also details all observations, lessons and actions from the MIR in Annex A – Summary of Observations, Lessons and Actions. The following recommendations are made throughout the body of the report to address the range of issues identified.

**Recommendation 1:** FESA implements measures that will ensure unity and clarity of command.

**Recommendation 2:** FESA and DEC take a whole of capability approach to joint operations, including developing joint doctrine that provides a common and articulated understanding of roles and responsibilities, resources and capabilities.

**Recommendation 3:** FESA, in partnership with other agencies and the community, develops Western Australia's urban interface fire fighting capability and capacity.

**Recommendation 4:** FESA promotes a whole-of-community approach, involving FESA, Local Governments and the community, in fire prevention functions, activities and planning.

**Recommendation 5:** FESA strengthens its planning process to ensure learnings are incorporated and communicated, levels of preparedness are linked to threat analyses and public awareness and education activities are sustained.

**Recommendation 6:** FESA establishes a process (and associated systems and policies) to mobilise staff to an incident, incorporating pre-formed multi-agency Incident Management Teams. The development of Incident Management Teams should align with the principles of seamless and integrated escalation of command and control arrangements, and be based on a whole of capability approach (people, organisations, systems, training, procedures etc.).

**Recommendation 7:** FESA maintains inter-agency relationships and arrangements, and develops formalised arrangements across the entire emergency management cycle for joint activities such as training, exercises and procedure development.

**Recommendation 8:** FESA identifies and documents its information requirements for end-to-end information exchange and then assess the adequacy of current systems to meet these information requirements.

**Recommendation 9:** FESA establishes a dedicated intelligence function in Incident Management Teams for major bushfires and ensure this function is appropriately supported with threat based tools and systems.

**Recommendation 10:** FESA implements an education and awareness campaign to promote the purpose and utility of community information systems.

**Recommendation 11:** FESA reviews its approach to safety and safety culture.

**Recommendation 12:** FESA reviews its air reconnaissance capability and determines if multiple multi-sensor air reconnaissance aircraft or unmanned aerial vehicles are required for managing concurrent and/or complex incidents.

**Recommendation 13:** FESA revises its standard operating procedures to provide guidance on the format and timing of post-incident community meetings.

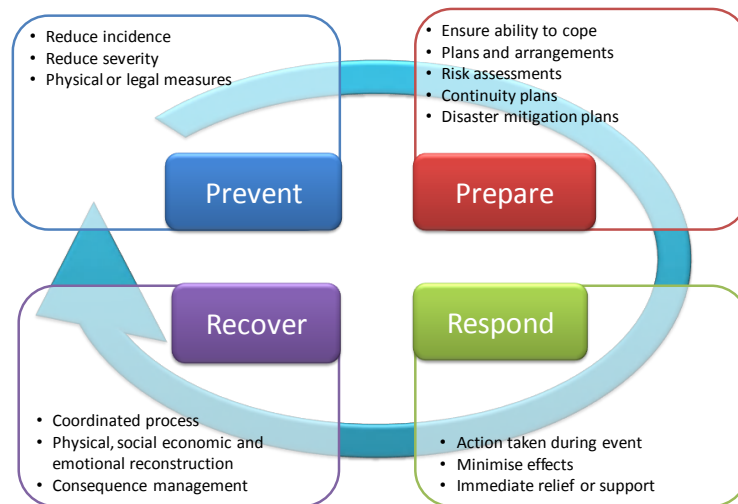
# INTRODUCTION

## Background

The Toodyay bushfire of 29 December 2009 was one of the most damaging bushfires in Western Australia's history. It destroyed 38 homes, burned nearly 3000 hectares of land, and caused more than \$50 million in damage.<sup>1</sup> As the agency responsible for facilitating the development and maintenance of emergency management arrangements for the State,<sup>2</sup> the Fire & Emergency Services Authority of Western Australia (FESA) has commissioned a Major Incident Review (MIR) into the Toodyay bushfire. FESA undertakes Major Incident Reviews (MIR) where natural disasters cause significant damage in order to learn lessons.<sup>3</sup> These reviews offer FESA strategic insights which allow it to improve the way it protects the Western Australian community.

FESA fulfils its charter through an emergency management cycle. This includes focussing on aspects of prevention, preparation, response and recovery – PPRR (as illustrated below in Figure 1). The MIR has adopted an approach that examines all aspects of the emergency management cycle to ensure the full spectrum of emergency management arrangements in Western Australia are examined, and areas for improvement identified.

Figure 1. Illustration of the emergency management cycle



This MIR is not investigative in nature and therefore does not provide a forensic analysis of the events or detail individual and collective actions related to the Toodyay Fire. Rather, the MIR has a lessons learnt focus. The ultimate objective of the MIR is to enable FESA to take necessary measures to help prevent (or minimise the risk of) disasters of this nature in the future, prepare for them should they eventuate, and respond and recover effectively to ensure the cost to humans and property are as low as possible.

<sup>1</sup> Fire and Emergency Services Authority of Western Australia, *Request for Quote: Quotation No FESA123210*, 2010.

<sup>2</sup> Fire and Emergency Services Authority of Western Australia, *About FESA*, <http://www.fesa.wa.gov.au/internet/default.aspx?MenuID=15> accessed 25 May 2010.

<sup>3</sup> *ibid.*

This report outlines the findings of the MIR. It initially provides a description of the event to set the context for the remainder of the report. The conceptual approach and methodology employed by the Review Team is then described. The findings of the report are structured into the emergency management arrangements described previously (prevention, preparedness, response and recovery). A range of broader organisational issues that pose a significant risk to future operations are also evaluated. Recommendations are made throughout the body of the report which highlight the major findings of the MIR. FESA and its partner agencies should also give consideration to all observations, lessons and actions identified in Annex A (*Summary of Observations, Lessons and Actions*) as not all of the lessons and associated actions are addressed in the body of the report (but they are detailed in Annex A). The report is structured in this way to ensure that the most important (and often complex) findings are analysed in detail, and the relatively simple lessons and actions are also documented.

## Aim

The aim of this report is to detail the lessons and implementation actions from the Toodyay bushfire on 29 December 2009.

## Terms of Reference

The Terms of Reference for the MIR are as follows:

- + examine all aspects of FESA activities relating to the incident including incident background, response factors, resourcing and communications and determine FESA's effectiveness at a strategic level;
- + assess the impacts and effectiveness of the new legislation – changes to the *Bush Fires Act 1954*;
- + assess the operational effectiveness of the new draft of the State Bushfire Emergency Management Plan (Westplan BushFire) 2009;
- + examine the effectiveness of FESA relationships with volunteers, industry, Local Government, government agencies and community groups during the incident response;
- + assess the strengths and weaknesses of FESA policies, procedures, practices and equipment standards relevant to the incident;
- + examine any other matters relevant to the incident;
- + identify opportunities to improve service delivery; and
- + assess the effectiveness of FESA Public Information systems related to and leading up to the event.

FESA's Incident Analysis Framework, which requires that the critical aspects of Prevention, Preparedness, Response and Recovery (PPRR) are addressed, is to be used to conduct the MIR.



## Event Description

A bushfire event occurred in the Toodyay area (approximately 50 kilometres north east of Perth) on 29 December 2009 that resulted in one of most damaging bushfires in Western Australia's history. The State had activated a range of prevention and preparedness arrangements in the lead up to the incident. A Fire Management reference group was established in August 2009 and met several times in the lead up to and during the fire season. The group oversaw the implementation of the agreed outcomes from the 2009 Victorian Bushfires Royal Commission.<sup>4</sup> It conducted a bush fire summit and pre season briefings in the lead up to an expected dangerous fire season. Additionally, the Bureau of Meteorology (BoM) and FESA revised operating arrangements and developed a new emergency services briefing (ESB) to provide advanced technical advice in regards to forecast fire danger.

In the lead up to the incident, the BoM provided the ESB with predicted *severe* to *catastrophic* conditions across a number of fire weather districts. All relevant regions were placed on high alert and local arrangements were assessed for readiness. A group of key agencies was formed to specifically assess preparedness for State level incidents due to the high risk in the Perth Metropolitan Hills and surrounds. A number of contingency plans were implemented including the preposition of resources, establishment of task forces and strike teams and extensive media coverage with key messages for preparedness. State Alert was also put in place with extra Information and Communications Technology support to ensure it was robust.

FESA released media alerts and conducted press conferences at the Duncraig and Darlington fire stations to warn residents that the worst bushfire conditions of the fire season were expected in the southern half of the State on Monday 28 and Tuesday 29 December. A Total Fire Ban was declared for the Lower West Inland (including Toodyay) on Monday 28 December 2009.<sup>5</sup> Although the Bureau of Meteorology forecast a Catastrophic Fire Danger Rating for the Central Wheat Belt (which includes Northam, but not Toodyay)<sup>6</sup>, a Severe Fire Danger Rating for the inland sub district of the Lower West (including Toodyay) was in place on Tuesday 29 December.<sup>7</sup> In response to these Fire Danger Ratings, FESA and Local Government activated a number of preparedness activities such as pre-positioning aerial assets on the surrounding hills.

At 12:57 on Tuesday 29 December 2009 the FESA Communications Centre (COMCEN) received a series of "000" emergency calls reporting a bushfire in the vicinity of Folewood and River Roads in Toodyay. The Shire Ranger (who is also the Deputy Chief Bush Fire Control Officer and initial Incident Controller) was notified (along with the Toodyay Shire CEO and FESA District Manager Avon) and a control point and operations was quickly established on a nearby road to combat the incident. First responders advised that

<sup>4</sup> Victorian Bushfires Royal Commission, <http://www.royalcommission.vic.gov.au>, accessed 25 May 2010.

<sup>5</sup> Fire and Emergency Services Authority of Western Australia, *Total Fire Ban for Central Wheatbelt, Great Southern, South Coastal and South East Coastal and Lower West Inland districts for Tuesday 29 December*, <https://internet.fesa.wa.gov.au/mediareleases/Pages/MediaRelease.aspx?ItemId=224> accessed 25 May 2010.

<sup>6</sup> Fire and Emergency Services Authority of Western Australia, *Catastrophic fire danger advice for the Central Wheat Belt for Tuesday 29 December*, <https://internet.fesa.wa.gov.au/mediareleases/Pages/MediaRelease.aspx?ItemId=221> accessed 25 May 2010.

<sup>7</sup> Fire and Emergency Services Authority of Western Australia, *Severe fire danger advice for parts of the Lower West and Extreme Fire Danger rating for Central West*, <https://internet.fesa.wa.gov.au/mediareleases/Pages/MediaRelease.aspx?ItemId=227> accessed 25 May 2010.

the fire was travelling extremely quickly through both high and low fuel loads in a South East Direction. An immediate *WATCH AND ACT* message was issued.<sup>8</sup>

In response to the three 000 reports of fire in Toodyay (in three widely dispersed locations), the FESA District Manager Avon deployed assets to each report in accordance with FESA Operational Deployment Guidelines and Operation Centre Guidelines. These all turned out to be the same Toodyay fire reported in areas up to 10km apart.<sup>9</sup> The On-Call Manager was dispatched to the incident and was supported by the Northam District office who contacted the State Operations Centre to provide updates and request support. At 13:07, the FESA District Manager Avon requested air attack as smoke could be seen en route to Toodyay from Northam. Shortly after, resources (including machinery) were also requested from the Department of Environment and Conservation (DEC). At approximately 13:21, the FESA District Manager Avon requested Media Alerts and extra resources to be mobilised, additional appliances, an Incident Control Vehicle and managers for a full Incident Management Team (IMT). An Emergency Warning was first issued at 13:30.<sup>10</sup>

Shortly after the FESA District Manager Avon arrived at the control point, a decision was made to relocate the control point to the Toodyay Fire Station and establish a full IMT. COMCEN was notified at 14:02 that the incident control point and operations had moved to the Control Centre at the Toodyay Fire Station. At this stage, the control point was focused on establishing an IMT structure, planning the response and responding to calls from COMCEN and requests for assistance. At 14:56, further task forces were requested through the Regional Operation Centre (ROC), who arranged and deployed resources from surrounding Shires and Brigades.

As the fire did not start in a Government Gazetted Fire District,<sup>11</sup> the Deputy Chief Bush Fire Control Officer was the initial Incident Controller. The FESA District Manager Avon worked very closely with the Incident Controller. At 16:05, the incident was classified as a Level 3 incident and it was mutually agreed that FESA should take command of the incident.

Given the extreme weather conditions and rate of spread, a decision was made not to fight the head fire. Instead, the fire was fought on the flanks with machinery support and a focus on protecting property. Aerial operations provided air attack and observation support throughout the majority of the operation. Initially one Aerial Observer platform and Helitac 682 (Type 1) were dispatched in support of ground fire fighting resources. A second Type 1 (Helitac 681) was also deployed in the early afternoon. As the fire rapidly escalated and it became apparent that numerous properties were under threat, two Helitacs (Type 3) were also deployed. Two Fixed Wing bombers and an Air Attack platform were also requested through DEC. All aircraft worked until last light in difficult and hazardous conditions. It is estimated at least 13

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<sup>8</sup> Fire and Emergency Services Authority of Western Australia, *Bushfire WATCH AND ACT message for Toodyay*, <https://internet.fesa.wa.gov.au/mediareleases/Pages/MediaRelease.aspx?ItemId=253> accessed 25 May 2010.

<sup>9</sup> Reports were made in Coondle (approximately 10km from the incident), Deepdale (across the valley) and near the incident at River Road.

<sup>10</sup> Fire and Emergency Services Authority of Western Australia, *Bushfire EMERGENCY WARNING for Drummond Drive, Avenanthus Road and Stirlingia Drive in Toodyay*, <https://internet.fesa.wa.gov.au/mediareleases/Pages/MediaRelease.aspx?ItemId=254> accessed 25 May 2010.

<sup>11</sup> Western Australia Government Gazette, Friday 25 June 2004, No. 106 and Toodyay Fire District Western Australia Shire of Toodyay Deposited Plan.

properties were saved as a direct result of aerial support, and on four occasions, Helitacs provided protection to fire fighting personnel.<sup>12</sup>

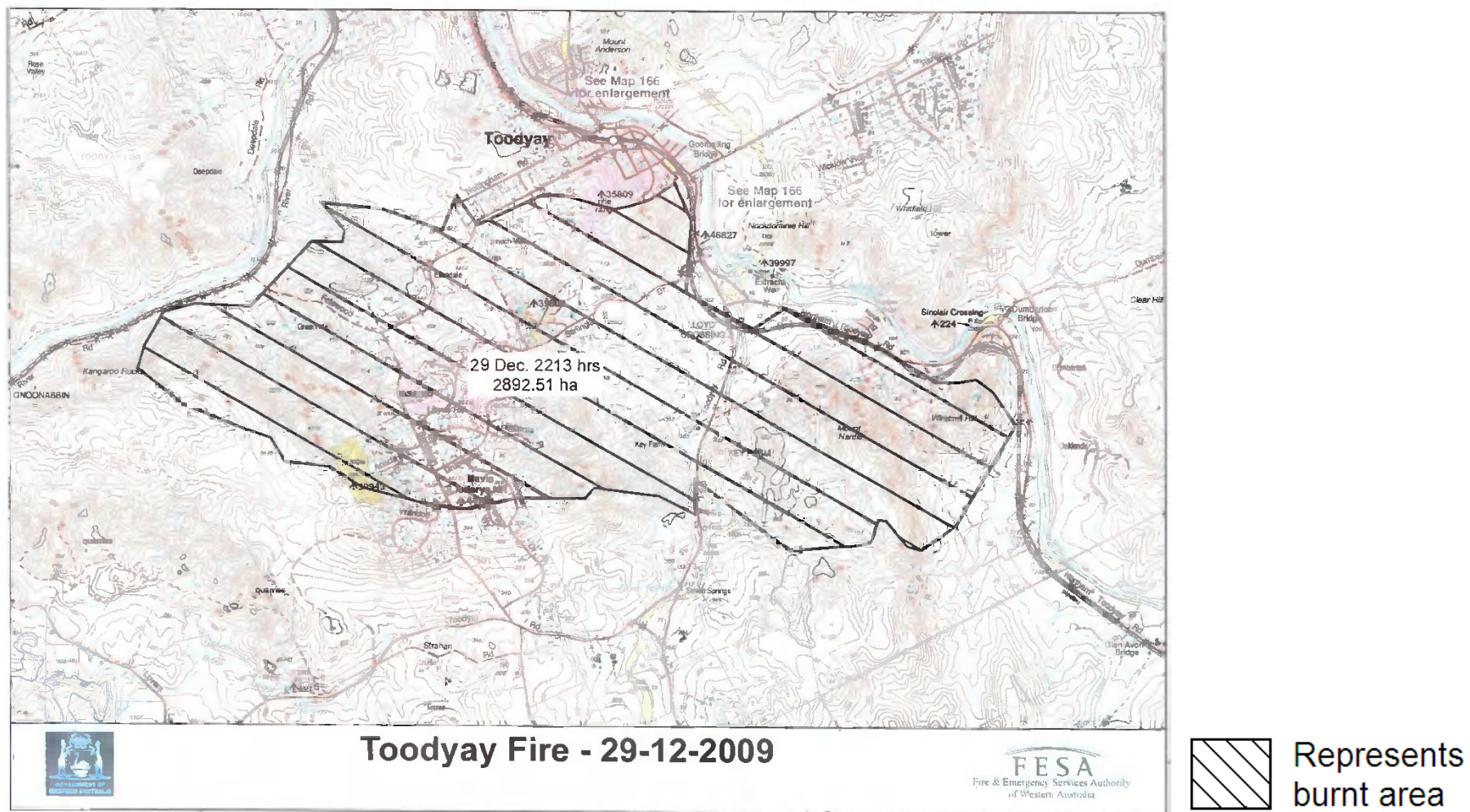
The fire was eventually brought under control early the next morning 30 December 2010 between 00:00 and 02:00. The Toodyay fire was restricted to the west of the town site, located in the far northeast part of the Lower West inland fire district. It had started near River Rd south of the Avon River and west of Folewood Rd, and was brought under control close to the Clackline-Toodyay Rd south of the town site. The fire destroyed a total of 38 homes and approximately 3000 hectares of land, causing extensive damage estimated at more than \$50 Million. No lives were lost and only minor injuries reported. The map in Figure 1 shows the area affected.

Recovery activities begun as early as 29 December and remained the responsibility of the Incident Controller until local recovery arrangements were put in place through the Shire of Toodyay. Activities concentrated on reconstruction of the physical infrastructure and restoration of emotional, social, economic and physical wellbeing. The Toodyay Bush Fire Brigade continued to be involved in mop up activities for up 10 weeks after the incident.

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<sup>12</sup> Fire & Emergency Services Authority of Western Australia, *AIR Operations Overview and Data – Toodyay Fire 29th & 30th December 2009*, 2010.

Figure 1 – Toodyay Fire Map<sup>13</sup>



<sup>13</sup> Toodyay Fire Map provided by FESA

# APPROACH

## Conceptual Approach

The MIR of the Toodyay Fire is intended to provide FESA and the community with an opportunity to reflect on what occurred and learn valuable lessons for the future. The Noetic team used a proven lessons learnt process to conduct the MIR with the following six principles guiding the review process:

- + **No Blame.** The lessons learnt process does not apportion blame to organisations or individuals.
- + **Identify all Lessons.** The intent of the process is to identify what was done well and what could be done better. It includes identifying the systemic issues that might not be readily apparent.
- + **The Future.** The aim of the process is to enhance the future performance of all agencies involved in disaster response in order to ensure that good processes are retained and mistakes are not repeated.
- + **Observations are not Necessarily Lessons.** Regardless of how passionately views are held by individuals or organisations, a single observation does not necessarily translate into a widely applicable lesson.
- + **Consult Widely.** Engaging with stakeholders and as many people involved with the incident ensures a balanced outcome.
- + **Lessons are not Learnt until Something is Done.** The development of lessons must be accompanied by the allocation of responsibilities, resources and milestones to ensure lessons are in fact learnt.

People to be interviewed by the Noetic team were provided an Interview Brief prior to the conduct of interviews. The Interview Brief outlined the objectives and major guiding principles of the MIR, the objectives of the interview process as well as a list of questions to assist interviewees prepare for their interviews. To encourage stakeholders to frankly discuss all relevant aspects of the Toodyay Fire, they were assured confidentiality. While remaining sensitive to the emotional impact of the Toodyay Fire, the Noetic team remained independent throughout the MIR process.

## Methodology

### Information Gathering

Noetic conducted an extensive document review, including, but not limited to:

- + incident details (e.g. Incident Report, Electrical Incident Report, meteorology aspects etc.);
- + organisational de-briefs; and
- + legislation (e.g. *Bush Fires Act 1954*), policies and procedures (e.g. standard operating procedures) and plans (e.g. State Bushfire Emergency Management Plan).

A full list of documents reviewed can be found at Annex B. Following a comprehensive review of these documents, the Noetic team conducted stakeholder interviews with a wide range of stakeholders. This included personnel from FESA, government departments and local government. A full list of stakeholder interviewees can be found at Annex C. Noetic also invited written submissions from various organisations and members of the public through a dedicated page on FESA's website and fliers handed out at a Toodyay Volunteer Thank You Day. A list of submissions received by the Review Team can be found at Annex D. Noetic also conducted a visit to the fire ground to gain greater appreciation of the incident and assess the impact of the bushfire.

## Analysis

The Review Team identified common themes and developed relevant observations based on the information gathered through background research and stakeholder consultation. Importantly, the observations also identified areas where FESA and other agencies performed well. The observations were collated in a spreadsheet which was then used to validate observations with stakeholders in a workshop environment. The spreadsheet presented all of the observations and provided a mechanism to identify lessons and actions.

Noetic facilitated a validation workshop with key stakeholders on 22 April 2010. The workshop systematically reviewed the majority of observations identified during the Analysis phase.<sup>14</sup> This included:

- + questioning any assumptions underpinning the observations;
- + validating the observations (i.e. the evidence to support the observations);
- + identifying lessons from valid observations; and
- + identifying actions to ensure each lesson is learnt.

The key outcome from the workshop was agreement on the major lessons to be learnt from the observations. The discussions were captured on-screen (through the use of a computer and data projector) so that participants were able to agree on the lessons and actions which were being transcribed.

## Finalisation

Noetic developed a Draft Report based on the outcomes of the previous phases. The Draft Report contained a series of recommendations based on, and expanding upon, the lessons and actions identified during the workshop. The Draft Report was presented to FESA at a review workshop which was primarily focussed on discussing the report recommendations and high-level findings. The workshop was also used to obtain feedback about where improvements or more information was required. Noetic then incorporated this feedback and developed a Final Report which was submitted to the CEO of FESA.

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<sup>14</sup> Time restrictions during the workshop did not allow the Review Team to discuss all observations.



## FINDINGS

### Approach

The project team initially developed over 100 observations from the review of stakeholder interviews, documents and discussion of the incident. These observations were then reduced through either aggregation of like items or discarded on further analysis. The majority of the observations were discussed in the workshop and lessons and actions identified.

In order to better assist in the understanding of the lessons and implications, individual lessons were grouped into thematic areas. These thematic areas sit generally within the PPRR framework discussed earlier. Since Response is the main focus of the MIR, this element is broken down into a number of sub-elements. The following section provides an overview of the high-level findings, then discusses key issues within each of the thematic areas and the highest priority actions required to implement the lessons. The thematic areas are Organisational Issues, Prevention, Preparedness, Response and Recovery.

### Overview

The Toodyay bushfires of 29 December 2009 had a significant impact on FESA and the Western Australian community. The fire destroyed a total of 38 homes and approximately 3000 hectares of land, causing up to \$50 million in damage. It is important to contextualise these losses in terms of the severity of the bushfire. The fire conditions were some of the worst seen in Western Australia in recent years. The terrain in the Toodyay area varies considerably and was significant in not only influencing the fire behaviour and winds, but also accessibility to combat the fire in certain areas. It is the Review Team's observation that the incorrect reporting of fire at its inception,<sup>15</sup> the fire's ignition point being so close to the urban area, the fire's rapid spread through the terrain and the nature of the urban interface area made it near impossible to avoid such a significant loss of property.

FESA's vision is '*a safer community*' and its values include '*put the community first*' and '*strive to keep ourselves and others safe*'.<sup>16</sup> The fact that no lives were lost and only minor injuries were reported indicates that these values were enacted during the Toodyay bushfires. The Volunteers, Local Government and FESA should be commended that this outcome was achieved in light of the severity of the fires and significant loss of property.

Despite what could be described as a relatively good outcome from an operational perspective, the Review Team has identified a number of issues that pose a future risk to FESA, its partner agencies and the Western Australian community. If circumstances had been different, it is possible that there could have been a different outcome. Some of the contingencies in Toodyay that contributed to a successful operation included:

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<sup>15</sup> This is not a criticism of those who made the reports. The strong winds and terrain quickly pushed the smoke to a variety of places and people naturally reported the locations they saw smoke.

<sup>16</sup> Fire and Emergency Services Authority of Western Australia, *Vision, mission & values*, <http://www.fesa.wa.gov.au/internet/default.aspx?MenuID=17> accessed 25 May 2010.

- + the size of the fire was relatively small, for example, the concurrent Badgingarra fire was over three times larger;
- + aside from the Badgingarra fire and over 100 minor incidents (which posed a low risk to properties and lives), there were no other significant concurrent operations despite catastrophic fire conditions across a large area of the State;
- + the population density of Toodyay is relatively small compared to other urban interface areas such as Perth Hills; and
- + the Shire of Toodyay is proactive in its fire management and strong personal relationships exist across the various local agencies involved in bushfire response.

If these circumstances had been different, the Review Team believes that current emergency management arrangements may not have supported an effective response. Specific concerns are discussed in the following sections. As described earlier, the complete set of observations, lessons and actions are detailed in Annex A.

## Organisational Issues

Unlike other hazards identified in the Western Australian Emergency Management Arrangements, hazard management responsibilities<sup>17</sup> for bushfires are shared between three organisations – FESA, DEC and Local Government.<sup>18</sup> These responsibilities are as follows:

- + FESA is responsible for preparedness and response for all lands within prescribed Fire Districts declared under the *Fire Brigades Act 1942*. Prevention for unmanaged Crown lands (UCL) and other unmanaged reserves (UMR) within all town sites, regional centres and the Perth metropolitan area.<sup>19</sup> This includes the FESA Fire and Rescue Service which comprises of nearly 1000 career firefighters<sup>20</sup> and nearly 2,000 volunteer firefighters.<sup>21</sup>
- + Local Governments are responsible for prevention, preparedness and response for all private land, response for UMR and UCL outside FESA districts, prevention for all their own lands, prescription and enforcement of bushfire prevention measures on all private lands within their local government district, and recovery management.<sup>22</sup> There are approximately 600 Bush Fire Brigades in Western Australia

<sup>17</sup> Hazard management agencies are prescribed due to their functions under a written law or because of their specialised knowledge, expertise and resources in respect to a particular type of hazard.

<sup>18</sup> State Emergency Management Committee, *Western Australia: State Bushfire Emergency Management Plan (DRAFT V6.1) (WESTPLAN-BUSHFIRE)*, 2009.

<sup>19</sup> *ibid.*

<sup>20</sup> Australian Government Productivity Commission, *Report on Government Services 2010: 9A Emergency management – attachment*, [http://www.pc.gov.au/data/assets/pdf\\_file/0005/93938/34-chapter9-attachment.pdf](http://www.pc.gov.au/data/assets/pdf_file/0005/93938/34-chapter9-attachment.pdf) accessed 8 July 2010.

<sup>21</sup> Fire and Emergency Services Authority of Western Australia, *Fire*, <http://www.fesa.wa.gov.au/internet/default.aspx?MenuID=141> accessed 25 May 2010.

<sup>22</sup> State Emergency Management Committee, *Western Australia: State Bushfire Emergency Management Plan (DRAFT V6.1) (WESTPLAN-BUSHFIRE)*, 2009.



made up of approximately 25,000 volunteer bush fire fighters.<sup>23</sup> FESA manages the Bush Fire Brigades' funding arrangements<sup>24</sup> and provides training and advisory services.<sup>25</sup>

- + DEC is responsible for preparedness and response for all DEC managed land such as State Forest, National Parks and wildlife reserves outside FESA Fire Districts, prevention for all lands in their control or management, and also for UMR and UCL outside town sites, regional centres and the Perth metropolitan area.<sup>26</sup>

In the case of the Toodyay fires, Local Government was the initial lead agency because the fire started outside a Gazetted Fire District and was not on DEC managed lands.<sup>27</sup> FESA later took control of the incident when both FESA and Local Government mutually agreed that FESA should do so. This means that recent legislative changes to the Bushfires Act Amendment Bill did not have to be used which gives FESA the power to take control by request or because FESA considers it appropriate due to the nature of the fire. These changes were introduced to address issues associated with fires that cross agency boundaries, inconsistencies across agency emergency management plans, and an inability of FESA to issue total fire bans in a targeted way.<sup>28</sup> The Review Team acknowledges that these legislative changes have improved the clarity of emergency management arrangements, however, the Review Team believes they do not fully resolve the underlying issues that led to the changes to the Act. For example, they do not address inconsistencies in local emergency management arrangements, varying levels of competency and concerns with the interoperability of responsible agencies. Furthermore, the legislation introduces a level of uncertainty as to when FESA should take control of an incident. For example, there is some disagreement about the timeliness of the handover of control from Local Government to FESA for the Toodyay incident.

Two fundamental tenants of effective command structures are 'unity of command' and 'clarity'. *Unity of command* relies on a single recognised command authority at all times. This principle is even more essential in joint operations where there may be doubt regarding the commander of the operations. *Clarity* refers to an unambiguous chain of command, that is, commanders at each level need to be able to respond to directions from above, and issue directions below.<sup>29</sup> Western Australia's current emergency management arrangements do not best align with these tenants of command. Different layers of command amongst FESA and Local Government creates a potential source of friction and in the case of the Toodyay fires, strong personal relationships between personnel in different agencies and Local Government ensured that this was not the case. Effective public administration and emergency management is based on arrangements that are simple, coherent, as 'flat' as possible, consistent and comprehensive, so that they can be easily implemented in times of stress or uncertainty. The Review does

<sup>23</sup> Fire and Emergency Services Authority, *State of the Service: December 2009*, <http://www.fesa.wa.gov.au/internet/upload/shared/docs/State-of-the-Service-December-2009.pdf> accessed 9 July 2010.

<sup>24</sup> Association of Volunteer Bush Fire Brigades of WA Incorporated, *General Info*, [http://www.bushfirevolwa.com.au/index.php?option=com\\_content&view=article&id=21&Itemid=61](http://www.bushfirevolwa.com.au/index.php?option=com_content&view=article&id=21&Itemid=61) accessed 25 May 2010.

<sup>25</sup> Fire and Emergency Services Authority of Western Australia, *Fire*, <http://www.fesa.wa.gov.au/internet/default.aspx?MenuID=141> accessed 25 May 2010.

<sup>26</sup> State Emergency Management Committee, *Western Australia: State Bushfire Emergency Management Plan (DRAFT V6.1) (WESTPLAN-BUSHFIRE)*, 2009.

<sup>27</sup> Western Australia Government Gazette, Friday 25 June 2004, No. 106 and Toodyay Fire District Western Australia Shire of Toodyay Deposited Plan.

<sup>28</sup> 2009 Victorian Bushfires Royal Commission, [http://knowledgeweb.afac.com.au/news/newsletters/victorian\\_bushfires\\_royal\\_commission\\_newsletter/test2](http://knowledgeweb.afac.com.au/news/newsletters/victorian_bushfires_royal_commission_newsletter/test2) accessed 25 May 2010.

<sup>29</sup> Australian Defence Force, *Joint Operational Command and Control*, 2001.

not believe that Western Australia's arrangements best align with these principles. Inconsistent local emergency management arrangements (highlighted as a key driver for recent legislative amendments) and varying levels of competency across shires (consistently raised by stakeholders) creates a potential risk to future operations. The legislative change has provided FESA with the power to take control of an incident, however, the Review Team believes this does not provide Western Australia with optimum emergency management arrangements.<sup>30</sup> Additionally, the current arrangements are not consistent with public administration principles such as having a single agency responsible for a single function.

Ensuring that unity of command and clarity of command are achieved across the State is an important outcome. There are a variety of ways that this might be achieved. A change to legislation would provide an elegant and above all, effective solution, however, it is noted that there is likely to be resistance to such a proposal, particularly from elements of Local Government. Other means for achieving the outcome might include strengthening incident control arrangements, greater education and training or a combination of these measures, among others. This finding is consistent with the Auditor General for Western Australia's Performance Examination of Responding to Major Bushfires.<sup>31</sup>

**Recommendation 1:** FESA implements measures that will ensure unity and clarity of command.

Similar to the relationship between FESA and Local Government, separation of fire fighting responsibilities between FESA and DEC created a number of interoperability issues. For example, command, control and coordination processes and systems, and fire fighting assets are not always compatible and at times hampered the ability to communicate and coordinate effort. The inability to immediately integrate command and control systems is a particular impediment to joint operation. Once again, these systemic issues did not affect the overall operational effectiveness on the day of the Toodyay Fire, however, it is potentially a risk for future operations. It is noted that a review is currently underway of the fire management capabilities of DEC. This is in response to the findings and recommendations of the Coroner following the inquest into the deaths of three men during a bushfire that started in Boorabbin National Park in 2007.<sup>32</sup> Regardless of the findings of this review, it is essential that FESA and DEC continue to improve agency interoperability.

A whole of capability approach needs to be taken when assessing FESA and DEC interoperability. This means developing interoperability through command and control arrangements, joint-doctrine, equipment, procedures and training (both individual and collective). Joint command and control arrangements are already documented in WESTPLAN – BUSHFIRE, and joint procedures, training and exercising exists, however, there is no document that provides a philosophical understanding of the way in which the agencies operate (individually and jointly). Doctrine seeks to provide a common and articulated understanding of the bigger picture through documenting roles and responsibilities, resources and capabilities. Joint doctrine between FESA and DEC would provide both agencies a common and

<sup>30</sup> It is noted that Western Australia is the only state and/or territory to still operate under these arrangements. New South Wales for example moved away from this model in 1997 to institute a single chain of command. This followed a major incident where 120 people were injured, and 4 killed. A Coroner's Inquiry recommended that the State Government introduce a single entity responsible for the management of bush fires in NSW. As such, the 1997 Rural Fires Act was proclaimed on 1 September 1997.

<sup>31</sup> Auditor General for Western Australia, *Performance examination: responding to major bushfires*, [http://www.audit.wa.gov.au/reports/pdfreports/report2004\\_07.pdf](http://www.audit.wa.gov.au/reports/pdfreports/report2004_07.pdf) accessed 25 May 2010.

<sup>32</sup> Government of Western Australia, *Top fire fighter to head fire management review*, <http://www.mediastatements.wa.gov.au/Pages/default.aspx?ItemId=133171&page=7> accessed 25 May 2010.

articulated way of thinking and operating in joint-operation scenarios. Importantly, doctrine publications are authoritative, but not prescriptive in how operations are to be conducted. Such a document would provide the basis for the development of interoperability in the other capability elements.

**Recommendation 2:** FESA and DEC take a whole of capability approach to joint operations, including developing joint doctrine that provides a common and articulated understanding of roles and responsibilities, resources and capabilities.

The growing risk of major fires in urban interface areas is a challenge that the majority of fire services are facing internationally. The Toodyay fire is just an example of the impact that bushfires can have in areas with medium population density and high fuel loads. In order to manage this risk, FESA needs to understand and target 'at risk' urban communities, and aim to build resilience in its own capability, and that of its partner agencies and at-risk local communities. It is understood that FESA is in the process of addressing this issue. FESA needs to ensure that a partnership approach is adopted in developing a stronger capacity and capability for fighting urban interface fires. This will involve developing all aspects that make up Western Australia's urban interface capability, including, but not limited to, organisations, systems (including policies and procedures), people (including individual and collective training) and assets. This will be critical to ensuring that FESA, its partner agencies and the community are adapting to the changing nature of the environment in which they operate and live.

**Recommendation 3:** FESA, in partnership with other agencies and the community, develops Western Australia's urban interface fire fighting capability and capacity.

## Prevention

Prevention, along with preparedness, response and recovery, is a critical component of the emergency management cycle (PPRR). Prevention activities eliminate or reduce the probability of occurrence and impact of bushfire.<sup>33</sup> WESTPLAN assigns the responsibility for prevention services to Hazard Management Agencies (HMA) and Local Governments.

The prevention activities conducted by FESA in the lead up to the incident were generally effective. This included implementation of recommendations from the Chatcup fire and reduction of fuel loads etc. The main role of prevention however sits with local community members and Local Government. A whole-of-community approach to fire prevention is required if catastrophic fires are to be effectively mitigated. This means developing a more committed and systematic approach to prevention where roles and responsibilities are clearly defined, enacted and enforced. This includes, but is not limited to, the responsibilities of individual community members in protecting their homes (e.g. clearing areas around a home), individuals and organisations reducing fuel loads (e.g. controlled back burning) and Local Government enforcement of fire prevention activities.

Specifically within Local Government, there appears to be an inconsistent commitment to fire prevention. Although a catastrophic fire weather warning was declared in many areas adjacent to Toodyay, a number

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<sup>33</sup> State Emergency Management Committee, *Western Australia: State Bushfire Emergency Management Plan (WESTPLAN-BUSHFIRE)*, November 2005.

of Local Governments did not understand the importance of total fire bans and expressed reservations about the declaration. This was not the case in Toodyay. It is important that both Local Government and FESA understand their responsibilities in relation to total fire bans including their associated implications and importance. This relates back to a whole-of-community approach to fire prevention, where FESA and Local Governments are aware of their respective fire prevention functions, activities and planning.

**Recommendation 4:** FESA promotes a whole-of-community approach, involving FESA, Local Governments and the community, in fire prevention functions, activities and planning.

## Preparedness

Preparedness activities focus on essential emergency response capabilities through the development of plans, procedures, organisation and management of resources, training and public education.<sup>34</sup>

Comprehensive preparedness activities are critical to ensuring that FESA and its partner agencies are able to effectively respond to bushfire emergencies. There are a number of preparedness (pre-planning) activities that can be implemented to assist readiness and allow crews to 'hit the ground running'.

Western Australia's primary bushfire preparedness plan is WESTPLAN BUSHFIRE which was recently revised in November 2009. This makes it difficult to assess the effectiveness of the changes, given the short amount of time between the plan's release and the Toodyay bushfires. It would appear as though the preparedness aspects of the plan were effective as FESA's tactical preparedness activities were commendable. It undertook a range of preparedness activities in response to the Bureau of Meteorology weather warnings. For example, based on the weather warnings, FESA pre-positioned its aerial assets on the surrounding hills which allowed a speedier response than would otherwise have been possible. Also, the use of the catastrophic fire weather warning, communicated via the new warning system, effectively conveyed the seriousness of the risk to the community and was effective in ensuring community preparedness.

Victoria's Black Saturday Bushfires contributed to increased community awareness of the potential catastrophic consequences of bushfires. However, FESA needs to be cognisant that these warnings (and other community awareness campaigns) may not be as effective in a number of years when community awareness is likely to decrease. Therefore, FESA cannot rely on warning systems as the sole method of communicating with the community. There is an immediate opportunity to capitalise on strong community awareness in relation to bushfire preparedness as community awareness is likely to decline over time as recent events such as Victoria and Toodyay fade in people's memories. FESA must therefore ensure that its public awareness and education activities continue to be conducted as part of its planning process to ensure community awareness is sustained over time.<sup>35</sup>

**Recommendation 5:** FESA strengthens its planning process to ensure learnings are incorporated and communicated, levels of preparedness are linked to threat analyses and public awareness and education activities are sustained.

<sup>34</sup> *ibid.*

<sup>35</sup> FESA, with the support of Local Government and the University of WA, has implemented a comprehensive research plan with a view to providing validation or otherwise of current prevention and preparedness tactics and to guide related activities.

## Response

There are a range of observations that relate to FESA's response to the Toodyay fires, that is, activities associated with the combat and containment of the effects of the event, provision of emergency assistance for casualties, reduction of damage and increasing speed of recovery operations.<sup>36</sup> These observations and associated findings are grouped into Command and Control, Inter-Agency, Communications, Public Information, Intelligence, Safety and Aerial Support. A range of observations, lessons and actions related to logistics, tactics and other issues are also detailed in Annex A.

### Command and Control

The command and control of an incident in Western Australia is based on the Australasian Inter-Service Incident Management System (AIIMS). It specifies the structure to be adopted by an Incident Management Team (IMT) including the four main functions of Control, Operations, Planning and Logistics. It also provides the necessary guidance to ensure personnel, resources and services are adequately employed to the incident and IMT.<sup>37</sup>

The IMT for the Toodyay fires did the best possible job they could with the resources at their disposal, however, it is apparent that the IMT was insufficiently staffed, particularly in the early stages of the incident, for an incident of this magnitude. This manifested itself in a number of ways including a lack of deputy staff (e.g. Deputy Controller, Deputy Operations Officer etc.) and information/intelligence based staff. It is noted that additional Incident Controllers were dispatched to shadow and support the IMT, however, specific deputy staff (e.g. Deputy Controller, Deputy Operations Officer etc.) were not formally appointed. The lack of deputies in the IMT meant that the Incident Controller had insufficient capacity to perform their full range of responsibilities effectively. It is important to note that the Incident Controllers were instrumental in ensuring an effective response. The Incident Controller's purpose is to ensure that Incident Control is established to combat the incident. This involves a wide range of responsibilities, from planning the combat of the incident to liaising with support agencies and managing the media. Particularly in the early stages of the incident, the Incident Controller had insufficient capacity to combat the incident and deal with the range of requests coming from other agencies, media etc.

This observation indicates that Incident Controllers need sufficient support personnel (e.g. a Deputy Controller) to ensure that they can enact their key roles and responsibilities. It also indicates that there are difficulties in forming IMTs with sufficient staff (particularly volunteers) that are appropriately skilled and practiced in managing incidents. Large, complex incidents like Toodyay are highly demanding on IMT and it requires them to be well prepared and practiced. Other similar incidents around Australia have had poorer outcomes than might have been the case because IMT were unable to effectively manage the incident. FESA needs to establish a process and associated triggers to mobilise staff to the incident and rapidly form appropriately staffed and skilled IMTs. Training of sufficient volunteers to undertake roles in IMT should be a high priority for FESA. The staffing of IMTs should align with the principles of seamless and integrated escalation of command and control arrangements from Level 1 through to multiple Level 3

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<sup>36</sup> *ibid.*

<sup>37</sup> *ibid.*

bushfires.<sup>38</sup> FESA should also incorporate the development of pre-formed multi-agency IMTs into preparedness activities to ensure that appropriate structures are in place early in the incident.

**Recommendation 6:** FESA establishes a process (and associated training, systems and policies) to mobilise staff to an incident incorporating pre-formed multi-agency Incident Management Teams. The development of Incident Management Teams should align with the principles of seamless and integrated escalation of command and control arrangements, and be based on a whole of capability approach (people, organisations, systems, training, procedures etc.).

A range of other issues associated with command and control (including state emergency management arrangements and transfer of command from Local Government to FESA) are discussed earlier in the Organisational Issues section.

## Inter-Agency

Inter-agency relationships, cooperation and coordination are essential components of operational effectiveness. While emergency services are most likely to receive the credit or criticism for operations, the contribution of other agencies in emergency management is the hallmark of an effective operation. Inter-agency cooperation with key agencies was generally effective and contributed to the best possible outcome being achieved in Toodyay. A critical element of this success was strong personal relationships at all levels of emergency response (local, regional and state). There was however an over-reliance on personal relationships, particularly at the local level. Personal relationships are essential, so long as they are supported by formalised inter-agency arrangements that are well articulated, understood and practiced. FESA therefore needs to continue to reinforce the criticality of personal relationships, supported by formalised arrangements for inter-agency cooperation associated with the entire emergency cycle including activities such as joint training, procedures and exercising.<sup>39</sup> This will ensure that relationships are built and maintained, and that agencies understand their role and that of others, and that individuals are able to leverage inter-agency relationships in operational situations. Importantly, formalised arrangements will provide FESA a level of certainty in relation to inter-agency cooperation.

**Recommendation 7:** FESA maintains inter-agency relationships and arrangements, and develop formalised arrangements across the entire emergency management cycle for joint activities such as training, exercising and procedure development.

## Communications

Accurate and up-to-date information is essential for effective decision making at all levels of incident management (i.e. tactical, operational and strategic). This relies upon effective gathering and sharing of information up and down a clear chain of command. It is the Review Team's experience that the poor passage of information through the chain of command, particularly from the fire ground to the IMT, is endemic to all rural fire services in Australia. This was also the case in Toodyay, where there was poor information flow to and from a variety of levels including the fire ground, the IMT, Regional Operations Centre, State Operations Centre and FESA Media. In particular, the IMT was not receiving regular

<sup>38</sup> State Emergency Management Committee, *Western Australia: State Bushfire Emergency Management Plan (DRAFT V6.1) (WESTPLAN-BUSHFIRE)*, 2009.

<sup>39</sup> A key learning from the [7 July 2005 London bombings](#) was that clear and well practiced inter-agency arrangements lead to the establishment of good personal relationships which lead to improved operational outcomes.

situation reports from the fire ground which contributed to their poor situational awareness. Additionally, there was regular direct communication between the IMT and State Operations Centre, effectively bypassing the formal chain of command (i.e. the Regional Operations Centre). This would indicate that there is a lack of appreciation of the importance of information and the integrity of the chain of command. These types of issues meant that decision makers did not always have accurate and up-to-date information that should have been readily available if information had been passed through the chain of command effectively.

In order to improve information flow through the chain of command, FESA needs to first identify the information requirements for each level of command to ensure the right information is being communicated. This will require FESA to document what information will assist each level of command achieve its purpose outlined in the Incident Control System and WESTPLAN – BUSHFIRE. FESA then needs to review the adequacy of current arrangements and systems to meet these information requirements. A key element of this will be developing a culture that automatically passes the information defined previously up and down the chain of command. Other elements that need to be reviewed include systems such as procedures, Information and Communications Technology (ICT), rewards and physical resources to meet these information requirements. For example, FESA may need to modify its communications systems (e.g. radios), reward systems (e.g. reward good information flow) and human resource allocation (e.g. establish dedicated staff on the fire ground and at the IMT dedicated to information flow) to ensure that the previously defined information requirements can be met. This comprehensive approach to information management will ensure that FESA staff can make more informed decisions which will contribute directly to operational effectiveness.

**Recommendation 8:** FESA identifies and documents its information requirements for end-to-end information exchange and then assess the adequacy of current systems to meet these information requirements.

## Intelligence

Information (discussed above) forms a critical component in developing intelligence products which inform effective planning and operational decision making. Information sources for a major bushfire includes, but is not limited to, communication through the chain of command, aerial reconnaissance data, local knowledge, geospatial data and maps, information from other agencies and meteorology data. These information sources need to be processed through a formal intelligence capability to analyse the threat posed by the current situation and future conditions in order to be an intelligence led operation. It is apparent that FESA is still developing a comprehensive, integrated and well practiced intelligence capability, or a widespread understanding of threat analysis, that is, a system to analyse the level of threat posed by the current situation and future conditions.<sup>40</sup> This resulted in a general lack of situational awareness in the IMT and higher levels of command. It is the Review Team's experience that this situation exists in nearly all jurisdictions in Australia.

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<sup>40</sup> While FESA's intelligence capability includes Bush Fire Threat Analysis (BFTA), fuel load mapping, assets mapping (through the ESD), a state of the art aerial platform and *emergeo* software, it is apparent by the lack of situational awareness on the day, that FESA did not take a whole of capability approach to intelligence (i.e. people, organisational structures, equipment, training, systems etc.).



The current Counter-Terrorism AIIMS structure has a dedicated intelligence function in the IMT for Category 2 and 3 incidents. FESA should review the applicability of this function to bushfires and implement a similar capability for managing major bushfires. This is required to effectively understand and communicate critical situation awareness information such as fire shape and pattern, and understand future threats to effectively forecast fire behaviour. FESA should also review existing support tools and systems to support the revised intelligence function. The review should also ensure the tools are based on simple, but fundamental, fire physics principles.

**Recommendation 9:** FESA establishes a dedicated intelligence function in Incident Management Teams for major bushfires and ensure this function is appropriately supported with threat based tools and systems.

## Public Information

Providing information to the public during an incident is critical to protecting the safety of the community. Public information includes activities such as community education programs and preparedness (discussed earlier) and community information systems during an incident. FESA utilises a range of community information systems such as the recently revised warning system, StateAlert and the FESA website. There are also community based information systems such as informal communication between individuals and social networking (e.g. Facebook) that rely on the social capital of the community.

The quality and quantity of information provided to the public during the Toodyay fires was unevenly received. In the main, the public appear to be highly satisfied with the amount of information that was provided. There were, however, members of the community that were overwhelmed with the amount of detail, the range of new warning systems and the repetitive nature of information. This highlights the need for public information to be made as clear as possible, and prioritised to ensure that the audiences most at risk receive key messages. It is acknowledged that this is a difficult issue for any fire agency to manage.

Furthermore, the public needs to be educated about the purpose (and functionality in some cases) of community information systems. For example, a number of community members were concerned that they did not receive StateAlert messages until the fire had passed. This is inevitable however as StateAlert issues warnings to specific geographical regions which may include areas where the fire has not yet passed, and those areas that have already been affected. Furthermore, there may be insufficient time to issue warnings for incidents such as the Toodyay fire due to the rapid rate of spread. It is important that the community understands that StateAlert is only one tool used to warn communities.<sup>41</sup> It is therefore critical that the community understands the range of information systems (e.g. Government websites, the media, ABC local radio and telephone information lines) and their purpose. It is also important for the public to understand that it is not always going to be possible for FESA to provide accurate and precise warnings to the community due to the uncertainty that attends any major fire.

**Recommendation 10:** FESA implements an education and awareness campaign to promote the purpose and utility of community information systems.

<sup>41</sup> Government of Western Australia, *StateAlert Frequently Asked Questions*, <https://statealert.wa.gov.au/Vox/publicuser/about.jsp#general10> accessed 25 May 2010.



## Safety

FESA places a high priority on safety, demonstrated by its mission to 'improve community safety practices'.<sup>42</sup> In addition, '*strive to keep ourselves and others safe*' is one of its core values.<sup>43</sup> The fact that no lives were lost and only minor injuries were reported indicates that the safety management of the community and staff was effective. Only a number of minor safety issues were raised to the Review Team and these issues did not reveal any systemic issues. Of concern, however, is the fact that no near misses were reported. It is also highly likely that near misses occurred (but were not reported) given the severity of the incident. FESA therefore, needs to promote a safety culture, which includes the reporting of all injuries and near misses, no matter how minor they may appear. It is common in fire services across Australia that volunteers are reluctant to report near misses as they do not want to be seen to be 'making a fuss'. FESA should review its current approach to safety and safety culture. In particular, its reporting processes should be reviewed to ensure staff are encouraged to, and provided with the maximum opportunity to report near misses, and staff particularly volunteers, understand the benefits of reporting.

**Recommendation 11:** FESA reviews its approach to safety and safety culture.

## Aerial Support

Aerial support proved critical to the protection of property and fire fighting personnel and assisted situational awareness and information gathering. As a result, it is estimated that up to 13 properties were saved and on four occasions, Helitacs provided protection to fire fighting personnel.<sup>44</sup> One of the primary issues related to tactics was the deployment of FESA's multi-sensor air reconnaissance aircraft to the Badgingarra fire (which posed a lower risk to property and lives) before the Toodyay fire had started. This asset would have contributed greatly to FESA's situational awareness, particularly in the early stages of the incident. While FESA have modified their air operations dispatch procedures to ensure that this asset is appropriately prioritised on catastrophic fire days, a single multi-sensor air reconnaissance aircraft creates a single point of failure and is not able to deal with major concurrent fires. FESA needs to assess their air reconnaissance capability and determine if multiple multi-sensor air reconnaissance aircraft are required for managing concurrent incidents. This will require a feasibility study of procuring additional aerial equipment, including the use of the use of unmanned aerial vehicles (UAVs).

**Recommendation 12:** FESA reviews its air reconnaissance capability and determines if multiple multi-sensor air reconnaissance aircraft or unmanned aerial vehicles are required for managing concurrent and/or complex incidents.

## Recovery

Although recovery was not part of the Terms of Reference for this MIR, it is important that the Review comments on some of these aspects. Recovery activities support emergency affected communities in the

<sup>42</sup> Fire & Emergency Services Authority of Western Australia, *Vision, mission & values*, <http://www.fesa.wa.gov.au/internet/default.aspx?MenuID=17> accessed 25 May 2010.

<sup>43</sup> Fire & Emergency Services Authority of Western Australia, *Vision, mission & values*, <http://www.fesa.wa.gov.au/internet/default.aspx?MenuID=17> accessed 25 May 2010.

<sup>44</sup> Fire & Emergency Services Authority of Western Australia, *AIR Operations Overview and Data – Toodyay Fire 29th & 30th December 2009*, 2010.

reconstruction of the physical infrastructure and restoration of emotional, social, economic and physical wellbeing.<sup>45</sup>

Overall, the recovery activities in Toodyay were effective. Community meetings are a crucial activity during the recovery process. FESA conducted community meetings during and after the incident which proved to be effective as they provided an avenue for the community to air grievances and seek assistance. It also provided a mechanism to address community concerns and questions, and provide assurance to the community that the recovery process would address the issues raised during these meetings. There were concerns that the structure and timing of the meetings meant that they may have gone on too long and eventually focused on determining blame which is counter-productive. FESA therefore needs to develop guidance for community meetings and incorporate this into standard operating procedures. The use of the FESA website, incident support line and media was also an important part of FESA's strategy to support and inform affected communities.

**Recommendation 13:** FESA revises its standard operating procedures to provide guidance on the format and timing of post-incident community meetings.

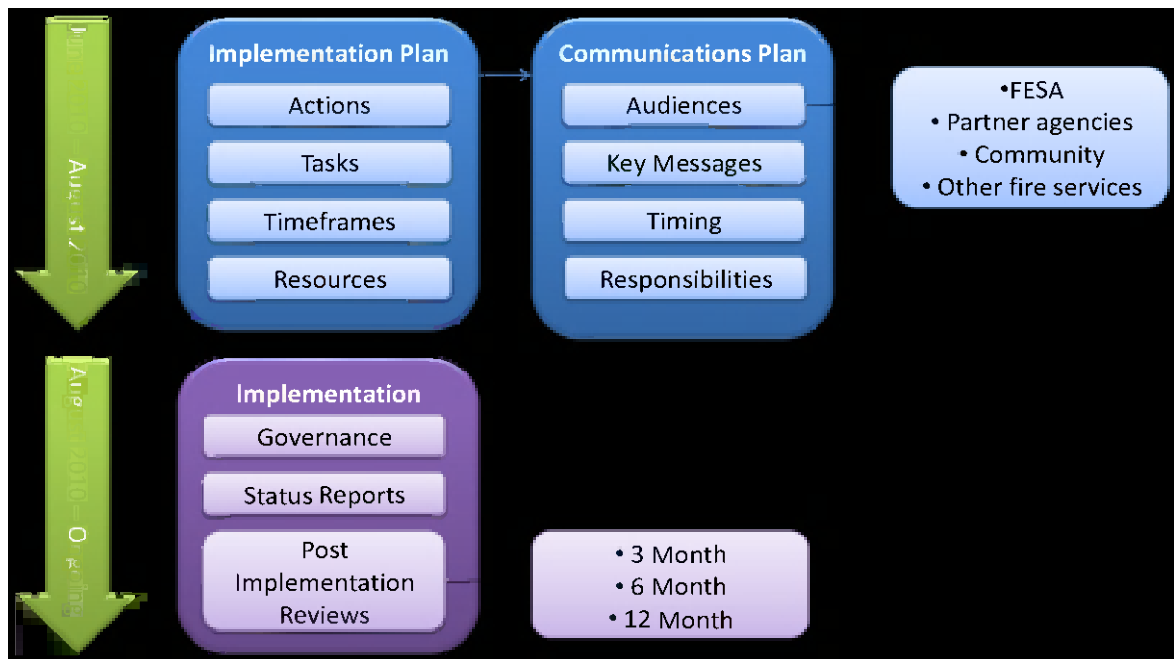
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<sup>45</sup> State Emergency Management Committee, *Western Australia: State Bushfire Emergency Management Plan (WESTPLAN-BUSHFIRE)*, November 2005.

## IMPLEMENTATION

**Lessons are not learnt until something is done.** The observations, lessons and actions identified throughout this report are the beginning of a learning process for FESA. The success of the lessons learnt process will be measured by the effectiveness of the implementation phase. Annex A provides a complete list of observations, lessons and most importantly, actions to ensure the lessons from the Toodyay fires are indeed learnt. The immediate next step for FESA is to develop an implementation plan for these actions. Figure 3 below outlines the key elements of the implementation phase.

**Figure 3 – Overview of Implementation Phase**



### Implementation Plan

FESA will need to consider each observation, lesson and associated actions and assign tasks, timeframes and resources. This is effectively a roadmap that creates an achievable path for implementation. It should include:

- + **Actions.** The actions identified in the MIR.
- + **Tasks.** Detailed task breakdown for the required action(s).
- + **Timeframes.** Timeframe for the implementation of task milestones.
- + **Resources.** The human resources (including associated accountabilities), physical assets and likely costs required for implementation.

It is recommended that the Implementation Plan be developed by September 2010.

## Communications Plan

The Communications Plan will support the Implementation Plan and will ensure that relevant stakeholders are identified and their information requirements are met. It should include:

- + **Audiences.** Defines key audiences such as:
  - FESA staff (which may have sub-audiences such as volunteers, paid staff, management etc). It is essential that FESA involves its staff in the implementation of recommendations to maximise stakeholder buy-in and provide assurance that FESA is learning lessons from the incident. Communication methods for FESA staff may include brochures, website, email and face-to-face briefings.
  - Partner agencies. As the MIR makes a number of whole-of-government findings, it is essential that FESA engage partner agencies in the implementation of actions and keeps them informed of its progress. Communications methods will be similar to those outlined for FESA staff.
  - Community members. The community needs to be assured that FESA is implementing improvements as a result of the Toodyay fire. It is noted that FESA has already conducted a number of community briefings and volunteer thank you days. Importantly, community members were invited to submit written submissions, so it is important that FESA continues to keep the community up to date on the outcomes of the MIR. Communication methods may include media releases and face-to-face briefings with the Toodyay community.
  - Other fire services. FESA should share the lessons learnt from the Toodyay Fire with fire services across Australia to ensure they are able to leverage these lessons. Communication methods may include a briefing to the Council of Australian Governments (COAG) and the Australasian Fire and Emergency Service Authorities Council (AFAC).
- + **Key messages.** Defines the key messages to be communicated to the defined audiences. This will include information such as progress updates, benefits, timeframes etc.
- + **Timing.** Details the timing of specific key messages to each audience.
- + **Responsibilities:** Defines accountabilities for delivery of key messages to each audience.

It is recommended that the Implementation Plan be developed by September 2010 and commence as soon as completed.

## Implementation

FESA, in partnership with other relevant agencies, then needs to implement the MIR findings based on the Implementation Plan and Communications Plan. Effective implementation should include:

- + **Governance.** It is recommended that the current Project Steering Committee oversee the implementation of the Implementation Plan. The Steering Committee should report directly to the Chief Executive Officer. Oversight will include coordinating efforts and resources (including funding of specific initiatives where required) and monitoring timely implementation of tasks.

- + **Status Reports.** The Project Steering Committee should provide regular Status Reports to the Chief Executive Officer as a part of the governance arrangements.
- + **Post-Implementation Reviews.** FESA should conduct three, six and twelve month post-implementation reviews to confirm that the lessons have been learnt. This task could be conducted by an external provider to provide external validation and assurance to the Chief Executive Officer.

## Conclusion

The Toodyay Bushfire of 29 December 2009 was one of the most damaging bushfires in Western Australia's history. While over 38 homes were destroyed, and 3000 hectares of land burnt, the actions of FESA, its partner agencies and the community itself contributed to no lives being lost, and only minor injuries being reported. This reflects well on the operational effectiveness of FESA. However, it is important that FESA learns the well earned lessons from the incident and not become complacent. The Review team has no sense that this is the case and the agency is seeking to learn from what went well and what did not go so well. While the outcomes of the Toodyay bushfires were the best that could be expected from a fire of such magnitude, this Review identifies a range of issues that FESA needs to address. Some of these issues are minor, while others are broader in nature. FESA and its partner agencies need to take action in response to the identified lessons to demonstrate it is a learning organisation and ultimately, improve operational outcomes.

It is acknowledged that some of these recommendations and lessons will require substantial change to long held practices. Others will have resource implications, while some will require sustained effort and demand grappling with complex issues. There may be a temptation to prevaricate on the implementation of these recommendations and lessons on the basis of the relatively successful outcome from the Toodyay fire. To do so would ignore the signals that emerge from event and risk a poor outcome from a similar or more demanding future incident.

This report outlines a set of observations, lessons and most importantly, actions to ensure that lessons are in fact learnt. The MIR's findings are whole-of-government in nature, and therefore require a whole-of-government response. This means that FESA will need to work in partnership with partner agencies and the community in achieving buy-in for the report findings, and the actual implementation of the actions. FESA has already laid the platform for this through the consultative nature of the review. It is essential that FESA maintains the momentum that has been gained through the conduct of the review. This will ensure that FESA continues to deliver on its mission to "*improve community safety practices*" and achieves its core value of "*strive to keep ourselves and others safe*".

## **ANNEXES**

- A. Summary of Observations, Lessons and Actions
- B. Documents Reviewed
- C. Stakeholder Consultation Schedule
- D. Written Submissions Received

## Annex A: Summary of Observations, Lessons and Actions

ID	Observation	Remarks	Lesson	Action
<b>Prevention</b>				
1	A number of Local Governments did not understand the importance of total fire bans and were not pleased with their declaration	This was not the case in Toodyay.	Local Government and FESA need to understand total fire ban responsibilities and the associated implications and importance.	As part of the review currently underway, ensure that Local Government and FESA have mutual expectations for the use of total fire bans (i.e. responsibilities, implications, processes, powers etc.). Develop strategies that meet these expectations and address prevention requirements (e.g. differentiate between a harvest ban and total fire ban).
2	The range of prevention activities conducted by FESA in the lead up to the incident were generally effective.	<p>This includes implementation of recommendations from the Chatcup fire and reduction of fuel loads etc.</p> <p>Local Government has a legislative requirement to undertake fire prevention.</p> <p>FESA is currently implementing a research project targeted to identify</p>	A whole-of-community approach to prevention is critical in mitigating catastrophic fires.	<p>FESA continue to support Local Government's fire prevention activities.</p> <p>Establish relationships with community members, the Local Government Association and Local Governments to capture and understand issues associated with the delivery of bushfire prevention activities.</p>

ID	Observation	Remarks	Lesson	Action
		gaps in the bush fire prevention and preparedness.		Develop a partnership between FESA and Local Government that outlines bushfire prevention principles. <sup>46</sup>
3	There is an inconsistent commitment to fire prevention across Local Governments.		There needs to be a shared vision for bushfire prevention between FESA and Local Governments.	<p>Develop audit process/program to examine bushfire prevention planning in partnership with Local Government. This should be developed with a state-wide planning view in mind, with priority given to urban-rural interface areas.</p> <p>See Observation ID 2 for further related actions.</p>
<b>Preparedness</b>				
4	Victoria's Black Saturday Bushfires raised community awareness of the potential catastrophic consequences of bushfires.		There is an opportunity to capitalise on strong community awareness in relation to bushfire preparedness. Community awareness is likely to decline over time as recent events such as Victoria and Toodyay fade in people's memories.	Review prevention and preparedness communication programs for effectiveness. This should include understanding different groups within the community based on age, locations, occupation etc. Develop and implement extended programs in response to the outcomes of the

<sup>46</sup> It is understood that this has already passed through Cabinet.



ID	Observation	Remarks	Lesson	Action
				review to enable a greater targeting of messages and programs.
5	The use of the catastrophic fire weather warning effectively conveyed the seriousness of the risk to the community.	FESA does not rely solely on this method but rather adopts a range of community warnings as is necessary.	The fire weather warning messages provided to the community via the new warning system was effective in community preparedness. Need to be cognisant that these warnings (and other community awareness campaigns) may not be as effective in a number of years when community awareness has decreased. FESA cannot rely on warning systems as the sole method of communicating with the community.	<p>Consult with the community to understand what was effective (or ineffective as the case may be) about the fire weather warnings. Implement the findings of this consultation before the next fire season.</p> <p>Complete an environmental scan to see what other jurisdictions have learnt from the new catastrophic fire weather warning system.</p>
6	Tactical preparedness activities were effective.	FESA undertook a range of preparedness activities in response to the Bureau of Meteorology weather warnings. For example, pre-positioning aerial assets on the surrounding hills.	There are a number of preparedness (pre-planning) activities that can be implemented to assist readiness and allow crews to 'hit the ground running'. Comprehensive preparedness contributes to an effective response.	<p>Review/develop preparedness systems to ensure both tactical and strategic learnings are incorporated. Ensure that levels of preparedness are linked to threat analyses. Communicate findings to all staff and volunteers involved in preparedness activities.</p>
<b>Response (Command and Control)</b>				

ID	Observation	Remarks	Lesson	Action
7	The transfer of command from Local Government to FESA was mutually agreed and occurred effectively.	This can be attributed to strong personal relationships, however, there is no guarantee that this would be the case in future incidents. It is important to note that FESA did not use its legislative power to take command of the incident.	The successful transfer of command from Local Government to FESA was largely dependent on previously established personal relationships.	<p>Establish processes and triggers in Local Emergency Management Arrangements for the transfer of command to guide future decision making within FESA operating procedures.</p> <p>Actively communicate with Local Government representatives to ensure they understand the legislation and its desired outcomes.</p> <p>See also Observation ID 59 which will have a significant impact on relevant actions.</p>
8	The Incident Management Team was insufficiently staffed for a fire of this magnitude, particularly in the early stages of the incident.	It is important to note that the Incident Management Team did the best possible job they could with the resources at their disposal.	Incident Management Teams need to be quickly formed with sufficient staff (e.g. ensure there are deputy managers) that are appropriately skilled (e.g. local knowledge, the role of an Incident Management Team) and practiced in managing a variety of situations.	<p>Take a whole of capability approach to the development of Incident Management Teams (people, organisations, systems, training [individual and collective], equipment, doctrine/procedures).</p> <p>Establish a process and associated triggers to mobilise staff to the incident. Consider the development of pre-</p>

ID	Observation	Remarks	Lesson	Action
				formed multi-agency incident management teams and strike teams and incorporate into policies, procedures and systems.
9	The Incident Controllers had insufficient capacity to perform their full range of responsibilities effectively (i.e. combating the incident and managing other agencies/media).	This was particularly the case in the early stages of the incident as the Incident Controller was focused on combating the incident, but was inundated with requests for information etc. from other agencies, media etc.	The Incident Controller needs sufficient support (e.g. deputy managers) to ensure their key responsibilities can be enacted.	<p>Actively promote the findings of this MIR to all current incident controllers.</p> <p>See Observation ID 8 for actions to ensure the Incident Management Team (including the Incident Controller) has sufficient capability and capacity to execute their key responsibilities.</p>
10	The Incident Controllers were instrumental in ensuring an effective response.		The Incident Controller, and in particularly, their ability to liaise with other agencies, is critical to operational effectiveness.	<p>Ensure stakeholder relationship management competencies are incorporated into the current review of Level 2 and 3 Incident Controller training.</p> <p>Encourage best practice in Local Government selection of Chief Bush Fire Control Officers to provide assurance that initial incident controllers are appropriately skilled.</p>

ID	Observation	Remarks	Lesson	Action
11	There was a lack of role clarity between the State Operations Centre, Regional Operations Centre, Operations Area Manager and the Incident Management Team.		Successful operational outcomes require the various levels of coordination to clearly understand and enact their roles and responsibilities.	<p>Establish/review guidelines on the roles and relationships of the State Operations Centre, Regional Operations Centre, Operations Area Manager and Incident Management Team.</p> <p>'Stress test' training and exercising of the incident control system to ensure the integrity of the command structure is maintained.</p>
12	The self-deployment of a number of assets (private units and brigades) meant all resources weren't effectively coordinated, particularly in the early stages of the incident. Poor coordination of private units in particular resulted in safety concerns.		All assets need to ensure that they report to the Incident Management Team before deploying.	<p>Revise current training and education activities to ensure both private units and brigades understand the importance of reporting to the Incident Management Team for overall coordination efforts.</p> <p>Review existing private unit guidelines and develop a joint code of practice for private units, inclusive of a trial process with relevant farmer organisations such as the Western Australian Farmers Federation.</p>

ID	Observation	Remarks	Lesson	Action
13	FESA successfully managed a number of concurrent operations across the State.		FESA need to be prepared to manage a number of major incidents concurrently.	Incorporate concurrent operation management into relevant Job Description Forms. Ensure associated standards for selection, development (i.e. individual and collective training and exercises) and promotion of these positions are implemented.
14	There are challenges in integrating out of area resources (i.e. from nearby Shires) into local incidents.		Integration of various resources is paramount to an effective and efficient operational team.	Incorporate FESA inter/intra state guidelines to assist agencies in gaining incident support from other jurisdictions into Local Emergency Management Arrangements and Operational Plans. This should include specific scenarios where, and how, resources from nearby Shires will be utilised.
Response (Inter-Agency)				
15	Inter-agency cooperation with key agencies was generally effective and contributed to the best possible outcome.	This observation is also related to preparedness.	Inter-agency relationships are critical to operational effectiveness. FESA needs to maintain good relationships with key agencies and understand each other's role. It is important to leverage these relationships in the formation of multi-agency Incident	FESA to maintain inter-agency relationships and arrangements. These relationships should be formalised where possible through activities such as training, exercises and standard operating procedures (e.g. forming an Incident Management

ID	Observation	Remarks	Lesson	Action
			management Teams.	Team).  Review job descriptions to reflect inter-agency relationships and key partnerships.
16	Strong personal relationships proved critical in responding effectively, however, there is a risk of over-reliance on personal relationships.		An over-reliance on strong personal relationships, particularly at the local level, can lead to inconsistency within regions (depending on the individuals available for incident response) and across different regions (due to differing strengths of relationships).	Continue to build strong personal relationships, supported by formal systems such as joint training, exercising and procedures.
17	A number of agencies were not formally notified about the incident from FESA.		Early notification of incidents to all possible affected agencies will increase the speed of response should they be activated.	FESA to liaise with agencies to establish mutual expectations regarding the timeliness and appropriateness of incident notifications. FESA to establish/review guidelines for notifying other agencies based on this consultation.  Using promotional activities, encourage agencies to be proactive in seeking information and mobilising resources through access to the Web

ID	Observation	Remarks	Lesson	Action
				Browser and FESA radios.
18	Animal welfare processes and systems were not established until concerns were raised by community members.		Animal welfare considerations are an important aspect of operations in rural areas, particularly once the threat of loss of life/property has subsided.	Revise multi-agency procedures to ensure that a system (including procedures and responsibilities) is established to register animals, assess their welfare, feed/water them etc. in future incidents.
19	There is no established process for ensuring the qualifications or bona fides of counsellors.		FESA requires assurance that strict controls are in place for counsellors.	Liaise with the Department of Health to ensure that appropriate controls are in place for counsellors during and after an incident (particularly where the Department of Health is not part of the Incident Management Team).
20	A local and internal Police command structure was not immediately established due to insufficient resources.		A sufficiently resourced local and internal Police command structure is essential for effective integration with the Incident Management Team.	WA Police communicate the lessons learnt from establishing a Police command structure across the state.
21	A number of instances of individuals contacting FESA Media to activate State Alert.		There is not a widespread understanding (internal and external to FESA) of the correct process to activate State Alert.	Communicate, educate and exercise State Alert procedures to all relevant agencies. Provide staff with 'key contact' cards with the contact details for critical functions such as State Alert activation.

ID	Observation	Remarks	Lesson	Action
<b>Response (Communications)</b>				
22	There was poor information flow to and from the fire ground, Incident Management Team, Regional Operations Centre, State Operations Centre and FESA Media.	The poor passage of information from the fire ground is endemic to all rural fire services in Australia.	FESA needs to improve information flow through the chain of command.	<p>Establish information requirements for end to end information exchange and vertical integration.</p> <p>Assess the adequacy of current procedures, systems (e.g. ICT and reward systems), culture and resources (e.g. Incident Management Team, fire units) to meet these information requirements.</p>
23	Radio procedures and communications discipline were not always adhered to on the fire ground.		Adherence to radio communications procedures enhances operational effectiveness through better passage of information and improved situational awareness.	<p>Ensure basic (and ongoing) training teaches users proper radio procedures and that these are exercised regularly.</p> <p>Review implications of new analogue radio system, including the likelihood of increased traffic from private units. Based on this review, implement relevant strategies such as radio specific training for private units as part of the new system's implementation.</p>
24	There was a high reliance on mobile phones for communications between		Communications planning for complex incidents needs to consider the use of	Review the suitability of mobile phones as part of the actions identified in



ID	Observation	Remarks	Lesson	Action
	all levels of the chain of command.		mobile phones, their capacity and vulnerabilities to meet FESA's information requirements.	Observation ID 22.  Ensure communications plans consider the appropriate use of mobile phones and where appropriate, utilise spare land lines and divert mobile phones to a PABX instead.
25	The Incident Controller received a high volume of direct calls from the Communications Centre early in the incident. These calls were often duplicate reports and meant the Incident Controller spent a disproportionate amount time on the phone.		There is a need to coordinate calls from the Communications Centre to the Incident Controller.	Revise the incident control system to provide a mechanism to coordinate calls from the Communications Centre and provide validated/consolidated information to the Incident Controller for command decisions.
26	Inter-agency teleconferences could be improved from a process and format perspective.		Well practiced, simple communication procedures will enhance operational effectiveness.	Develop and practice communication procedures such as inter-agency teleconferences. Refer to Observation ID 22 for further information exchange related actions.
27	Interaction with the Minister's and Premier's office was effective.	Historically in incidents across Australia, this is not always the case for major incidents.	Keeping the political level informed is effective in ensuring operational decision making is not interfered with.	Involve political level stakeholders in training and exercising.

ID	Observation	Remarks	Lesson	Action
<b>Response (Public Information)</b>				
28	A number of community members were concerned they did not receive State Alerts until the fire had passed.		Need to educate the public about the purpose and functionality of State Alert.	Implement an education and awareness campaign to promote the purpose and utility of State Alert.
29	State Alert generally worked well, however, there were some minor technical problems.		State Alert is an effective tool for delivering emergency warnings, however, a number of minor technical issues need to be resolved.	Identify and remedy the identified issues with State Alert.
30	The Incident Controller provided critical information to FESA Media in a timely manner.	This included technical fire detail such as its behaviour which the public wanted to receive.	The provision of timely information to FESA Media is critical in ensuring the public receives the information they need to look after their own safety.	Maintain close contact between the Incident Controller and FESA Media (including their Liaison Officer) in future incidents.  Ensure that a Public Information Officer is deployed in a timely manner to future incidents.
31	The quality and quantity of information provided to the public was unevenly received.	A number of community members were overwhelmed with the amount of detail, the range of new warning systems and its repetitive nature. Generally speaking however, the public was happy with the amount of	In some instances, the public was overwhelmed with the number of new public information systems and its detail. Need to ensure that public information is prioritised and a clear message is disseminated to the public.	FESA continues to work closely with ABC to examine broadcast procedures and specifically, how they prioritise information and determine the appropriate amount of information.

ID	Observation	Remarks	Lesson	Action
		information provided.		
32	A Facebook group (social networking tool) was established with over 6,000 members and was used during and after the incident. This was particularly effective as some people had internet access, but no mobile phone reception.	The Facebook group provided information about the progress of the fire, messages of support, a furniture register, obtaining information about road closures, offers of assistance, information about lost and found pets and livestock, information about ways people could help etc.	A range of technologies (including social networking tools) need to be used to target diverse populations.	FESA Media develops a Social Networking Policy that looks to utilise social networking tools to disseminate information electronically to users familiar with these tools as a method of information exchange.
<b>Response (Intelligence)</b>				
33	There was a general lack of situational awareness in the Incident Management Team.		FESA needs to develop its understanding of how information through the Chain of Command (i.e. AIIMS) forms a critical component in developing intelligence products to inform effective planning and operational decision making.	Establish an intelligence function (as per the Counter-Terrorism AIIMS structure) for all Category 2 and 3 incidents.  See Observation ID 22 for actions related to improving information flow and Observation ID 8 for actions related to ensuring a sufficiently staffed Incident Management Team.
34	The quality of Emergency Services Directory maps meant that different versions were being used.		Current Emergency Services Directory maps limits planning and operational decision making.	Consult with operational staff and incorporate their mapping requirements into a revised

ID	Observation	Remarks	Lesson	Action
				Emergency Service Directory.
35	There is not a widespread understanding of, or training in, threat analysis. Knowledge of fire behaviour needs to be further developed.		In general, there is a lack of utilisation of the existing tools and systems that assist in understanding the parameters that influence fire behaviour and how it impacts command decisions.	<p>Review existing tools and systems to ensure that they are based on simple but fundamental fire physics principles.</p> <p>All Incident Management Teams should have a staff member with a comprehensive understanding of these principles, tools and systems.</p>
36	Mapping/GIS capability was limited due to a number of issues, however, the mapping products were used extensively for response and recovery.		The provision of adequate mapping services is critical to operational decision making and meeting real time needs.	<p>Confirm the operational mapping system to be used at all operations (EmerGeo, ArcView or alternative).</p> <p>Ensure the Incident Management Team has a full appreciation of the capabilities offered by mapping.</p> <p>Continue to spread mapping resources across the Incident Management Team and FESA HQ.</p>
<b>Response (Safety)</b>				
37	Aviation operations were conducted successfully in a complex and	While this operation was conducted successfully, the inherent high risks in	Aviation safety procedures and processes were effective in ensuring	Ensure procedures and processes are in place for future operations.

ID	Observation	Remarks	Lesson	Action
	hazardous environment.	these types of incidents means safety cannot be taken for granted in future operations.	safety in a complex and hazardous environment.	
38	A range of minor safety issues were identified. Only minor injuries were reported, some minor burns, smoke inhalation and fatigue. No near misses were reported.		The safety management of the community and staff was effective. It is highly likely that near misses were not reported given the severity of the incident and lack of any reports.	Promote the reporting of all injuries and near misses, even minor ones.
<b>Response (Logistics)</b>				
39	Logistics management was not as effective as it could have been.	As the scale of an incident increases, the importance of logistics as a function grows significantly.	Effective and timely logistics management is key aspect of operational effectiveness.	<p>Ensure that all staff likely to fulfil logistics roles have the required skills and competencies to effectively manage logistics.</p> <p>Develop pre-incident logistic plans based on previous lessons learned.</p>
40	The location chosen for the establishment of the Incident Management Team (Toodyay Fire Station) was not ideal from a logistics and accommodation perspective.	The Toodyay Fire Station is the location stipulated in the Local Emergency Management Arrangements.	The location of the Incident Management Team is critical to the effectiveness of the team.	Develop a checklist of what is required in an Incident Management Team location. District Emergency Management Committees review Local Emergency Management Arrangements to ensure the location is suitable based on this checklist.

ID	Observation	Remarks	Lesson	Action
41	The use of pre-planned staging areas worked well.	This was a lesson learnt from the Chatcup incident.	Pre-planned staging areas increase the efficiency and effectiveness of operations.	District Emergency Management Committees review Local Emergency Management Arrangements to ensure that appropriate staging areas are identified for large incidents.
<b>Response (Tactics)</b>				
42	FESA's multi-sensor air reconnaissance aircraft was unavailable for the critical phase of the incident.	FESA only has a single multi-sensor air reconnaissance aircraft.	Multi-sensor air reconnaissance aircraft are a vital aid to developing situational awareness in major incidents.	<p>Review FESA's air reconnaissance capability and determine if multiple multi-sensor air reconnaissance aircraft are required for managing concurrent incidents.</p> <p>Revise air operations dispatch procedures to ensure that the dispatch of FESA's multi-sensor air reconnaissance aircraft is appropriately prioritised on catastrophic fire days.</p>
43	Air Operations data indicates that over 400,000 litres of water was dropped over 26.9 hours of flying time, up to 13 properties were saved and assets also provided air reconnaissance activities.	Assets include air reconnaissance, Helitac Types 1 and 3, fixed wings and Urban Search and Rescue teams.	The use of Air Operations aerial support was critical to the protection of property, fire fighting personnel and situational awareness/ intelligence gathering.	Ensure the same procedures and processes are in place for future operations.

ID	Observation	Remarks	Lesson	Action
44	The lack of reticulated water and hydrants led to a reliance on mobile tankers.		There is a need to ensure that mobile tankers can be mobilised to areas without reticulated water and hydrants quickly.	FESA review its plans for high risk areas (e.g. urban interface) without reticulated water and hydrants have pre-established plans for accessing mobile tankers.
<b>Response (Other)</b>				
45	Police Vehicle Control Points (VCP) procedures were too restrictive and at times, hampered operational response.		There is a need for clear communication between VCPs and the Incident Management Team and well documented procedures to ensure that operational vehicles are allowed into restricted areas, while appropriate controls remain in place to protect community safety.	<p>Revise State Emergency Management Procedures Manual: All Hazards Road Closures (OP 20) to ensure sufficient guidance is provided for vehicle control points.</p> <p>Consider issuing identification cards for the purpose of identifying authorised vehicles that can clear vehicle control points.</p> <p>Deliver basic fire training to Police across the state based on likely fire risks (e.g. primarily bushfire training for Police in urban interface areas, and structural fires for urban Police).</p>
46	There was inconsistent use of the Operational Management System		The lack of usability and trained users of the operational management system	Ensure that operational management system requirements are captured as

ID	Observation	Remarks	Lesson	Action
	(OMS).		resulted in inconsistent use of the system, and as such, failed to make best use of information systems.	part of the ICT Strategy – data analysis requirement project. This project also needs to consider people and process implications such as resourcing, education, training and changes to business processes.
47	FESA made use of a range of FESA resources across the Services (e.g. State Emergency Service).		Utilisation of staff from across the Services allows staff with an understanding of the incident control system to be involved in incident control regardless of their role (i.e. FESA, SES etc.).	FESA continue to identify staff members across FESA that are capable of filling roles in Incident Management Teams for bushfires, and vice versa. Develop procedures to ensure that these individuals are utilised in the formation of Incident Management Teams.
48	FESA Information Line call takers were effective in roles beyond their level of training and expertise. This includes the utilisation of volunteer call takers from across the organisation.		Need to ensure that appropriate training is provided to FESA Information Line call takers to deal with emergency scenarios. Volunteer call takers are essential for emergencies, particularly incidents that require a sustained response.	<p>Deliver specific emergency focused training for FESA Information Line call takers.</p> <p>Expand the existing volunteer call taker base to ensure there will be sufficient capacity and capability for future incidents that require a sustained response.</p>
49	New equipment and appliances		Western Australia's Emergency	Maintain a long-term equipment



ID	Observation	Remarks	Lesson	Action
	increased the safety of fire fighters and effectiveness of response.		Services Levy appears to be providing a strong funding base for acquisition of new equipment and appliances.	capability plan and existing asset management systems.
<b>Recovery</b>				
50	Not all debriefs were conducted in a timely manner.	Largely due to high operational tempo.	Not all issues are being immediately recorded and therefore are not being recognised or addressed.	Review existing debrief formats and timeframes to ensure the most effective information is gained and staff understand the importance of timely de-briefs.
51	Clearing of areas created a risk of substantial water erosion.		Need to balance the risk of water erosion versus personal safety when clearing areas.	Consult with the Department of Environment and Conservation to develop guidelines for clearing mass areas following major bushfires.
52	The area of origin was not protected after the fires for investigation purposes.		The point/area of origin needs to be protected to ensure the integrity of mandated investigations.	Review current systems, training and education to ensure staff understand the guidelines for the protection of the point/area of origin after major bushfires. Education and awareness activities should be specifically targeted at Brigade Officers to ensure the guidelines are implemented at the operational level.
53	Maintaining a career ambulance		Ensuring volunteers can continue on	Ensure that recovery guidelines

ID	Observation	Remarks	Lesson	Action
	presence for three days after the incident was effective.		operations, or deal with potential personal losses is an important aspect of the recovery process.	consider the wellbeing (fatigue in particular) of staff and volunteers after an incident. This should include detailed consideration of those volunteers with dual roles (e.g. those that are volunteer fire fighters and ambulance staff) and those who have experienced significant personal loss (e.g. homes, family members etc.).
54	The FESA Community Emergency Management Officer embedded in Local Government throughout the recovery phase provided important recovery planning expertise.		Local Government can benefit from expert emergency management assistance during the recovery phase.	Liaise with Local Governments to establish pre-existing arrangements for embedding a FESA Community Emergency Management Officer during the recovery phase.
55	Post-incident community meetings were effective in addressing communicating concerns and questions, however, greater guidance on how they are run is required.		The structure and timing of community meetings need to be better defined to ensure they do not go on too long after the incident and focus on determination of blame.	Develop guidance for community meetings and incorporate into standard operating procedures.
56	The fire has had a psychological impact on a number of staff and volunteers.		Stress prevention and management needs to be a high priority for all staff and volunteers.	Review current stress prevention and management systems and identify opportunities for strengthening support through cultural change, induction and training.

ID	Observation	Remarks	Lesson	Action
				Consider establishing Safety and Welfare teams early in incident response to mitigate welfare risks.
57	The Operational Area Support Group was effective in supporting the immediate post-incident and recovery phases.		Need to reinforce how effective inter-agency state emergency management structures are established and utilised.	Maintain existing structures and resource levels/commitment.
58	There was a sustained Police presence in the area after the incident.		A sustained Police presence is good for community relationships and reduction in activities such as looting and 'tourist traffic'.	
<b>Organisational Issues</b>				
59	Separation of firefighting responsibilities between combatant agencies created a number of command, control and coordination issues.	While these issues did not affect operational effectiveness on the day (mainly due to well-established informal relationships), it is a significant risk for future operations (particularly a catastrophic incident).	FESA and other combatant agencies need to establish more effective command, control and coordination arrangements.	Develop a plan to ensure that command, control and coordination arrangements better adhere to best practice principles.
60	The operation of FESA and DEC fire fighting resources created a number of inter-operability issues.	While these issues did not affect operational effectiveness on the day (mainly due to well-established informal relationships), it is a	FESA and DEC need to develop greater inter-operability at the strategic, operational and tactical levels.	FESA and DEC to improve inter-operability through the development of a whole of capability approach to FESA and DEC fire fighting operations

ID	Observation	Remarks	Lesson	Action
		significant risk for future operations (particularly a catastrophic incident).		<p>(with a particular focus on communications, command and control, joint-doctrine, procedures and training). This inter-operability needs to be exercised regularly.</p> <p>Identify the critical relationships between FESA and DEC for the Toodyay fires, capture positive elements and promote these learnings across the state.</p>
61	The State may not have the capability and/or capacity to deal with major fires on the urban interface such as Toodyay.	This is a growing global trend most fire services are facing. Fighting fires on the urban interface is inherently difficult because of the complexity of the terrain etc.	FESA and its partner agencies need to develop a stronger capacity and capability for fighting urban interface fires.	<p>FESA, in conjunction with Local Government, develop a whole-of-capability approach to urban interface fire fighting. This will need to focus on doctrine, procedures and individual and collective training.</p> <p>Implement strategy to increase awareness of home owners' responsibilities in urban interface areas.</p>

## Annex B: Documents Reviewed

- + Aerial Fire Suppression SOP 71
- + Air Operations Overview and Data – Toodyay Fire 29<sup>th</sup> & 30<sup>th</sup> December 2009
- + Aircraft Procurement for Incident Support SOP 69
- + Appliance and Crew Protection at Wildfires SOP 62
- + Bushfire Financial Assistance – SAP 12
- + Bushfire Smoke Exposure SOP 51
- + Communications Procedure
- + Electrical Incident Report: Bushfire Near River and Folewood Roads, Toodyay, Western Australia, 29 December 2009
- + Emergency Turnout Procedures SOP 3
- + FESA CAD Incident Report
- + FESA Crisis Management Plan
- + FESA Media Statements and Warnings
- + FESA Policy on Incident Analysis Management
- + FESA Spatial Debrief for December 29<sup>th</sup> to 30<sup>th</sup> 2009 Toodyay Bushfire Incident
- + FESA StateAlert SOP 70
- + Fire Cause Investigation SOP 45
- + Fire Investigation for Officers SOP 57
- + Incident Control System SOP 6
- + Incident Documentation SAP 32
- + Incident Management Recording SOP 65
- + Internal Memorandum: Call Taker Debrief
- + Main Roads WA – Briefing Note to the Minister for Transport
- + Major Emergency Management and Coordination Guidelines

- + Major Emergency Teams - Operational Principles and Instructions
- + Media Debrief Reports
- + Meteorology aspects of the Toodyay and Badgingarra Fires, 29 December 2009, Bureau of Meteorology
- + Mobilising SOP 1
- + Mop up and Black Out at Bushfires SOP 56
- + OASH Meeting Minutes – 1000hrs on the 30<sup>th</sup> of December 2009
- + OP 20 – Road Closures
- + Operational Safety on Roadways SOP 35
- + Operations Deployment Guidelines
- + Post Incident Analysis Chatcup Incident – Tuesday 27 February 2007
- + Post Incident Analysis SAP 15
- + Red Flag Warnings SOP 68
- + State Emergency Management Plan for Bushfire (Westplan - Bushfire)
- + Summary of Damages to Properties Affected by Bushfire – December 2009
- + Toodyay Bushfire Media Coverage Summary
- + Toodyay Fire District Western Australia Shire of Toodyay Deposited Plan
- + Toodyay Fire Map
- + Toodyay Fire, Post Incident Analysis
- + West Australian Government Gazette: Fire Brigades Districts 2004

## **Annex C: Stakeholder Consultation Schedule**

- + Alan Knapp, Ranger and Deputy Chief Bush Fire Control Officer, Shire of Toodyay
- + Bill Thompson, Manager, Emergency Preparedness, St John Ambulance Australia (Western Australia)
- + Catherine Bullen APM, Superintendent, Wheatbelt District Police Office
- + Chris Arnol, Assistant Chief Operations Officer – Country, FESA
- + Craig Hynes, Chief Operations Officer, FESA
- + Des Snook, Executive Director, Road Network Services, Main Roads WA
- + Dr Andy Robertson, Divisional Director, Health Protection, Department of Health
- + Frank Pasquale, Executive Director, Corporate Services, FESA (Acting CEO during the incident)
- + Gary Gifford, Assistant Chief Operations Officer, FESA
- + Gavin Forrest, Manager Standards Policy and Data Quality, Western Power
- + George Basanovic, Corporate Incident Management Coordinator, Water Corporation
- + Gordon Bowman, Toodyay Volunteer Fire and Rescue Service
- + Graham Reader, Manager, Weather Services, Bureau of Meteorology
- + Greg Pobar, Director, Emergency Management Western Australia
- + Ian MacGregor, Toodyay Volunteer Fire and Rescue Service
- + Jim Burnett, Incident Management Manager, Main Roads WA
- + Jo Harrison-Ward, Chief Executive Officer, FESA
- + Leon Surawski, Senior Project Manager, Wheatbelt North Region, Main Roads WA
- + Lindsay Cuneo, Assistant Chief Operations Officer
- + Mark Bowen, District Manager, Avon Goldfields/Midlands Region, FESA
- + Maurice Cammack, Manager Road Safety, Main Roads WA
- + Max Heath, Fire Control Office, Coondle Bush Fire Brigade
- + Menno Heenveld, Commissioner, Main Roads WA

- + Michelle Harris, Director, Media, FESA
- + Muriel Leclercq, Manager, Disaster Preparedness & Management Unit, Department of Health
- + Murray McBride, Chief Bush Fire Control Officer, Shire of Toodyay
- + Pamela l'Anson, Regional Manager, Department of Agriculture and Food
- + Raymond Yau, Manager Safety Compliance and Investigations, Western Power
- + Stephan De Han, District Manager, Hills, Department of Environment and Conservation
- + Stephen MacCarthy, Security Program Manager, Water Corporation
- + Terry Maher, Fire Services Manager, Department of Environment and Conservation
- + Trevor Tasker, Regional Director Goldfields Midlands, FESA
- + Trevor Wigg, Director, Communications Centre (CommCen), FESA



## **Annex D: Written Submissions Received**

- + Evan Walters
- + Rod Wallington, Risk & Emergency Management Coordinator, Chief Bush Fire Control Officer, City of Gosnells
- + Samantha Connor
- + St John Ambulance Australia (Western Australia) Inc.
- + Tim and Beryl Officer
- + United Fire Fighters Union of Australia West Australian Branch
- + Western Australia Volunteer Fire and Rescue Service Association (inc)