CHARLES HULL
CONTRACTING

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1/3/2016

Waroona Bushfire Special Inquiry
Level 6 Dumas House
2 Havelock Street
WEST PERTH
Western Australia 6005

Attn: Mr Euan Ferguson AFSM,

We present the following submission which I do not wish to orally present at a public or private hearing.

We feel that a number of issues in response to the January 2016 Waroona Fire need addressing:

1. Communication was severely lacking. No warning was issued that the fire was going to impact Yarloop townsite. One of our staff received a frantic phone call on Thursday 7th January at 8:14 pm from local police to open our Yarloop yard to look for water. Were we made aware that there was going to be a lack of resources to protect Yarloop, we would have assisted to make them available to protect our assets and town itself. By the time our water carts arrived from our Waroona yard it was too late.
2. Road blocks during and after the main fire days, affected access of personnel and machinery when calls for assistance were made, as employees were unable to pass police roadblocks. Murray Cooke from Yarloop Tractor Repairs called our employee Peter Frerk for assistance at Yarloop on the Thursday night; he was stopped at the roadblock. Just one more man could have saved our sheds and houses.
3. If locals had not stayed and defended where they did, the fire ground map would have ended up a much larger area. The areas where locals worked to maintain fire-lines in the absent of any assistance from DFES should be acknowledged.
4. A DFES fire truck arrived at our McLarty St Waroona property on Wednesday 6th January without water and after it was filled from our supply, they refused to apply any to burning buildings and proceeded to drive off. DFES fire units arriving on scene with no water or intention of assisting is not effective. All they offer is a false sense of security.
5. Local knowledge is disrespected and available resources are underutilised which contributes to greater property loss during these events. The local fire brigade captains should be in charge.
6. Our productivity was unnecessarily affected by road blocks for 2 weeks due to staff and vehicle access for administration, maintenance and mobilising machinery for a new job.
7. Climate change should not be named as a contributing factor. In past times, the fire season always opened on 15th March to burn fuel build-up on road verges and private bushland. Property owners should be given support to burn by local volunteers without need for excessive paperwork that is currently required. Out of control fires seems to be standard now and it will remain that way unless fuel loads are reduced.

Yours sincerely

Charles Hull

Consortia Advisors Contact Information

Christanya Maya
[redacted]

Mark Pitts-Hill
[redacted]

David Ryan
[redacted]

11 March, 2016

Waroona Bushfire Special Inquiry
Level 6, Dumas House
2 Havelock Street
WEST PERTH, WA 6005

WaroonaInquiry@semc.wa.gov.au

Dear Mr Ferguson

Submission - The Premiers Directive of a Special Inquiry into the January 2016 Waroona Bushfire, issued on the 20th of January, 2016.

We thank the Premier for initiating this Special Inquiry and hope that appropriate and timely, duty of care actions, will follow to improve and enhance the State's capability to handle natural disasters such as bushfires, that have caused considerable damage over the last few years.

We are a small group of Western Australians living in Perth with friends and relatives in regional WA. We also have extensive experience in information communications technology (ICT) strategy, emergency management, procurement and major project management. Our preliminary advisory team consists of:

Ms Christanya Maya
International ICT Expert Advisor
Emergency & Disaster Response (Int. Critical Imperative Operations)

Mr Mark Pitts-Hill
ICT Policy, Strategy & Review Specialist
Former Assistant Director (WA Department of Treasury & Finance and Department of Finance)

Mr David Ryan
Major Infrastructure & Resources Development Specialist
Former Senior Manager (WA Department of State Development)

Additional Consortia members include;

A broad spectrum of highly reputable Australian & international individuals, companies and corporations with an extensive range of proven advisory services. Experience in the provision of regional, state, national and international critical infrastructure, public safety and emergency services, including incident response management ICT systems and integrated solutions.

- Note - previous suppliers to the WA and Federal Government through the WA ICT Services Contract, and other government contracts.

Background

Bushfires in this State in the past few years have caused loss of life, extensive property loss and in some cases, extreme hardship for those affected.

As members of the tax paying public and WA community, we are concerned that despite some improvements and measures taken in emergency management, there appears to be a number of significant and persistent weaknesses which could well be contributing to losses experienced to the;

- Individual and extended family/friends/immediate community
- extended WA community
- essential services (overextended)
- business and industry (significant losses, disruptions or failures to operate/supply)
- environment impact (incl. air quality)
- community heritage (e.g loss of cultural sites, indirect impact on tourism)
- State insurer.

Anecdotally these challenges are set to increase as Perth and the State, continue to experience record breaking temperatures through summer.

Our Consortia would sincerely like to offer its assistance to the WA government in its deliberations, reforms and strategies to enhance the State's capability to better manage bushfire-related risk as it pertains to information and communication technologies.

We have made our comments and initial recommendations in relation to the Terms of Reference of the Inquiry and relevance to the Govnext strategy EOI.

Terms of Reference

1. The response to the January 2016 Waroona Fire

(d) The effectiveness of incident management, including coordination of agencies, volunteer fire and emergency services and interstate assistance;

Our Consortia believe that unified communications platforms that are easy to use and remain robust in extreme conditions, are essential for the coordinated effort of government agencies. We note from previous inquiries and reports that three key elements stand out:

1) That mobile and UHF/VHF coverage cannot be guaranteed in some terrains prone to bushfire.
2) A lack of interoperability between agencies systems, cause difficulties in delivering, receiving and sharing critically imperative, secure, real time (or timely) voice, data and information.
3) A lack of in-field operationally effective, integrated voice and data communication systems (e.g. radio communications), with regard to the delivery of accurate, secure and real time fire emergency alerts, issued to regional (and front line) voluntary fire fighter individuals and teams.

Concerns have been raised over several years, and most recently also reported in SEMC Emergency Preparedness Report 2015, regarding significant telecommunication 'blackspots', particularly in the Wheatbelt and south-west of the state. Several regional local governments have expressed dissatisfaction with both the level of telecommunications infrastructure and the services provided.

Our Consortia would like to propose its efficient and cost effective solutions to these three elements, among others, with the relevant agencies. Inter-agency communications can certainly be channelled to more effectively arrive at timely 'one source of truth' messages.

(e) Protection of essential services infrastructure and access to essential services (power, transport, water, communications) by emergency services organisations and the community;

The members of our Consortia possess experience in critical and essential services and infrastructure, military and paramilitary communications and provides possible solutions for catastrophic loss of communications infrastructure.

It should be noted that not all solutions require military grade equipment. It could be something as simple as a creative way of hopping or relaying signals through temporary mobile or other fixed assets. Existing infrastructure can be 'hardened' to cope with extreme fire conditions. Cloud storage and server technologies can be deployed quickly to handle extra enquiry load, platform requirements and redundancy.

(f) The effectiveness of public messaging including the adequacy and timeliness of emergency warnings issued to residents and visitors;

Our Consortia collectively believe there is a significant and urgent need to review all existing standards, competencies, inter-agency integration (actual & potential) and the coordination of Fire Emergency alert programs and systems.

One of our Consortia members, a former control centre operator says that there are significant time lags between incidents being reported to the centre and broadcast warnings being sent and received. This has resulted in critical time loss and compromised response actions.

It is possible that the two elderly gentlemen killed in the Waroona bushfires simply did not receive a timely alert notification. Our solution, drawn from observation and experience overseas, appreciates demographic differences and groups at risk and considers cost effective holistic solutions, including automated outdoor sirens and public announcements.

2. Lessons learned from previous bushfire emergencies

(a) The extent to which the findings and recommendations of the following Western Australian bushfire reviews undertaken since 2011 have been implemented:

The Keelty Special Inquiry Recommendation No. 35 read: "FESA and local governments jointly review radio communications capability prior to the 2011/12 bushfire season with the view of improving the current delivery of service to fire fighters". As referenced for "Terms of Reference",1.(d) 3) above, it appears that critical telecommunications issues, e.g. as highlighted in the Keelty Special Inquiry, have not been addressed thoroughly or implemented in full compliance to recommendations.

In reference to the State Emergency Preparedness Report (2015)[1], the Committee states that:

The availability of reliable telecommunications is critical to the success of an emergency response.

[1] https://www.semc.wa.gov.au/Publications%20and%20Resources/2015%20SEMC%20Emergency%20Preparedness%20Report%20-%2031%20October%202015%20Interactive.pdf

They also say that:

EMAs continue to work towards effective and interoperable communication systems to allow responders to communicate effectively in large-scale emergencies.

and that..

Maintaining effective and interoperable communication systems remains a challenge.

Our Consortia feel that to date, an inadequate ‚scope of work' has been conducted to seriously and effectively identify, address and resolve all weaknesses. It should be noted that these weaknesses can, and have proven to manifest quickly in such complex, dynamic and fast moving management and co-ordination incident response environments, such as in a bushfire. The current situation requires urgent, in-depth evaluation, for appropriate and timely solutions to be developed and implemented effectively.

Initial Consortia Recommendations

Our Consortia notes that the WA Government Chief Information Officer is pursuing through its GovNext strategy[2], a more modern and cost effective ICT system for whole of government. It has called upon industry to express their interest in broad ranging solutions including unified government communications networks and aspects of interoperability.

Unfortunately, radio networks and specialist emergency services telecommunications networks have been excluded at this time from the GovNext Expression of Interest (EOI) request. It is clearly indicated in the EOI document that this, 'may become a future requirement'.

This indicates that the criticality of emergency communications and related platforms are in effect being left to others, with the possibility that there is a lack of central co-ordination (i.e. *especially worrying when considering that fact, that although catastrophic and tragic, the Waroona /Yarloop fire is not classified as a 'worst case scenario')*.

[2] Invitation for Expression of Interest

https://www.tenders.wa.gov.au/watenders/tender/display/tender-details.do?CSRFNONCE=D7ECFB181BE09EBA6406BBF6A7879A73&id=33893&action=display-tender-details

With the Waroona/Yarloop fires being the most recent example of our States in-field response capability, there is a serious and growing lack of confidence in the State's overall capability to reliably, timely and effectively respond to a 'worst case scenario' event or succession of catastrophic classified events, occurring within a short period of time. This fact is something which simply cannot, and should not be ignored. This again, indicates the urgent need for a complete, thorough and well developed scope of work.

Our Consortia collectively agree and believe that 'now' is precisely the time to shore up all of the weaknesses (singularly and collectively), of the State's capability of telecommunication, radio and information platforms, and 'seriously' conduct the necessary risk and scope of work capability assessments, well before our next fire season.

It should be noted that effective communication systems and interoperability, benefits all emergency scenarios. As observed in recent world events, fires can be a secondary impact consequence resulting from other man-made and/or natural disasters.

We are well aware that presently there are people challenges and technical challenges surrounding effective interagency and stakeholder interoperability and the joint sharing and efficient utilisation of exchanged information, to result in the simultaneous actioning of multiple, real time, critical command directives.

We therefore suggest that the WA Government, through the Emergency Management Committee, establish an independent working party to:

1. comprehensively and *independently* review weaknesses in the current capability arrangements;
2. with specialist industry input, set forward proposals to consider best practice in emergency inter-operability and unified communications; and
3. consider the critical operational aspects, including the various interfaces to public broadcast including web based, land-line, mobile text messaging, radio broadcast and other outside broadcast.

We most sincerely thank you for the opportunity to provide a Submission and would welcome the opportunity to discuss our thoughts verbally at your Inquiry.

Yours faithfully

Christanya Maya _____

Mark Pitts-Hill _____

David Ryan _____

Perth, Western Australia
11 March, 2016

CITY OF GOSNELLS

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4 March 2016

Waroona Bushfire Special Inquiry
Level 6, Dumas House
2 Havelock Street
WEST PERTH WA 6005

Your Reference:
Our Reference:
Enquiries:
9397 3000

Dear Sir

Inquiry Submission

The City has previously written to the DFES Commissioner (December 2014) and would like to highlight concerns in relation to its ability to mitigate bushfire risk in areas with environmental constraints.

As a test case, the City identified an area within a suburban environment (Huntingdale) where a small fuel reduction burn (less than 1 hectare in size) could significantly reduce the threat of bushfires to the community and the environment by providing a small strategic buffer in a much larger area of bushland. The site was chosen due to its proximity to housing, its narrow width, existing firebreaks and its ability to provide a low fuel buffer between larger bushland reserves should a fire occur on a prevailing easterly wind.

In this case the City has expended in excess of $10,000 over a period of 18 months in order to achieve the relevant environmental approvals required by the Department of Environment and Regulation – Land Clearing Permit, to actively manage the bushfire risk in this small area. In addition to staff time, this example has demonstrated the significant financial burden being placed on landowners who are endeavouring to ensure a safer community and responsible land management. Our volunteer firefighters also expended a significant amount of time both in conducting the burn, ensuring the community was made aware of the pending burn and in following up to ensure the area was safe due to the late season timing of the burn.

For your information, I have attached the City's letter to Commissioner Gregson and his subsequent response, along with a summary of the Bodallin Crescent test case.

The City has also committed to the recently released Bushfire Risk Management System (BRMS) but has significant concerns in relation to the associated matrices. The matrices would result in risks being unchanged (on paper) despite significant mitigation works being carried out. As a result the BRM Plan does not clearly demonstrate the benefits of mitigation works in reducing the threat of bushfires in the area.

The City's top ten areas of bushfire risk all have environmental constrains such as Bush Forever and wetland status, which raises concerns about the City's ability to mitigate bushfire risk in areas which have environmental constrains taking precedence over the bushfire risk and community safety.

The City would also like to highlight inequities in relation to funding of its Chief Bush Fire Control Officer and its volunteer Bush Fire Brigade who regularly respond to incidents such as the Waroona fires. The Chief Bush Fire Control Officer is a paid City employee and is provided a fully equipped four wheel drive vehicle for use at emergency incidents and regularly responds to incidents outside the City of Gosnells at the request of DFES. Costs associated with the purchase and operation of that vehicle are ineligible for funding through the Local Government Grants Scheme, as are any overtime requirements of the position.

Yours faithfully

Grant Bradbrook
Director Governance

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29 December 2014

Commissioner Wayne Gregson, APM
Department of Fire and Emergency Services
GPO Box P1174
PERTH WA 6844

Your Reference:
Our Reference: 3747927
Enquiries: Ian Cowie
9397 3271

Dear Mr Gregson

Fire Hazard Reduction

The City recently applied for a Clearing Permit from the Department of Environment Regulation (DER) to undertake a strategic fire hazard reduction burn on a 0.68 hectare piece of land under the City's management. The proposed fuel reduction activity would provide protection to residential dwellings and the community in the immediate vicinity of the site and, importantly, provide a strategic low fuel zone between two large bushland areas of 16 and 34 hectares that are fronted by residential dwellings.

The DER's preliminary assessment report notes that the application is at variance with a large number of the clearing principles contained in Schedule 5 of the Environmental Protection Act 1986. The DER recommends that the City "seek expert advice from a qualified fire ecologist to ascertain the level of risk and management actions which might be employed" (see letter attached). The advice further proposes, with regard to the "reasonable probability" of a species of Declared Rare Flora in the proposed burn area, that burning between 1 October and 30 April would minimise any impact on this particular species. As the bulk of this period falls within Perth's bushfire season, the workable window of opportunity is narrowed to a late autumn burn, which the City can accommodate if certainty is obtained in time for proper planning to occur.

The City is proceeding to address the DER's requirements, and has engaged a fire ecologist at considerable cost. Of concern, though, is the City's lack of certainty at this stage of being able to undertake what is a relatively small fire hazard reduction burn for a far greater fire suppression benefit.

Whilst the City is mindful of its environmental stewardship role and spends considerable time, money and effort in conserving and managing important natural environmental assets, it takes its fire management responsibilities extremely seriously. Consequently, the City is concerned about conflicting approaches at a State Government level and seeks your advice as to how the State Government will implement a consistent approach to fire hazard mitigation to protect life and major property assets.

Yours sincerely

Ian Cowie
Chief Executive Officer

Government of **Western Australia**
Department of **Fire & Emergency Services**

DFES
Department of Fire & Emergency Services

Our Ref: 02099-03; 15/02813
Your Ref: 3747927

COG SCAN | 23 JAN 2015 | RTN
SET NO | LOCATION

Mr Ian Cowie
CEO City of Gosnells
PO Box 662
GOSNELLS WA 6990

Dear Mr Cowie

FIRE HAZARD REDUCTION

Thank you for your correspondence of 29 December 2014.

I appreciate the importance the City of Gosnells place on the management of bushfire risk. The Department of Fire and Emergency Services is currently facilitating several projects that will support a significant improvement of bushfire risk management across the state. Two of these projects, as specified below, are intended to address the issues you have raised in your correspondence.

I understand that the Office of Bushfire Risk Management (OBRM) discussed the Review of the Emergency Services Acts (the Review) and Bushfire Risk Management Planning (BRMP) with your Council on the 20 January 2015, following OBRM also meeting with Department of Environmental Regulation to discuss the issues you raised.

Currently, local governments have powers to undertake fire management activities on their land, however as these activities are currently not a "requirement" to clear under a written law they can be subject to the provisions of the *Environmental Protection Act 1986* when they occur in certain areas. The Review has undertaken extensive consultation regarding various options for carrying out bushfire risk management activities by local governments and other stakeholders. It has been recognised that the current legislative provisions have limitations and these are being assessed with a view to ensuring all stakeholders can carry out bushfire risk management works on land for which they have responsibility.

The new legislation is intended to implement a consistent approach to addressing bushfire risk for all stakeholders. The following link will provide the City of Gosnells with an overview of the reviews progress:
http://www.dfes.wa.gov.au/legislationreview/Pages/default.aspx.

Emergency Services Complex, 20 Stockton Bend, Cockburn Central WA 6164, PO Box P1174 Perth WA 6844
Tel (08) 9395 9300 Fax (08) 9395 9384 dfes@dfes.wa.gov.au www.dfes.wa.gov.au

The BRMP initiative is intended to bring stakeholders together to develop treatments to address bushfire risk to assets identified during the planning process. In concert with proposed changes to the legislation, the BRMP will support local governments in being able to protect communities through appropriately addressing bushfire risk.

I look forward to continue working with you in the management of bushfire risk.

Yours sincerely

WAYNE GREGSON APM
COMMISSIONER

21st January 2015

Bushfire Mitigation

Bodallin Crescent Example

East/West connection between 2 large bushland areas within suburban environment

- **March 2014 – Opportunity identified to mitigate the fire risk by creating a low fuel buffer to minimise spread of wildfires**
- **June 2014 - DER Clearing permit submitted to burn 0.68 Hectares during Autumn/Winter/Spring 2014**
- **October 2014 – DER advised of requirements for Flora Survey and Fire Ecologist Report**
- **March 2015 – Ecologist Report submitted to DER**
- **July 2015 – DER Permit issued to burn between October and April (summer)**
- **October 2015 – burn completed by BFB**

Bushfire Mitigation

Bodallin Crescent Example

Burn carried out by Bush Fire brigade volunteers on 22 October 2015

- **Residents advised by letter and doorknock by volunteers prior to burn**
- **Burn commenced at 4 pm**
- **Took 4 hours to light and burn out**
- **Further 4 hours to mop up and make safe**
- **Total of 80 labour hours to complete**
- **Environmental staff have since removed any rubbish from the area and commenced post fire weed management activities.**

Pre Burn

CITY OF GOSNELLS

Post Burn

CITY OF GOSNELLS

City of MANDURAH

Enquiries: *Brendan Ingle*
Our Ref: *1949071*

4 March 2016

Waroona Bushfire Special Inquiry
Level 6, Dumas House
2 Havelock Street
WEST PERTH WA 6005

Via email: WaroonaInquiry@semc.wa.gov.au

Dear Mr Ferguson

Submission from the City of Mandurah

Thank you for the opportunity to provide a submission to the Waroona Bushfire Special Inquiry. The City acknowledges the incredible efforts of the various agencies, volunteers and local community involved.

The generosity displayed by both the community and corporate sector has also been extraordinary.

Whilst the fire started over 3 hrs drive and 120km from the City of Mandurah offices, the impact on City staff (and the community) was widespread.

At least 16 staff members either lived or owned property within the emergency alert areas. Some evacuated, some stayed to defend. A number of employees had previously worked in Yarloop, within buildings that had been destroyed.

Two staff members are volunteers with DFES Fire and Rescue Service and fought the blaze in Yarloop. One returned to assist with Outreach as well, speaking to the owner of a home she helped save.

The City will leave it to emergency responders and directly affected community to comment on the effectiveness of the bushfire response, as the City itself had little involvement.

The information provided below, in line with the Inquiry Terms of Reference, is feedback received from staff, community and volunteers that may assist with future emergency planning.

3 Peel Street | PO Box 210 | Mandurah WA 6210
T (08) 9550 3777 | F (08) 9550 3888 | E council@mandurah.wa.gov.au
www.mandurah.wa.gov.au

1. The response to the January 2016 Waroona Fire

b) The effectiveness of emergency management plans and procedures;

The City of Mandurah facilitated the signing of an Emergency Management Memorandum of Understanding (EMMOU) with the City of Rockingham and Shire of Murray on 9 December 2015. A month later the mutual aid agreement was put into action with officers assisting the Shire of Murray at the Murray Leisure Centre – Welfare Centre. Our Ranger Services also assisted in animal sheltering and welfare. Throughout our organisation business units provided information, advice or services as a result of the fires as summarised below:

- **Customer Service** – queries/complaints re road closures, donations of goods and services
- **Strategy & Marketing** – monitoring and updating social media, preparing media releases
- **Ranger Services** – around 80 hours in animal welfare, control and emergency sheltering
- **Recreation Centre Services** – 53 hours in welfare centre support, weekend shift relief
- **Organisational Development** – providing employee support and service referral for affected staff (16 lived or owned property in Waroona, Cookernup, Harvey and Lake Clifton).
- **Finance** – capturing costs of staff assistance to other shires, payroll re leave entitlements, requesting Council donation to the Lord Mayors Distress Relief Fund
- **Libraries, Arts, Culture** – enquires re recovery of Yarloop Steam Museum, requests to run concerts due to South Bound cancellation, requests to accept monetary donations toward Lord Mayors Distress Relief Fund
- **Environmental Services** – support for wildlife carers, heavily impacted by loss of life
- **CEOs Office** – providing assistance to Shire of Harvey residents re disaster relief funding
- **Emergency Management** – 60 hours communications and support - local government, interagency, staff, volunteers and Shire of Harvey Outreach
- **Health Services** – assistance with property inspections and delivery of information packs

The timely EMMOU with the Shire of Murray resulted in early consultation and offers of assistance; the City having a clear understanding that the services being offered were at our own expense.

Staff confidence and level of preparedness was assisted by:

- Recent Welfare Centre training (Dec 2015)
- Online WALGA emergency management training (AIIMs Awareness & Working in EM)
- Emergency Management Corporate Inductions
- Emergency preparedness checklist, kits, communications and procedures
- Emergency Management Policy promoting shared responsibility throughout organisation

d) The effectiveness of incident management, including coordination of agencies, volunteer fire and emergency services and interstate assistance;

The logistics involved in coordinating VRS, BFB, SES volunteers, DPAW, DFES and interstate fire fighters for such a large scale event cannot be underestimated.

The City would, however, like to pass on the concerns of our local brigade. The decision not to activate the Southern Districts VBFB was disappointing for their membership. They spend many hours training and preparing for the opportunity to assist their community. It must be understood that under-utilising a brigade can have detrimental impacts on morale, recruitment and retention of volunteers.

Despite the CBFCO participating in the Metro Operations Centre conference calls and advising of available resources, the brigade were still not used within the first 4 days of the incident. It has been suggested that district emergency management boundaries and the brigade name may have caused some confusion or resulted in them being overlooked.

The City is not questioning the operational decision made, just the importance of communicating with the brigade the reasons for their lack of deployment, particularly when they are one of the closest brigades to the incident. Members were extremely upset when eastern states counterparts were arriving and they had themselves not been utilised.

There is an increasing reliance and expectation on volunteers in administration, training and mitigation, taking them away from the core reason for offering their time. The decision not to deploy them for such a large scale event adds to that frustration.

f) The effectiveness of public messaging including the adequacy and timeliness of emergency warnings issued to residents and visitors;

The City received feedback that residents of Mt John Road and Lakeside Parkway, Herron received SMS emergency messages. These are properties are within the City of Mandurah. The City advised DFES of these messages in case they were unaware.

A resident living in St Ives Estate (over 55s independent living) in Greenfields advised that they received an SMS message. They were living in Lake Clifton during the bushfires of 2011, but had not subscribed to a message service. The resident was concerned that an old communications list may have been in use and therefore the new resident may not have received the alerts.

The delay in transmission in SMS alerts has been raised as a concern by affected staff, with several indicating that they received 2 -3 SMS at a time. This may be due to poor reception or overloaded telecommunications systems. Increased mobile coverage in bushfire prone areas may reduce the delay and subsequent panic amongst residents.

As mentioned earlier, although the fire was not within our locality, significant activity was generated. The City tried hard to keep all staff and elected members informed.

However, it is felt that whatever communication can be directed to a nearby local government such as ours would be beneficial. Perhaps this could be managed through the incident support group or DFES media liaison officers. By encouraging the sharing of information, we are further encouraging 'shared responsibility', understanding and awareness of such events.

g) Effectiveness of assistance to and management of those affected by the fire:

iii) Provision of welfare support

As demonstrated the City assisted in providing recreation centre relief at the Murray Leisure Centre. This was made easier due to the fact that our staff had previously worked their during the redevelopment of the Mandurah Aquatic and Recreation Centre, knowing the staff and the facility.

The management of a welfare centre is a huge task, presenting a wide range of issues. From the City's involvement the Shire of Murray, CPFS, Red Cross and other support agencies managed the centre well. Learnings have since been shared and recommendations are being incorporated into future training and procedures.
The City is extremely grateful to CPFS and the Shire of Murray for allowing our officers to join team meeting and the debrief session. This in turn helps our City prepare for large scale sheltering arrangements.

2. Lessons learned from previous bushfire emergencies

Since the Keelty Report of 2011 and 2012 and other major incident reviews, the City has taken significant steps to raise community awareness and mitigate bushfire risk. The City has a fire management plan prepared by fire planning consultants Strategen, covering the majority of our larger reserves.

The plan includes a range of recommended bushfire mitigation activities, one of which is prescribed burning. The City has only one BFB, who has limited experience in large scale prescribed burns, and so the assistance of DFES Environmental Unit is therefore critical to achieving prescribed burning outcomes. Ralph Smith (Environmental Branch Manager, DFES) who is approaching retirement, helped the City and volunteers enormously, preparing the lengthy prescription and undertaking burns of Tims Thicket reserve.

The City would like to ensure further assistance from the DFES and DPAW in respect to prescribed burning and essential training. If this support is consistently provided across local governments, the impact of bushfire should be largely reduced.

The state wide mapping of bushfire prone areas is a positive move to encourage consistency in building in bushfire prone areas. However there are still concerns about the methodology and in particular the inclusion of areas with sparse coastal vegetation.

3. The need for further reform

Further improvements are required in the following areas:

- Legislation binding the Crown to manage bushfire risk
- Increased training opportunities for local government officers and volunteers in:

    - Prescriptions and prescribed burning
    - Bushfire machine operator
    - Bushfire machine supervision

Thank you again for the opportunity to comment and we hope that the information provided is of assistance.

Yours sincerely

A. Claydon

Allan Claydon
A/ Chief Executive Officer

SUBMISSION

Public Inquiry into the January 2016 Waroona Bushfire

Submission prepared by:
Community and Public Sector Union/Civil Service Association of WA
4 March 2016

Condolences

We would like to take the opportunity, on behalf of both the Union and our members, to offer our sincere condolences to the friends and families of Mr Malcolm Taylor and Mr Les Taylor, and to express our heartfelt support for all the families and communities affected by the fires, particularly the residents of Yarloop.

Forward

The Community and Public Sector Union/Civil Service Association (CPSU/CSA) is a West Australian (WA) union that represents 630 occupations in over 130 public sector agencies. We make work life better for over 40,000 people.

We represent our members in the Departments of Fire and Emergency Services (DFES) and Parks and Wildlife (DPaW), as well as other agencies involved in different aspects of bushfire prevention, preparedness, response and recovery including for example the Departments of Child Protection and Family Support, Agriculture and Food, Water and Planning.

The issues raised by the Inquiry relate directly to our members in these agencies. In developing this submission, the CPSU/CSA has been guided by the depth and breadth of members' experience. We have also talked with or met representatives of the Association of Volunteer Bushfire Brigades, the WA Volunteer Fire & rescue Services Association, the Emergency Services Volunteers Association. In all cases, the areas of common ground and concerns greatly outweighed the differences.

Bushfires in Western Australia (WA) are now more damaging with many fires occurring each summer with a significant number of houses being damaged or destroyed, and tragically people are being killed. The subsequent changes to bushfire management and prescribed burning post the early 1960s Royal Commission (Report of the Royal Commission Appointed to Enquire into and Report upon Bush Fires of December 1960, and January, February and March 1961 in Western Australia by G.J Rodger) achieved significant protection to the WA community. Bushfires have been identified as the most frequent and potentially damaging of all the natural hazards in this State. The potential ignition of bushfires occurs naturally, with lightning, and human caused whether deliberate, negligence or accident.

These catastrophic bushfires are occurring during a period when the WA Government Departments of Fire & Emergency Services (DFES) and Department of Parks and Wildlife (DPaW) have been restructured and faced funding cuts, the Emergency Services Levy (ESL) has increased at a greater rate than the consumer price index (CPI), prescribed burning has been reduced particularly in the landscape, and there has been a significant increase in aerial suppression capacity and costs.

Obviously these restructures and current modus operandi have not achieved a suitable nor acceptable level of bushfire protection to the WA community. The anecdotal evidence suggests that the restructuring, even with some increased expenditure and staffing, has not been successful in protecting the WA community. It is also very disturbing to see that DPaW now need Royalty for Regions finance to achieve its prescribed burning program, rather than its recurrent budget.

This restructuring of Government Departments has traditionally occurred over a number of years, but the most recent restructuring has occurred following the Keelty Inquiries and its recommendations. In addition to the WA Government Departments restructure, the volunteer bushfire brigades have been restructured with those in the Kimberley being managed by DFES and virtually all other bushfire brigades managed by the local government. There are now volunteer fire and rescue brigades managed through DFES, combined bushfire and SES brigades (emergency service brigades established under the *FES* Act) managed by DFES.

A further significant issue is where the restructuring of WA Government Departments has resulted in what appears to be a reduction in appropriately trained and competent bushfire management staff, resources and systems. There is a reduction in senior staff who have an understanding of bushfire behaviour, knowledge of the vegetation (bushfire fuels) and its impact on fire behaviour and landscape bushfire exposure.

It is recommended that this current review concentrate on the events, actions (or inactions) and circumstances that preceded the bushfire and were present at the time of the catastrophic bushfire rather than the specific actions undertake by the IMT personnel. A bushfire running under extreme weather conditions in a moderate to heavy fuel load will exceed the capacity of the firefighters to directly attack the head fire. Any flank attack or indirect attack will result in larger areas being burnt and assets in the path of the fire being damaged or destroyed.

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Executive Summary

The CPSU/CSA, with the input from members in four agencies, has prepared this submission for the consideration of this Inquiry.

The union held a meeting with delegates from DPaW and DFES and sought responses from its membership. In all, well over 100 pages of responses were received from a wide cross section in both agencies.

Many of the key issues emerging from the responses would be familiar to anyone connected with the major inquiries and Major Incident Reviews held over the past decade. These are:

- The need to plan and resource a prescribed burning program based on the full suite of risk factors, including recognising the impacts of a drying climate, an expanding rural/urban interface, conservation of biodiversity values and the resources needed to carry out fuel reductions at a strategic scale and within the rural-urban interface.
- Simplifying prescribed burn planning processes. .
- Ongoing refinement of planning processes should continue to develop the best products.
- The impacts of cuts to staff, districts and resources (including training) at DPaW, and the corresponding generational change, lack of career development and limits on operational experience opportunities available in DFES significantly impact on pre-incident and fire response capabilities. There are some things you just can't outsource.
- The impacts of the lack of a shared, effective, web-based incident management system, including mapping, and common procedures across both DFES and DPaW.
- The need to continually improve resource management, reconnaissance and lines of command and communication at the incident.
- The impact of cultural differences between DPaW and DFES, particularly at senior levels in each organization.
- There are now insufficient numbers of staff and insufficient staff with the relevant training and depth of experience to fill all DPaW preformed IMTs.
- The gutting of staff from DPaW in particular, and the separation of what is now DER and the FPC from the old CALM agency has reduced the numbers and depth of experience available for both bushfire fuel management and incident response. This is exacerbated by the reduction in training opportunities while training courses are revised to meet national standards.
- The need for an aligned fire services agreement to reduce/eliminate complexity of different agreement conditions for staff of different agencies, and the lack of agreed, formalized conditions for volunteers.
- The use of private fire suppression contractors to replace DPaW staff roles not supported.
- Community engagement, both in terms of pre-incident knowledge, understanding and preparedness, and communications during incidents is essential in developing good decision-making capability in a fire incident.

  Despite these issues, at the officer-to-officer level in the Waroona region and in specific teams such as mapping, interagency cooperation and collaboration is much improved and leading to better outcomes, despite the lack of shared systems and procedures. This is

occurring where the specific officers drive it, not by any strategic direction by either agency.

Recommendations

1. As a matter of urgency, address the issues raised by the inadequate number of staff in DPaW, and provide appropriate training and field-based learning opportunities to fill the IMTs without outsourcing these roles to contractors.

2. Increase resources allocated to prescribed burning programs by reviewing funding sources available and the most appropriate allocation of those funding sources.

3. Require both agencies to develop and implement as a matter of urgency mechanisms to foster collaboration and communication across all levels of the organization and the relevant teams, eg, regional centres, specialist teams.

4. Initiate talks across relevant agencies, unions and association stakeholders and their employees/members with a view to establishing common or parallel agreements covering both/all relevant agencies and volunteers involved in bushfire mitigation and management/response.

5. Follow correct lines of command and reporting in line with WESTPLAN Fire.

6. In both DFES and DPaW, finalise as a matter of urgency the current development of appropriate level bushfire-related training courses and roll out prior to the 2016/2017 fire season and improve access to training courses and 'shadowing' opportunities for staff development for IMT and other roles

7. Introduce electronic tagging/swipe systems for all vehicles, critical machinery and personnel involved in fire response, including prescribed burns as a part of progressing towards a share, effective incident management system, including incident mapping.

8. DFES to identify, develop and implement mechanisms to remove the blockages to career bushfire and emergency specialists to advancement in the organization, and to look at the current cultural divide within the organization.

9. Clarify and confirm the protection of staff operating in good faith in senior roles in the IMTs from litigation or prosecution.

Responses to the Terms of Reference

1 The Response to the January 2016 Waroona Fire

(a) The effectiveness of pre-incident bushfire prevention and mitigation activities

It is noted that some issues are relevant to more than one term of reference.

Key Issue: Prescribed Burning Planning

The Office of Bushfire Risk Management (OBRM) has been established as an independent body responding to the Fire Commissioner as an outcome of the second Keelty report. The OBRM sets out processes and templates (which have been endorsed by senior staff within DFES and DPaW staff) for the planning and endorsement of prescribed burning programs in line with ISO 31001 (Risk Management). The key issues raised by members in DFES and DPaW are:

- Role and function of the Office of Bushfire Risk Management (OBRM). On the DFES web site it is acknowledged that the creation of the Office of Bushfire Risk Management (OBRM) has led to some confusion. The OBRM mission is to enhance efficient and effective management of bushfire related risks. OBRM committed to creating a state bushfire fuel load policy when it disbanded the inter-Departmental and volunteer group working on the project. It can be argued that as a consequence of the catastrophic fires over recent years that OBRM has not achieved its mission. This is not solely based on the prescribed burning issue but rather on the holistic lack of impact from the creation of OBRM and the apparent duplication with Departmental procedures and practices. OBRM was created as a recommendation of the Keelty Review.
- International Standards: It is noted that a focus on international standards can become an exercise in form rather than content. Any review of the prescribed burning process should consider whether this is currently undermining outcomes.
- Operational experience. The OBRM needs staff with extensive operational experience, in addition to staff with complementary skills, in order to undertake its role effectively.
- Prescribed burning approvals process. The electronic prescribed plan templates differ in length and complexity between different agencies and land managers, despite all being endorsed and approved by either DPaW or DFES senior staff and endorsed by the OBRM. The current DPaW template requires a longer and more complex plan than that of other agencies such as DFES. The templates need to be reviewed, simplified and standardized across all agencies.
- Training. The existing training program does not yet use the AFAC (national) standard format. Currently the IBMC required a single prescribed burning training course to apply to both agencies, however with guidelines for implementation in each agency are different and therefore the intent of achieving common model of operation is made more difficult to achieve and denies the opportunity to have a nationally consistent approach.
- ISO 31000. If the need to meet ISO standards means that form rather than content is the key driver, is this achieving the intent of ensuring best practice in considering risk in prescribed burn planning?

Key Issue: Prescribed Burning Program

Managing fuel loads at the landscape scale, with a growing and complex rural-urban interface, means that prescribed burns, particularly those outside the metropolitan area, will be similarly large and complex, requiring significant logistics and resources over a period of days, if not weeks.

This may include multiple agencies and local governments, large numbers of volunteers and brigades, heavy equipment, air support and all other logistics.

Complicating factors include:

- Longer, more intense fire seasons in a drying climate
- Narrower windows of safe conditions in which to carry out burns
- More complex burn planning and approval processes as outlined previously
- Longer and more mosaic rural-urban interface
- Uneven fuel management across the various tenures across the landscape
- Community and media understanding, preparedness and expectations (addressed under our response to ToR 1(f))
- Availability of both staff and volunteers for long and complex prescribed burns
- Reduced willingness of DPaW staff to initiate complex burns in the wake of the Margaret River fire emergency outcomes.

As a result, the window for prescribed burning has reduced, the planning required has increased, and the complexity of the proposed burns has increased at the same time as there are less experienced controllers and less people available to undertake the burns.

The result of these factors requires a holistic review of prescribed burning planning, logistics, resources and management from across the range of perspectives, public private and community, to:

- Examine the risks of living in a bushfire prone environment
- Identify how best to achievably reduce fuels and protect lives and other assets, and
- What resources, human, digital and physical, are needed to achieve this
- What are the key factors in the difference between what was achievable in previous decades and what is achievable now

DPaW members have particularly acknowledged the commitment and support of Forest Products Commission (FPC) staff in both the prescribed burning and fire response teams. It is also noted that staffing levels within the FPC have also fallen significantly in recent years.

Key Issue: DPaW Staffing, Training and Resources

Key issues raised by our members include:

- Departure of long-term, highly skilled and experienced staff leaves a significant load on the shoulders on staff still developing their skills and burnout risk on the remaining highly experienced staff. Greater emphasis needs to be placed on recruiting, training, mentoring and exercising the next generation.
- A related issue is that the delays in implementing the upgraded training programs impact on the capability of the next generation to build their skills to take on roles within the IMTs. Refresher courses to maintain skills are also essential.
- Both staff in preformed IMTs and volunteers report that they have trouble gaining public sector employer approval to participate in non-emergency fire management, including prescribed burns and incidents that have been downgraded in status.
- The staff reward and recognition program introduced after the Keelty reports, included a financial incentive component, though this was dropped after one year due to perceived inequities. An appropriate rewards and recognition program should be developed using

the lessons from this first iteration. This is an important factor in staff willingness to participate, given the impacts on personal risk, families and personal time.

- Amalgamation of DPaW Districts into 'super districts' with lower staffing levels has also reduced capacity to undertake prescribed burns. In particular with fewer senior staffing based in the outlying offices away from the main administrative centre. It is unrealistic to expect a single District Duty Officer to undertake the same level of prescribed burns as two, three or four DDOs would have undertaken previously.
- Fire management, particularly bushfire management, comes with significant risk. Exposure to prosecution, litigation and damage to professional reputation are a significant discouragement to entering or remaining in fire management roles. Public sector workers acting in good faith in incident management need to be protected from prosecution or legal action. This is a particular concern for staff undertaking leadership roles, especially where these are in a voluntary capacity and not a formal part of their job description. The union has also had reports of members of the public entering workplaces to confront public sector workers in the wake of the Waroona fire. The legal uncertainty, coupled with the possible personal outcomes:
    - Reduce willingness to take on roles, especially leadership roles, in IMTs
    - Reduce willingness to initiate fuel management in all but the most straightforward of conditions.

- Member comment -

If Dwellingup was a district with the pre-district amalgamation staffing and crew levels would the fire have developed to the same level? Particularly if Jarrahdale and Harvey (neighbouring districts) were able to provide additional substantial fire suppression and management *resources. Would the fuel loads have been the same if the district pre-amalgamation staffing levels had been retained and in a position to be applied to the prescribed burning program when weather and fuel conditions were appropriate?*

Key issue: Funding for prescribed burning program

Currently DFES is the Hazard Management Authority for Fire; DPaW has no formal designation as an emergency service. This means that Emergency Service Levy funding is not available for DPaW's prescribed burning program. There is a clear and urgent need for additional funding adequate for the task. Options for exploration include increased recurrent funding or the extension of ESL funding, directly or indirectly.

It is also noted that it is currently unclear to what extent other agencies with lands under their management have any dedicated funding or resources to manage fuels on their lands (eg, Education, Water, Lands).

1 (b) The effectiveness of emergency management plans and procedures

There are strong cross linkages between the procedures used in bushfire fuel management planning and the strategies and tactics used in bushfire response.

The key issues identified by members include:

- lack of an effective, simple to use, shared resource management system accessible by multiple agencies, local governments and volunteer brigades
- In particular, lack of a web-based tracking system for personnel, vehicles and other critical equipment
- Importance of skilled, trained and practiced interagency preformed IMTs
- Limitations imposed by the current levels of staffing
- The complexities introduced by different agencies being employed under different fire agreement conditions, and the lack of equivalent conditions for volunteers, and
- Funding for prescribed burning activities

Key Issue: Lack of an effective shared management system

- Member comment -

"It doesn't matter which system we use, as long as it's shared."

This has been listed as a priority by all the major reviews and inquiries over the past half a decade. The current situation makes coordination between agencies difficult and handovers between agencies highly problematic, as the incoming team will use their own procedures in the operation and the procedures used in a single role can swap backwards and forwards between the two agencies' models with each shift change.

The State Emergency Management Committee's Bushfire Review Implementation Group last reported in August 2014, that a Bushfire Risk Management System that would be accessible by agencies, local governments and volunteers was 'in development'. At this stage our members advise they there is no sign of it being close to development, testing or deployment.

Currently both agencies make use of a mix of systems, some spreadsheet or web-based, as well as whiteboards and some paper based such as t-card and battleboard systems. At one stage DPaW trialled the use of the Victorian IRIS system, which at that stage did not include forward planning or fatigue management systems. It was identified that to use the IRIS system effectively would require detailed training and an in depth knowledge of the AIIMS.

The key criteria for a shared system include:

- Easy check in and check out
- Ability to calculate and report on fatigue /duration of shift
- Long-term forward planning (in the context of the incident)
- Web-based but also capable of operating when power and internet links go down

This needs to be progressed as a matter of high urgency as a State asset, including a shared mapping system. It also needs to be supported by comprehensive training available to all relevant stakeholders, including local governments and volunteers, and supported by the relevant tools and resources. Training should also provide pathways to further development and promotion, however, in DFES, as discussed, further career progression is not available for bushfire specialists.

Key Issue: Web-based Logging of personnel and equipment

Currently there is no system in DFES for remote tracking of either personnel or critical appliances (including machinery) at fire events, DPaW has GPS vehicle tracking for heavy fleet and plant but not yet accurate, live personnel tracking. The current T-card system used by both agencies is reliant on the accuracy of people checking in and out, which can be problematic with exhausted crews at the end of their shift, and on prompt filing of updates.

- Member comment -

Real-time reporting of locations would be an ideal outcome.
If cost / practicality of real-time is not possible, 5 minute reporting would be preferred to current 10-15 minute reporting.

In terms of personnel, this would increase safety of fire response teams and provide the Incident controller and IMT with more accurate knowledge of how long teams and individuals have been on shift, and which are rested and can be redeployed. It could also include practical items such as dietary requirements.

The first day, or two, of a major bushfire incident is always going to be hectic and complex, but without a simple, web-based tracking system, as in the Waroona fire, even by days 3-5, lack of this information means that teams are not being rested or redeployed in the most effective manner, increasing fatigue and creating a range of OSH issues. Improvements to resource tracking systems would provide improved resource allocation. This would also enable better planning of accommodation, food and resources.

In terms of vehicles and equipment, this would aid in coordinating and making the most effective use of resources. Having an adequate quantity of simple portable systems which can be installed into / attached to contract machines should be considered. Permanent installation of tracking devices should be undertaken on all dedicated fire appliances.

It is noted that vehicle tracking and personnel scheduling software is now common in resource companies, the taxi industry, waste management and other industries, and mobile swipe on/off technology is available and is used by most of the world's public transport systems.

A further consideration is the problems caused by communications technologies. Radio is the preferable option and should remain the primary communication channel as it is an open and public system that can quickly relay important information about the fire-line, however the terrain of the fire ground can limit operability. Mobile phones are ubiquitous and can play a role as a back-up source of communications, should phone towers be fire damaged.

Key Issue: Skilled Interagency Preformed IMTs

In relation to planning and preparedness, interagency teams need time and prior operational, filed-based experience to work well once an emergency is declared. Prescribed burns are an acknowledged, effective way for teams to build confidence and trust and for systems to be tested to identify and implement improvements before being exposed to a bushfire emergency.

Local knowledge is integral to effective fire management and therefore has a role within preformed interagency teams. In the Waroona-Yarloop area, effective relationships with local brigades and local government officers built up over time and playing to each agency's strengths were an important facet of efforts to bring the fire under control. This varies across different regions within the Southwest of the State. Engagement of volunteers and local government in preformed teams will improve outcomes.

Again, the comments made previously about the importance of staff being permitted to participate in non-emergency fire management as well as fire emergencies are relevant here.

An additional complexity in the development of interagency preformed teams includes the need for a clear common language with a clear set of common definitions.

The need for common or parallel conditions is discussed elsewhere in this submission, however it is noted that lack of common shift/rest times further complicates the smooth running of interagency preformed IMTs.

It is noted that DFES is yet to complete and roll-out its planned bushfire situation course. Nor are any advanced bushfire training courses, or ongoing professional development, yet available through DFES. It is also noted that participation in some training courses is limited to commissioned officers and not available to other staff such as bushfire specialists. The internal, highly structured nature of DEFES based on hierarchy rather than experience undermines outcomes.

This situation highlights the dualities of bushfire management and suppression roles within the command model operating at DFES, which focuses training, advancement and opportunities on commissioned (or trainee) officers. While DFES has a role in bushfire management, which requires a very different skill-set to the traditional structural fire suppression focus of the majority of DFES incidents.

<u>Training for IMTs</u>

Sound training is critical to any IMT, but particularly for interagency IMTs coming from different organisational cultural backgrounds. This is necessary not just for the major agencies discussed here, DPaW and DFES, but also for the many agencies with land management roles such as Lands, Water, Main Roads to name a few.

The point made previously about delays in developing the upgraded training limits opportunities for staff willing to take on IMT roles, or advance into higher levels within IMTs, to fill the roles being vacated.

Some managers have created opportunities for staff to shadow different IMT roles during incidents as an important component of training, however this should complement not replace professional training.

It is noted that DFES appears to have ceased further development of the Bushfire Situation Course.

Creation of a DFES Regional Training Coordinator who works across agencies would assist in this process. A holistic approach would also include better pathways for more public sector workers to volunteer for roles in preformed IMTs, including in fire support roles where it is equally important to have trained, competent and quickly available personnel.

Key Issue: Limitations due to current levels of staffing in DPAW

This was covered under the response to Term of Reference 1A. The comments made are equally valid here.

It is noted that DPaW has been subject to additional pressure to reduce staff and cut costs in the last 12 months. The union does not have access to the full figures of the losses and this information would need to be requested from the agency.

An additional point is to note than in DPaW, staff may not only be on multiple preformed team rosters, they may also be on a range of other rosters, including District rosters, aviation rosters, State Mapper rosters and have their time tightly scheduled across the full summer period, reducing capacity for rest and increasing the likelihood of burnout and fatigue.

There are two important points to be made here: more staff are needed to ensure preformed IMTs are fully staffed, but equally important, all staff in preformed teams need to have good levels of fire competency. This is not just about training, but also about participation, including in logistics and planning roles.

Key Issue: DFES Staffing and Resources

It is noted that although DFES Fire Fighters are outside of the CPSU/CSA's coverage, many of our members employed at DFES are involved in both prescribed burning and emergency bushfire response roles. Some are involved in specialist bushfire roles, operational or logistics roles and others are also volunteers either in Volunteer Fire and Rescue Brigades or Volunteer Bushfire Brigades.

Some of the key issues raised by our DFES members include:

- Lack of opportunity for career progression limits the opportunities for bushfire (and emergency) specialists to progress within the agency to senior roles. This reduces opportunities to recruit and retain high performing staff.
- It also creates a 'second class' within the organisation's culture. A practical example of this is that bushfire specialist staff have no access to training programs that are relevant to their roles but can only be accessed through the station officer development program, from which they are excluded.
- The current recruitment freeze means that there is no opportunity for staff to be recruited from other agencies, such as DPaW, other States, or from highly skilled and experienced volunteer brigade members.
- The move to national accreditation standards appears to have slowed.

Within DFES only one of the Deputy Commissioners or the Commissioner has skills in landscape bushfire management. Within DFES there has been the creation of a very large number of senior

positions which now has two Deputy Commissioners, six Assistant Commissioners, seven Chief Superintendents, 25 Superintendents and many additional Branches and Directorates in the corporate section, and a structure that aligns closely to the Police structure. The current DFES requirement is that all Assistant Commissioners must have attained the rank of District Officer, this creates a barrier to specialists in both bushfire and in emergency services, including in the regions, from progressing their careers.

Key Issue: Complexities due to different fire agreements.

Currently, fire responders in DPaW and DFES are subject to different fire agreements with different conditions, including different shift lengths and rest periods, to name a few key elements. This adds complexity to the planning and deployment of personnel at the fire ground, as well as during planning exercises.

A common agreement is not the whole solution. Adequate numbers of staff to fill rosters, and adequate training and field experience for all officers is also essential.

Volunteer fire fighters are not currently covered by an agreement, according to the AVBFB. Members who are volunteers have noted that they often pay for equipment (for example, heat resistant torches, rather than standard issued plastic torches that melt in the heat) and often take unpaid leave to fight fires. It is noted that volunteer brigade members do not even receive a stipend such as that received for jury duty.

Members who are volunteers have noted that there can be frustration when paid agency staff leave the fire ground at the end of their shift and the volunteers are expected, or feel they are expected, to continue.

As a union concerned with public service and fair working conditions, this is not acceptable.

The agencies, relevant unions and their members, the volunteer associations and their members should initiate talks with a view to reaching a common or, alternatively, a parallel agreement on conditions.

Key Issue: Funding for DPaW's Fire Response

Currently DFES is the Hazard Management Authority for Fire; DPaW has no formal designation as an emergency service. Volunteer brigades also benefit from the Emergency Service Levy funding and rightly so, however, ESL funding is not available for DPaW's fire response costs and, in fact, DPaW has received funding under the Royalties for Regions program to cover what should be considered core costs.

Significant additional resources are needed to fund DPaW's bushfire mitigation, management and response costs. This could be achieved either through a significant increase to DPaW's recurrent budget, or through direct or indirect access to ESL funding. It should also be noted that funding needs to be matched with the appropriate levels of personnel to achieve the outcomes sought.

1 (c) The effectiveness of the suppression strategies and tactics used during the fire

In a sparsely populated state, fire management and suppression resources will necessarily be spread out and require more time to gather than in more densely populated areas.

In the specific instance of the Waroona fire, members identified a number of factors that worked well and aided in the effective management of the incident. These included that the interagency preformed IMT worked very effectively together, with a good level of communications and a high degree of respect between team members.

Success factors included:

- Strong, positive inter-relationships that had been deliberately fostered by regional staff in DFES and DPaW, as well as with Local Government and local volunteer brigades.
- The high degree of trust developed through these relationships
- Team roles allocated to play to the different strengths and skill-sets of the agencies and their local staff

CPSU/CSA members also identified a number of issues that undermined effective incident management and are key opportunities for improvement. These are:

- Lack of a shared incident management systems
- Clear and appropriate lines of authority and command
- Improved reconnaissance
- Concerns about the role of private fire suppression (fire fighters) contractors
- Possible development of a bushfire rapid suppression team (noting that we have received arguments both for and against this idea from members)
- Approval to attend fires (including for bushfire volunteers employed in the public sector)

Community expectations of fire services, and the outcomes achievable in a major fire incident, can often be unrealistic. Media reportage and images of water bombers creates a perception that enough fire bombers can extinguish even intense bushfires. There is also a sense that bushfire risk applies to homes in rural or bushland properties, not homes in town sites, a misconception sadly brought into sharp focus in Yarloop. This issue is dealt with in further detail in the response to ToR 1 (f).

The lack of a shared IMS has been addressed under the response to ToR 1(b).

It is noted that the development of a second incident in the same region at Clifton Beach also created confusion at some stages.

Key Issue: Clear and Appropriate Lines of Authority

It was noted that in some instances during the Waroona fire, the roles, responsibilities, including decision-making, did not appear to be in line with Westplan – Fire (s4.5, p28) or as per the AFAC endorsed IMT roles.

This has been a persistent problem in multiple fire incidents where, regardless of the agency leading the fire response, SOC provides directions to its officers based on the aerial intelligence

they receive. This negates the IC's control of the situation, where he or she is drawing on both remote intelligence and specific factors such as terrain and micro-scale weather conditions.

One factor identified by members that can be a hindrance to smooth communication and collaboration is the difference between best practice public sector management and the command structure of the fire service. The differences can create tension in the management of the IMT.

A related issue is the vertical, hierarchical communications in DFES can limit relationships and the provision of frank and fearless advice between agencies. Members noted that this did not apply across the board as some DFES fire fighters made particular efforts to work in collegial relationships across agencies.

Key Issue: Improved Reconnaissance

The need for rapid, accurate intelligence and detailed plotting of the fire perimeter cannot be overstated. Members have identified four opportunities for improvement:

- More rapid and direct communication of air intelligence
- Improved scanning and plotting of the fire shape, perimeter, rate of spread and the fire run direction regardless of time of day or smoke cover
- Consideration of air attack as well as air reconnaissance capability
- Need for a common mapping system.

At the Waroona fire, the intelligence provided by aircraft was relayed via the State Operation Centre at Cockburn before reaching the IMT in Waroona. Further delays can happen if the line is complex and needs a number of runs to complete. In this case, data is held by the SOC until all data has been received and processed. The data and communications systems need to be further developed so that the IMT receives intelligence concurrently with SOC.

The mapping system used by DFES is well regarded and could provide the basis for a shared mapping system. It is also noted that there is still a need for paper maps/map book specifically designed for operational purposes.

Improved reconnaissance will also improve public warnings and messaging during crucial stages of the fire, potentially saving lives.

Key Issue: Use of contractors

Private contractors play a number of roles in fire management, including the provision and use of heavy vehicles, plant and water carts.

The union does not support the use of contactors to replace public sector staff roles.
Where contractors have been traditionally used, there needs to be an accreditation and training program backed by ongoing refresher training. It is noted that senior incident controllers have a working knowledge of reliable and experienced contractors, however with generational change in both agencies and contractors, now is an opportune time to provide structure and clarity for future incidents.

Key Issue: Rapid Response Bushfire Suppression Team

On this issue, we have received both strong support for, and strong support against the idea of a 'hot shot' rapid suppression team based in DPaW to respond to small, remote fires in strategic locations. The union would need to further canvass its members to reach a position on this issue.

Key Issue: Release of staff for fire incidents

Members in volunteer brigades have remarked on the difficulties in accessing leave to attend fires, including Waroona. This includes approval as well as access to paid or unpaid leave and, in one instance, a member was questioned by their public sector manager as to the need to remain at the fire once the emergency level had been downgraded. This same manager was reluctant to allow the staff member permission to leave the workplace to extinguish spot fires on their property.

- Member comment -

There have been very few new 4x4 heavy fire appliances purchased for the on ground career bushfire firefighters. The standard large 4x2 firefighting trucks, which are the regularly supplied large truck, cannot be used off road. There has been insignificant improvement in the supply of fire appliances to the bushfire volunteers.

Other issues

At a practical level, members noted that difficulties were experienced with the supply of fire retardant. Mixing the retardant is subject to stringent OSH procedures for the safety of staff. Insufficient supply was available which required more retardant to be mixed in Cockburn and transported to the fire responders. Consideration needs to be given to system improvements to avoid similar issues in future major fire incidents.

1 (d) The effectiveness of incident management, including coordination of agencies, volunteer fire and emergency services and interstate assistance

The key issues relevant to this term of reference have been largely covered in other sections.

These include

- Lack of shared management system
- Web-based logging of vehicles and personnel
- Skilled interagency preformed IMTs
- Different agreements on conditions
- Differences in communication styles/models

In terms of interstate co-ordination, it was noted that the Victorian contingent were well organized and equipped, but that the additional resources and time needed to brief them and integrate them into the fire response created additional tasks.

Some differences between DFES and DPaW that contribute to difficulties in interagency collaboration may include that DPaW has a decentralised model focused on flexibility and the ability to delegate. Positions within the IMT are based on experience and sometimes do not follow hierarchical employment levels. DPaW members in logistics and planning roles have sought to train for and fulfill different roles within IMTs, ensuring a good understanding of the needs and pressures on different team roles.

For both agencies, there can be personnel in roles in the planning and logistics who have been trained for these roles but have limited field experience in major incidents. This is particularly the case for younger/newer members of staff.

Past reviews have noted the importance of prescribed burns in the training and team building for operational staff. Apart from the more limited extent of prescribed burns in recent years, those that are run often are done with minimal planning or logistics support, thus further limiting the opportunity for staff to develop skills and confidence.

1 (e) Protection of essential services infrastructure and access to essential services (power, transport, water, communications) by emergency services organisations and the community

One of the key issues raised by our members relevant to this term of reference is the crucial importance of real time mapping. Currently both agencies use different systems.

DFES has good mapping data, including the location of essential services, however, limited access for DPaW, local Government and volunteers diminishes its effectiveness during fire incidents such as Waroona. The DPaW mapping system has a different focus and includes a wider range of base layers and has the advantage integrated with spatial tracking of vehicles. It is essential that a single high quality mapping system that receives real time data from aerial scanning and reconnaissance.

Moving to a single system is linked to the resolution of a single incident management system. As an interim measure, consideration should be given to:

- resourcing log-ins and training for DPaW mapping staff to be able to use the FESMaps
- enabling DPaW digital tracking of vehicles be integrated with FESMaps
- Installing digital trackers on DFES vehicles

Communications

The DPaW mobile Pantech unit was put into operation in February 2010 and provides corporate server access, mapping and scanning technology based on self-aligning satellite. This has improved access to data but has also introduced complexities as it is effectively a stand alone server, requiring different logins to connect to other agency servers, such as those at Kensington or Mundaring. This can lead to confusion as to which server information has been stored. Additionally, there can be confusion about which server they are logged into (personal log-in or role-based) and to which server information is saved.

Currently the shutdown procedures at the end of an incident do not include automatic back up of the data on the mobile server to the main server.
This is a simple process improvement that can be implemented.

It is noted that in the last few years, DPaW has considerably expanded and improved its mobile command centre, which can be fully set up within 6-12 hours.

1 (f) The effectiveness of public messaging including the adequacy and timeliness of emergency warnings issued to residents and visitors

Members identified a number of opportunities for improvement in relation to messaging, some of which relate to the rapidly changing ways that people seek and gain information, particularly through social media, some of which relates to people's exposure to and understanding of fire behaviour.

Pre-Incident

Fewer people in the general population, especially those from a non-rural background, have exposure to fire and therefore to fire behaviour than previous generations. Most people's experience with fire and fire behaviour now comes from the media.

Members working in the call centre during the Waroona Fire receive complex requests for information from the community, which they then have to seek from the IMT to be able to respond to the caller. Sometimes the calls clearly indicate the low level of knowledge and preparedness, including a query along the lines of "I can see the flames from my house. Should I evacuate now?"

- Best practice community behaviour change principles identify that opportunities for active learning are more effective than information provision alone. Few if any people will change their behaviour based on seeing or reading information, whether on a brochure or a web-site. A scan of part major reviews around community engagement has identified two factors:
    - A belief from the agencies that provision of information is sufficient for people to understand the risks of living in rural and regional areas, even within townsites,
    - Public perception about the role of fire response agencies, including equipment such as water bombers and potential outcomes in saving homes and lives.
- Therefore there is a need for more Community Education Officers in bushfire risk prone areas to work with the community to develop an active understanding of the risks, both at a general community levels and at the property and individual level. This would also include developing realistic expectations of the level of fire response possible.

It is noted that no amount of improved communications technology can replace the need for the public to be able to make their own considered decisions about whether to stay or to go.

- Member comment -

We need to be honest: we will do our best, but we can't make promises.

In a fire emergency

During a fire emergency, community members have a real and urgent need for accurate, up-to-date knowledge.

We have previously identified the lag phase between aerial reconnaissance and the information reaching the IC. After which there is a further delay as it is communicated to DFES' media team who are hard-pressed with current resources to meet a one hour turnaround for updates.

As well as managing community expectations in the pre-fire season, there are some options that could be explored to improve communications outcomes:

- In a similar manner to the formation and training of preformed IMTs, a call could also be put out for public sector volunteers to be trained to take support roles during a fire incident and to go on a database or roster during the fire season.
- Media channels – it is becoming common for local Facebook networks to share information (whether correct or not) during a fire emergency, often using information collected from radio scanners. A review of communications during fire incidents is warranted to ensure currency in a rapidly changing social media network. It is noted that currently the link to Facebook from DFES is simply the opportunity to post current warning to your own Facebook page.

Employer release of staff for volunteer fire duties

Although there is emergency services leave built into the current general agreement for public sector workers under our coverage, the reality is that there can be challenges in gaining approval for a release from work commitments to attend fires. The State Government needs to raise awareness within executive and manager levels of the State's public sector of the importance of allowing staff to participate in both bushfire mitigation and response activities.

2. Lessons learned from previous bushfire emergencies

(a) The extent to which the findings and recommendations of the following Western Australian bushfire reviews undertaken since 2011 have been implemented:

(i) A Shared Responsibility – Report of the Perth Hills Bushfire February 2011 Review (Keelty, 2011);

(ii) Appreciating the Risk – Report of the Special Inquiry into the November 2011 Margaret River Bushfire (Keelty, 2012);

(iii) Post-Incident Analysis of the 2011 Margaret River and Nannup bushfires (Noetic Solutions, 2012);

(iv) Parkerville Stoneville Mt Helena Bushfire Review (State Emergency Management Committee (SEMC, 2014) ;

(v) O'Sullivan and Lower Hotham Bushfires Review (SEMC, 2016); and

(vi) The Western Australian State Emergency Management Committee Preparedness reports.

The various reports, and responses to reports, not including appendices and attachments, cover well over 1000 pages and several hundred recommendations. Table 1 groups these recommendations by topic, which are reasonably well-aligned with his enquiries terms of

reference. One topic alone, the lack of a shared incident management system, is the subject of 52 different observations, recommendations and key finding from the above-mentioned reports. Nous Report on the Lower Hotham and O'Sullivan fires noted that there has been limited action on these core issues and identified both key enablers for collaboration, and the key barriers working against collaboration.

2 (b) The effectiveness of reforms implemented by the State since 2011 on the State's ability to prevent, mitigate and respond to major bushfires and the community's understanding of and preparedness for bushfire risk.

When the union called a meeting with its members from the key agencies, DPaW and DFES, and also sought to consult with key volunteer associations, we were uncertain as to the extent of common ground. What we found was almost entirely common ground.

We found members in different agencies building interagency collaboration and relationships to patch around the barriers higher in their agencies.

We found that poor resourcing and systems due to lack of funding, the loss of experienced staff and barriers to the next generation training for key roles hamstrung the agency with the most direct and extensive experience of bushfire mitigation and management.

We found that the agency with the best systems and resources was the agency with the least experience in bushfire mitigation and management, and that it had barriers to recruiting and retaining bushfire specialists, as well as systems of command and interaction that hampered and undermined collaboration.

And we found that members in both agencies clearly recognised that the system is stuck in a 'ground-hog day' loop that strengthened officer to officer collaboration can only go so far to address. And it seems that repeated inquiries and reviews, other than some of the key changes initiated and resources following the second Keelty report have done little to create effective change.

3 The need for further reform.

Given the above, further reform is urgently needed.

It is clear that bushfire risk is increasing and the issues identified here and in past reviews increase the risk of adverse outcomes.

Single Bushfire Management Agency

A number of the issues highlighted in this submission relate to differences between the multiple agencies and players within the bushfire management and response systems in WA: lack of a shared system, cultural differences between agencies, different priorities, time-scales, staff agreements to name a few.

One solution for consideration could be the establishment of a country fire authority; however this would require full scoping and support from a range of stakeholders including our members. Currently the union has no formal position on this and would need to take advice from our members.

It is noted that there would remain a requirement for a strong, well-funded fire management structure within DPaW to ensure that the State's natural assets are protected and enhanced. DPaW need to be able to burn its estate for biodiversity, regeneration and community protection. Much of the biodiversity burning is complex and a specialist role.

If this is a consideration, the CPSU/CSA requests that the union is involved at the earliest opportunity before any recommendations are made as we are aware of divergent views among our members.

ATTACHMENT

Table 1: Summary of recommendations and findings from past reviews and inquiries by theme.

Theme (not in any order at this stage)	References
Instruments (Statutory, regulatory, policy)	Ferguson observations: obs 1, 2, 10, 13, 14 Keelty (PH): rec 1, 2, 4, 25, 31, 40, 43, 44, 47, 48, 50 Noetic (MR): Lesson 29, 39, Nous (LH&O'S)
Systems, including risk management	Ferguson observations: obs 2,3, 5, 7, 8, 9, Keelty (PH): rec 15, 21, 22, 23, 24, 26, 27, 29, 32, 49, 51, Keelty (MR): rec 1, 2 Noetic (MR): Lessons[1] 2, 3, 4, 7, 12, 13, 14, 18, 19, 23, 24, 25, 26, 28, 32, 34, 37, 42, 43, 46, 47, 48, 49, 50, 51, 52, 53, 54, 56 Nous (LH&O'S) key Findings 2, 3; Rec 7.1, 7.2.3
Planning	Ferguson observations: obs 4, Keelty (PH): Rec 3, 13, 25, 39, Keelty (MR): rec 1 Leeuwin-Nat Ridge Man Plan
Cultural differences	Ferguson observations: Keelty (PH): Noetic (MR): 35, 38, 44, Nous (LH&O'S) Key findings 2, 3, Rec 7.1, 7.2.3

[1] Noted that Noetic Reports include tabulated lessons, most of which have associated action, however, despite having a column titled "Responsibility", there are no responsibilities listed for any lesson or action, even when the text clearly identifies one or more responsible agencies.

Theme (not in any order at this stage)	References
Governance, roles & responsibilities, lines of command, including perceived as well as actual	Ferguson observations: obs 11, 12, Keelty (PH): 45, 46, Keelty (MR): rec 1, Noetic (MR): Lessons 14, 16, 20, 22, 29, 30, 33, 34, 38, 41, 44 Nous (LH&O'S): Key finding 3, Rec 7.2.2
Communication/liaison/collaboration/partnerships with other stakeholders and local knowledge inclusion during incident	Ferguson observations: obs 7, 14, Keelty (PH): rec 12, 29, 30, 32, 33, 34, 35, 36, 41, 49, 52 Keelty (MR): rec 6 Noetic (MR): Lesson 1, 8, 14, 19, 20, 21, 22, 27, 30, 34, 35, 40, 41, 42, 44, 45, 46, 47, Nous (LH&O'S): Key finding 2, Rec 7.1
Staffing/resourcing levels/succession planning/reward & recognition/ training	Ferguson observations: obs 5, 6, 7, 8, 16, 17, Keelty (PH): 49, 52, 53, 54, Keelty (MR): rec 5 Noetic (MR): Lessons 10, 11, 14, 15, 16, 17, 18, 23, 35, 47 Nous (LH&O'S): Key finding 1
Fuel management including Prescribed Burning	Ferguson observations: Keelty (PH): rec 13, 15, 18, 19, 20, 23, Keelty (MR): rec 2, 7 Noetic (MR): Lessons 3, 6, 7, 8, 9, 32, 41, 57
Community – awareness & understanding, preparedness, skills, perceptions	Ferguson observations: Keelty (PH): rec 6, 7, 8, 9, 10, 11, 49, Keelty (MR): rec 8 Noetic (MR): Lessons 48, 49, 50, 51, 52, (NB: all re communications during fire incident – alerts, warnings, updates, evacuations, channels etc)

Theme (not in any order at this stage)	References
Fuel Mapping	Ferguson observations: Keelty (PH): 18, 21 (note: recommends DEC, FESA & LG develop shared integrated system = OBRM?), 23, 38 Keelty (MR): rec 4 Noetic (MR)
Equipment and resources	Ferguson observations: 14, 15, Keelty (PH): 28, 41 Noetic (MR): Lessons 5, 12, 18, 26, 35, 36, 37, Nous (LH&O'S): Key Finding 1
Carry out independent review/Implement previous independent review recommendations	Keelty (PH): 24, 55 Keelty (MR): Rec 3 – implement Ferguson, rec 9 & 10 – carry out independent MIR of this and future major incidents Noetic (MR): Lessons 55
Recovery	Keelty (PH): rec24, 36, 37 Noetic (MR): Lessons 53, 54, 55, 56, 58
Climate change	Keelty (PH): rec 42

CAPS | Community Alliance for Positive Solutions Inc.
Yarloop - Waroona - Hamel - Harvey - Cookernup - Wagerup - Other Impacted Areas

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13th February 2016

Dear Mr Ferguson

Re: CAPS Submission to the Waroona Fires Inquiry

Thank you for receiving our submission to the Waroona Fires Inquiry which is attached to this letter. We understand the Inquiry seeks to understand how the Government of Western Australia can 'protect the W.A. community and assets it values' through actions that will arise from this Inquiry. We feel impelled to provide a submission due to the unique and highly political nature of the circumstances impacting the Yarloop area prior to, during and now after the fire on January 7th, 2016.

Our authority to provide a submission rests on our ongoing involvement with, and representations of many residents of, Yarloop since the early 2000s when the still running conflict with Alcoa Wagerup and the state Government commenced. CAPS – Community Alliance for Positive Solutions - is a local group of concerned residents in Yarloop who have over the years been able to influence Alcoa's licence conditions and Government policies to increase the protection of local people and the environment. To do this we have worked closely with all tiers of Government and as appropriate with key people in the Alcoa Wagerup management team.

We submit that the question posed but not yet answered as to the future of Yarloop is indicative of a broader political context that sets the response to the fire at Yarloop in special circumstances. The circumstances of this fire are very different to any others before it and we seek to make the Inquiry aware of the issues which may have had some bearing on the subsequent fate of Yarloop. Further to our submission we offer a set of recommendations:

Recommendations

1. We request that the Inquiry's Terms of Reference be extended to sufficiently explore and address the issues as raised in the submission. We expect this might involve a process of requiring key people to be subpoenaed to obtain evidence and local knowledge.
2. Further, we request a meeting to provide a briefing in person with yourself to ensure you are fully informed of the historical, political and current situation which existed prior to the fire, and which continues to influence the aftermath response.
3. The Yarloop/Hamel/Waroona locality should have an integrated industry/community fire strategy to avoid conflicts of interests over resources between industry and communities.
4. We contend that the town of Yarloop should be treated as a unique circumstance due to the co-location of a major industrial complex which was already having a range of adverse impacts on the town.
5. This uniqueness needs to require of government authorities a re-doubling of efforts to ensure Yarloop is not in any way disadvantaged BECAUSE of Alcoa's proximity and property interests in the town.
6. Yarloop is also unique because, among many other qualities, it is a heritage town, with buildings lost to the fire which were of national significance. While individual properties owners will make their own decisions re whether to re-build or not, we contend that the Government has an obligation to re-build the town's infrastructure and heritage buildings.
7. Further, we think Alcoa Wagerup as a commercial entity, in deciding to not re-build the houses it owns, is making a decision in its interests at the cost of the collective community asset. The community asset should not be left in such an exposed state to commercial interests, this being possible due to the Government's failure to formally install an industrial buffer around the refinery at Wagerup. This matter has to be part of the forward considerations of who is responsible for the 'protection of the W.A. community and assets it values'.
8. Finally, we recommend that the people of Yarloop are enabled to be involved in all decisions which affect their town as it is likely that a range of strategies and options will be needed to respect all interests.

9. To this end an independent party who is able to work with the community is needed to ensure the top down approach of Government (and Alcoa Wagerup) does not continue the pre-fire history of Yarloop.

Thank you for your time and we look forward to meeting with you, to speak to you further about the matters raised in the submission and the recommendations.

Yours sincerely

Vince Puccio **Merv McDonald, AFSM**
Co-Chairs: Community Alliance for Positive Solutions Inc.

Proudly supported by:

Community Alliance For Positive Solutions Inc; Submission To Waroona Fire Inquiry Re: Yarloop Fire 7 January 2016

12th February, 2016

The Community Alliance for Positive Solutions (CAPS) offers the following submission:

Many of the submissions to this Inquiry into the fire that devastated the town of Yarloop will focus on the management of the fire and preparedness of the town to withstand it. We support this focus. We are also keen to ensure that it also focusses on the limited and in some instances non-existent effort to warn the residents, the lack of availability of assets and water to fight the fire, and the complex and confounding follow through after the fire of government authorities. We submit that the question posed but not yet answered as to the future of Yarloop is indicative of a broader political context that sets the response to the fire at Yarloop in special circumstances. The circumstances of this fire are very different to any others before it and we seek to make the Inquiry aware of the issues which may have had some bearing on the subsequent fate of Yarloop.

First of all we wish to ask the Inquiry to look into the history of this fire, which we understand began in the Lane Pool Reserve some days earlier and was listed as a Watch and Act event so little or no action was taken to bring it under control at that time. By the time it entered open country it was so big it was impossible to control. It was kept away from the main parts of Waroona and the Alcoa refinery at Wagerup but little effort it seems was put into defending the town of Yarloop. Even the media referred to the 'Waroona Fire' before it struck Yarloop and afterwards as the 'Waroona /Harvey Fire'. Warnings were only general and were for the Shires of Waroona and Harvey. Some residents never received any direct warning, some got warnings just 25 minutes before Yarloop was engulfed, while some local residents were left to pass on warnings to others and more were contacted hours after it had destroyed the town.

There was no water or power, and other resources were limited and inadequate. A private contracted fire unit sat unused in nearby Collie, costing the State Government a reported $100,000. While other offers of assistance were, we are told, refused by the WA State Government.

Now we need to explore the other factors which may have helped to create this disaster.

The town was not listed as a fire risk despite the amount of heritage wooden buildings, and was thus unprepared for this kind of event. Inter-relatedly we believe that Yarloop's proximity to the Alcoa Wagerup refinery posed a special heightened risk whereby a fire threatening the refinery or engulfing the refinery could result in catastrophic follow on effects related to toxic chemical eruptions or outflows from the refinery. We do not further address the risk of the refinery in the event of fire to the surrounding communities but think the locality should have an integrated industry/community fire strategy at the very least.

Many of the homes in the town were owned either by Alcoa, who had purchased them under their land management plan to create an informal buffer zone, or by the WA Government Department of Housing, and were low cost rental properties. Others bought by Alcoa were left empty, some for many years and many of these homes and the blocks on which they stood were poorly maintained, overgrown and had large fuel loads around them. Neither the owners nor the local Shire of Harvey enforced clearing of these tinder box blocks. The common open areas of the town were in a similar condition with little regular maintenance carried out by the Shire of Harvey. Both Alcoa and the WA Government say they will not replace properties lost, the latter advising they have relocated a number of tenants.

Unlike most other similar disasters, the State Government has been very quiet about Yarloop. The Premier talks about the fire being 'unavoidable' and 'unstoppable', blaming climate change and ignoring the history of them abolishing the GHG emissions target and ongoing support of large carbon polluters such as Alcoa, who continued to run their refinery when a Total Fire Ban was in place, even bussing their employees through the fire at great risk. When asked about the future of the town, the Premier said 'It was too early to make the call'. If the Alcoa refinery were not in the picture, we suggest there would have been no equivocating re the future of Yarloop and recovery work would already be underway.

In light of these circumstances some locals have begun to speculate that Yarloop was left to burn, after all the town's demise was a convenient event, as the town was seen by some as a political and corporate inconvenience, which this fire has helped to get rid of.

Since 1996 the residents of Yarloop and its surrounds have been in conflict with their neighbor Alcoa and the State Government over a range of environmental and health issues associated with the Wagerup Alumina Refinery. They have been demanding a formal Buffer Zone be established, with relocation and compensation for all affected, as at all other similar establishments in WA. Despite a Parliamentary Inquiry and any number of health studies, supporting the demand and even the WA Dept of Health and EPA being in favour of establishing a formal buffer. The Government left the decision in the hands of Alcoa, who introduced a Land Management Plan (LMP) in the early 2000s based they said, on noise contours, a claim which has since been widely discredited. This LMP left many residents who were affected by noise and pollution events, without the compensation they were entitled to and leaving them unable to escape these problems without considerable losses. Over time the demographic of the town has changed and approximately 90% of the original population have sold to Alcoa and moved from the area, often under duress, and these residents have been replaced, in the main, with tenants of rental properties.

Over time the community of Yarloop worked to boost the social capital and economy through a range of townscape improvement projects and tourism initiatives, all of which have been frustrated by State and Local Government. Authorities even rejected a suggested win-win initiative of building a new town as a regional centre to get more of the community out of harms way, as Alcoa's expansion has affected other areas. The plan included a land swap which would allow Alcoa to expand and Iluka to mine and then follow up with carbon credit producing tree plantation on the old Yarloop Town Site.

With all of this in mind, it is imperative that the Inquiry looks at how this fire has advantaged the commercial interests of Alcoa, the financial interests of the State Government and even the local Harvey Shire such that it is unlikely that the town will be rebuilt.

The next sections outline our concerns related to the three key stakeholders who can influence the future of Yarloop – Alcoa, the State Government and the Shire of Harvey.

<u>Alcoa World Alumina (Wagerup)</u>

The fire has created a de facto buffer zone without the compensation costs they have been avoiding for many years. Alcoa will no longer have to buy up properties under their LMP (the

properties are gone). They will no longer have the cost associated with the maintenance of so many properties they owned and will no doubt write off their losses against tax and have publicly stated they will not rebuild empty and rental homes lost.

Likely the Regulation 17 noise rules, they could not meet, will no longer apply, along with other requirements to protect the environment and community. So their expansion can now go ahead unhindered by public health concerns, objections and appeals. They will be able to buy up the few blocks of privately owned land in Yarloop and sell or lease the whole area to Iluka Resources, which for many years have shown an interest in mining the Yarloop Town site for the rich Ilmenite body it sits on.

The State Government

The State Government will continue to support Alcoa regardless and will benefit with increased revenue from an expanded refinery operation over the years, whilst they will hope to see an end to the continual complaints, submissions and appeals from the community which have tied up any number of Departments, Department of Environmental Regulation, Health, Water, Planning, EPA, and Appeals Conveners officials for many years. The old infrastructure i.e. School, Community Centre, Police & Fire Stations, which was expensive to maintain and service will not be replaced as the depleted population will not warrant the cost. The Department of Housing has lost a number of old sub standard homes to the fire and has already moved their tenants on, so now have no requirement to replace them. The Department of Health will not now conduct a new heath study, as the population is scattered and any concentrations of health problems in Yarloop will be diluted through the state population and thus any findings will be meaningless. The Department of Planning will be able to finally complete the Bunbury Regional Plan, held up for years over disputes around the land use in the Yarloop area.

The Shire of Harvey

The cost of providing council maintenance services and rebuilding of infrastructure i.e. Town Hall, Public Amenities and the Steam Workshop Museum Complex, will be even more costly than before the fire and more than they can afford with the reduced rates revenue from a much smaller population. Any loss of revenue from rates will be offset by reduced maintenance costs.

It is likely that the terms of reference for this inquiry will not allow examination of these important facts; however, it is hoped that this submission will bring some matters to light and give food for thought, when examining those issues which do not seem to make sense until you take them into account.

End of Submission

3 March 2016
Dardanup Brigades - Submission to Waroona-Yarloop Commission of Enquiry

Authored by Chair Bush Fire Advisory Committee (CBFAC), Chief Bushfire Control Officer (CBFCO) and Fire Control Officers and Captains (Burekup, Dardanup Central, Ferguson, Joshua-Crooked Brook, Waterloo, West Dardanup, Upper Ferguson, Wellington Mills).

BACKGROUND TO SUBMISSION –
Fire 323128, Waroona-Yarloop-Preston Beach, was an exceptional fire for many reasons – most known; a Town (Yarloop), 2 lives and 181 structures lost, 70,000 ha burnt with a perimeter of almost 400km, extensive road, water and power outages, destructive impacts on agriculture (under-reported), on travellers and most industry sectors in the SW, and unprecedented media.

This Submission is from the perspective of our eight Dardanup (DA) Shire volunteer Bush Fire Brigades (DA BFBs) who attended the fire from the outset on January 7th until Monday 18th January when the fire reverted to management by Waroona and Harvey Shire Brigades. We bring together individuals experiences into a series of **15 Recommendations**.

At the outset, we wish to acknowledge the generally well-coordinated management and tireless effort of a vast array of largely volunteers who put out the fire and supported them. We would also like to acknowledge our colleagues in DFES and DPaW, and many others including air attack pilots, dozer, loader and grader drivers. Also, support from community volunteers, e.g. caterers – like those at Brunswick, local garages (keeping fire trucks on the road), patient farmers, and more.

Fire 323128 was reported as two separate lightning strikes, on 6th January, one controlled and the other in steep bush on the Murray River escaped DPAWs best efforts. It escalated fast and the DA CBFCO and five brigades were called into Waroona area at 1AM on the 7th January. What followed for our crews was a 4-day heightened emergency phase (7-10th January) followed by 7-days of control (operational phase). The fire was then contained and mild conditions then prevailed.

In the initial 4-day period, Dardanup crews spent shifts of up to 24 hours, while later it was a routine 12-16 hours – day and night. The Dardanup fleet of 9 tankers (3 x Light LT and 6 x Heavy HT) and a DFES LT were utilised. The LTs were rostered on full-time and crews came from every brigade.

Towards the end of the initial phase, (10th January), DFES declared an emergency for Cookernup and Harvey. At about 15:30 SW ROC requested every Shire fire appliance mobilise for asset protection. Within an hour, at 16:30PM we mobilised a full Task Force (with Ranger 'logistics and welfare' support). Most of the DA Task Force stayed away for 2x 12 hour shifts (thankfully into cooler conditions). However this left the Shire without fire trucks. A Rapid Response was initiated at 16:30; with Eaton & Bunbury VFRS and neighbouring Shires BFBs on standby, a Command and Control system ready and by using phones and local social networks (including Facebook), over 50 private appliances were also ready by 7:30PM. A fantastic response by a very aware community.

In addition to the long and hot, dark and dirty firefighting, this Submission requests the Enquiry acknowledge the "invisible effort'' that goes on behind the scene. Such as logistics and communication; organising eight brigades, crewing 10 appliances, keeping them in service, arranging over 100 volunteers; across 24 hour cycles, for a two-week period, when DFES defined tasks and destinations were changing fast. Each day hundreds of hours of time was donated, texts and phone calls were made – including use of social media - plus time at briefings and meetings.

Our community has a fantastic core of trained volunteers; men, women and young adults, supported by the Shire, Rangers and families and friends. Volunteers don't fight fires for recognition – but we received truckloads of gratitude from our dirty-yellow coated cousins from Harvey and Waroona.

RELATIONSHIP BETWEEN THIS SUBMISSION AND TERMS OF REFERENCE –
This submission is based on the feedback of the Dardanup brigades in relation to issues raised rather than the specified Terms of Reference. However, we have attempted to map the Recommendations to them. We note that not all apply equally to the written descriptions.

The response to the January 2016 Waroona Fire

(a) The effectiveness of pre-incident bushfire prevention and mitigation activities;

RECOMMENDATION 11: – We seek the enquiry provide advice on requirements for managing rate of spread. Especially roadside vegetation, drains and similar. This may include developing a tiered level of risk and responsibility, with landholder's taking back managing local roads, Shires and Asset managers major ones, and the State, the main corridors.

RECOMMENDATION 12: – We seek the enquiry make recommendations on managing risk, such as mapping and the role of DFES & Local Government in providing incentives for rural properties to adopt low risk (defensive) systems around critical *private* infrastructure. This should be supported by advice for the Volunteers Association and Insurance industry to play a more active role.

(b) The effectiveness of emergency management plans and procedures;

(c) The effectiveness of the suppression strategies and tactics used during the fire;

(d) The effectiveness of incident management, including coordination of agencies, volunteer fire and emergency services and interstate assistance;

RECOMMENDATION 2: ICVs need to be appropriately manned with Division Commanders to maintain operational capacity on Sectors. Gaps in this process on the Southern Sector resulted in duplication of roles and a lack of timely information flow to the Waroona base.

RECOMMENDATION 5: – DFES must more clearly define, or more effectively implement, their deployment process so that the relevant Shire and CBFCO know who is required, which Command location brigades should attend and when. Communication needs to be with more than the CBFCO (as he may be asleep, unavailable etc.), be timely and be in writing (SMS or email) so it can be more easily shared.

RECOMMENDATION 6: – Sector Commanders unfamiliar with their area, or tasks, should arrive on Sector at least 2 hours prior to crews, to enable them to become briefed and aware of needs. This is especially important for large sectors and night shift changeovers.

RECOMMENDATION 7: – Crew briefings, including use of appropriate maps and electronic resources (iPads with viewing tools and Volunteer Porthole) could be developed so that crews were better prepared and could work more effectively on their shifts.

RECOMMENDATION 13: – The enquiry note the diversity of approaches for BFBs and seek Local Governments and DFES recognise their roles and provide more equitable support for use of appropriately equipped private vehicles.

RECOMMENDATION 14: – We seek the enquiry provide advice to DFES and DPaW to provide more and substantial information to fire fighters – to aid fire control and safety. Empowered volunteers are likely to be more effective and better able to contribute.

(e) Protection of essential services infrastructure and access to essential services (power, transport, water, communications) by emergency services organisations and the community;

RECOMMENDATION 10: – We seek the enquiry provide guidance on clearing of flammable vegetation around critical infrastructure to reduce the risk of the loss of services and the related impact and cost on emergency services and the community. At least 20m is recommended for houses and should be the minimum for public infrastructure.

(f) The effectiveness of public messaging including the adequacy and timeliness of emergency warnings issued to residents and visitors;

RECOMMENDATION 1 – Publish as part of the Enquiry, the Organisations who were present, the number of staff, volunteers, and an estimate of their relative hours on the fire ground (and contribution of these behind the scenes if able).

(g) Effectiveness of assistance to and management of those affected by the fire:

(i) Evacuation procedures

(ii) Communications with the community over the course of the fire

(iii) Provision of welfare support

RECOMMENDATION 3: We suggest that for Strike Force or similar deployments, a Volunteer Liaison Officers should be included. They would have their own vehicles (e.g. Shire Rangers) and have appropriately skills and equipment and be tasked with managing the needs of the Strike force.

RECOMMENDATION 8: – Responsibility for fatigue and time management of crews is complicated by the fact that Shires and DFES separately management crews and crewing and that there are delays (overlaps) in the reporting process. DFES and Shires need to review the implementation of the existing policy on shift management and duration, with input from the Volunteer Association.

RECOMMENDATION 9: – That this Enquiry reviews the Welfare at this fire, who is responsible and makes Recommendations about minimum standards on major fires. We suggest it seek advice from Brigades who attended and the Volunteers Association.

(iv) Management of people seeking to return to their properties, and

RECOMMENDATION 15: – We seek the enquiry review access restrictions (permits) and impacts. We also request flexibility be provided at Sector level, especially to allow access to those who are local (verified by BFBs/Shire) and can support fire management – and - when they are required to manage key agricultural issues, e.g. protect animals and irrigation systems.

(h) Livestock and companion animal management and welfare issues.

1. FIRE – WHO FOUGHT AND FOR HOW LONG?

In the aftermath of the fire, we heard much about who was at the fire in an active role, and the various roles, responsibilities and effort logged by various Agencies. Clarifying the allocation of time by the various groups (DPaW, DFES, Shire Volunteers and others at the fire) would help the Enquiry and Community understand the effort (and assess Duty of Care, OSH issues; see below) and provide some quantifiable basis for each of the Emergency sectors for better appreciate each other's roles and effort. Please report these numbers.

By way of example, we analysed the Fire Information Reports from the Shire of Dardanup for the eight brigades that attended the Waroona fire. Using only those Reports available and submitted at this time, Volunteers fire time was 680 hours of firefighting. Based on an average crew of 3 (to even out Light and Heavy tankers), this equates to over 2000 hours of firefighting time.

In addition to this, the Chief, FCOs and Captains made and received between 100 to 300 calls each, in addition to meetings, SMS messages, when organising crews. We estimate that up to 500 hours was spent in the process of planning crewing and communication with DFES, DPaW and members. This does not include personal preparation and post fire processes.

RECOMMENDATION 1 – Publish as part of the Enquiry, the Organisations who were present, the number of staff, volunteers, and an estimate of their relative hours on the fire ground (and contribution of these behind the scenes if able).

2. COMMAND AND CONTROL

2.1 Communication between Agencies (DFES & DPaW) and BFBs

During Thursday 7th January, SW ROC called the DA BFBs at 1:13AM to support Waroona and Harvey CBFCOs at the rapidly developing fire in the Waroona (South) area. This followed an 6/1/16 SW ROC advice that a DA response would be requested. At about 2AM CBFCO Dardanup (private vehicle) and several appliances arrived and were briefed by Harvey CBFCO and met with Collie trucks. The combined DA Strike force (sector under CBFCO Dardanup) spent the next 6-7 hours defending assets and gathering information in Coronation, McClure and Summers Road. An additional Sector was also set up under Dardanup Deputy South. At 8:30 AM part of the team moved to Waroona and found the Sampson Brook bridge destroyed.

Using this information, an ICV was tasked with Dardanup CBFCO, however no Divisional Commander was supplied with the ICV (Southern Control). As a result, CBFCO Dardanup was withdrawn from the fire ground, leaving a Sector without a leader that resulted in the area being unmanaged for several hours. In addition, Dardanup CBFCO was unable to provide Waroona with Sit-Reps as he had lost contact with CBFCO Harvey and some Dardanup crews. The consequences of this was also that no food was provided and there was no awareness of a replacement crew for the DA brigades until CBFCO went to Divisional Command.

RECOMMENDATION 2: ICVs need to be appropriately manned with Division Commanders to maintain operational capacity on Sectors. Gaps in this process on the Southern Sector resulted in duplication of roles and a lack of timely information flow to the Waroona base.

RECOMMENDATION 3: We suggest that for Strike Force or similar deployments, a Volunteer Liaison Officers should be included. They would have their own vehicles (e.g. Shire Rangers) and have appropriately skills and equipment and be tasked with managing the needs of the Strike force.

Following the Dardanup CBFCO arrival at Waroona Command (and resolution of issues above), he learnt that CBFCO Penny was departing for Yarloop for "…support and asset protection…". At about 12:00PM the Dardanup, Bunbury and Collie brigades were also deployed to Yarloop. No specific briefing was provided other than this initial advice. CBFCO of Harvey was in Charge and divided areas/roads between Harvey, Collie, Bunbury and Dardanup brigades (with 1x loader support). CBFCO Hynes noted that CBFCO Penny called for additional support soon after arrival – none was known to have arrived until the DFES Task Force arrived after 8PM.

Up until (approx.) 7PM, when the fire jumped the SW-Highway on the northern edge of town, and major damage then occurred, the Dardanup and others BFBs had addressed assets, patrolled and undertook assessment. Crews felt their asset protection to that time had been successful. However after the fireball arrived, crews prepared and evacuated (CBFCO Hynes can supply further information on actions undertaken in this period). Importantly, for future crew safety and operational awareness, there was no indication for BFBs on-site that the "7PM" fireball was heading to Yarloop. No DFES alerts were provided (or were received) by BFB crews. In addition, DPaW crews (waiting at the southern edge of town with two dozers) were also unware when spoken to at approx. 6:00 to 6:30PM.

RECOMMENDATION 4: For the safety of crews and ability to protect Yarloop for the fireball that came out of the forest at dusk, crews must be better aware and resourced. The Enquiry needs to understand why BFB (and other) fire fighters at Yarloop were unware that this was about to happen to prevent this happening again.

2.2 General Command and Control:

Across the fire, there was an awareness by Brigades that DFES chain-of-commend was not clear on who and how decisions on crewing were taking place, or at least it was inconsistent. The CBFCO was advised that crewing was the responsibility of the Incident Control Team, who would advise the SOC, who would in turn advise the SW ROC, who was required. However, across the period, the CBFCO (and others) received requirements from Sector Commanders, the ICT and SW ROC that were sometimes (*enough times that it was a problem*) untimely and inconsistent.

This resulted in crews being sent to the wrong Divisional Control (e.g. Waroona, Brunswick, Harvey and Preston Beach), crews being demobilised (after arriving at the ICV) only to be remobilised again some hours later after arriving home, and being deployed to another ICV by a separate sector. This had impacts on crew planning and caused an excessive number of crew changes and calls to be required by brigades – on top of hundreds already made getting crews. This communication issue reflects on DFES planning and management.

In addition, crews commonly reported returning to Sectors to find their T-cards had been removed from the ICV board. This is unacceptable as the Sector Commander has responsibility to ensure their safety and in Task Force conditions, so does their leader. Only when a crew leader is present should T-cards be removed.

RECOMMENDATION 5: – DFES must more clearly define, or more effectively implement, their deployment process so that the relevant Shire and CBFCO know who is required, which Command location brigades should attend and when. Communication needs to be with more than the CBFCO (as he may be asleep, unavailable etc.), be timely and be in writing (SMS or email) so it can be more easily shared.

2.3 Sector control – preparedness and timing of deployment:
In the Operational phase when the fire had defined sectors, and deployed was to the correct Command location (see Recommendation 5 above), crews then waited up to 1-3 hours (of 12 hour shifts) for Sector Commanders to arrive, for work instructions, and or briefings. While all BFB members acknowledge the difficulty in planning a fire response (the 'hurry up and wait' syndrome), it is annoying to have to wait for extended periods without understanding the reason or the likely duration. In two cases known, Sector Commanders arrived after crews, in the dark on night shift, to areas they were unfamiliar with – causing unnecessary delays. Poor maps – briefings that did not capture the previous shifts learnings – also caused delays, repetition and double workloads.

In addition, where possible, Sector Commanders should be chosen from local brigades, and where possible, local brigades should be tasked as closely to their home bases as is possible. There were several cases where Dardanup brigades had to drive through the fire to the Northern sectors, when work was available in southern sectors.

RECOMMENDATION 6: – Sector Commanders unfamiliar with their area, or tasks, should arrive on Sector at least 2 hours prior to crews, to enable them to become briefed and aware of needs. This is especially important for large sectors and night shift changeovers.

2.4 Maps & Briefings:
In the operational stage of the fire, the SW ROC requested crews were at Command areas at 8AM and 8PM, in time for briefings. Brigades arriving at briefings (if held), reported very variable levels of information (none to excellent) and similarly, maps (none, great or unusable).

Again, as above, BFB Volunteers understand the complexity of circumstances and can adapt, however better communication on the tasks, areas, assets, risks would be very helpful, and prevent significant parts of the shifts spent readdressing issues managed by the shift before. Better use of the planning materials on sites like the DFES Volunteer Porthole, or tactical tools, like in-field electronic tools (eg iPads with OziExplorer or similar software), that are passed from Shift to Shift, could be made to make general fire information, and specific Sector information work better (see also Recommendation 13).

RECOMMENDATION 7: – Crew briefings, including use of appropriate maps and electronic resources (iPads with viewing tools and Volunteer Porthole) could be developed so that crews were better prepared and could work more effectively on their shifts.

3. FATIGUE OF CREWS & WELFARE

The Shire of Dardanup brigades see several issues here – in relations to the two phases of the fire.

Emergency Phase – in this period, many of DA Crews and Sector Commander/s worked exceptionally long shifts, over 24 hours on the fire ground was common. This was in addition to their previous work/awake hours. This is a hazard that often occurs but reminding Shires of Policy, recording shifts and DFES feedback would assist manage fatigue (especially of key personnel) in future fires.

In the Operational stage, when Sectors are established, opportunity exists to manage hours, risks and roles. At this Waroona fire the standard shifts was 12 hours (approx.); commencing 7AM and ending 7PM at the Fire shed for changeover and 8AM and 8PM at the allotted Divisional Command.

Notwithstanding the issues raised above about clarity around which Command centre was requesting the crews, and briefings (or lack of), the Dardanup BFBs and Shire seeks input into the shift duration and crew changeover times and whether alternative times can be managed. This is

within the context that many brigades Volunteers have work commitments, have age issues and seek more flexibility.

RECOMMENDATION 8: – Responsibility for fatigue and time management of crews is complicated by the fact that Shires and DFES separately management crews and crewing and that there are delays (overlaps) in the reporting process. DFES and Shires need to review the implementation of the existing policy on shift management and duration, with input from the Volunteer Association.

In addition to fatigue, management of volunteer fire fighter welfare is a misunderstood and often mismanaged. In particular, provision of food and water at this fire was haphazard, and the quality and frequency varied depending on who was responsible.

For example, when managed by volunteers or supplied by DPaW, like occurred at Brunswick Oval and Preston Beach (and some other sites), food was exceptional. At Brunswick, fire fighters could eat a substantial breakfast/dinner and collect drinks and snacks for the day/night. The food choices allowed health eating and performance. Similar at Preston Beach, DPaW fridges were supplied with meat and salads, and a choice of snacks. At other locations food was either absent, or poor quality (eg sandwiches that were hot from sun exposure), or drinks choices were sugary coke and fanta, or hot water (i.e. in PVC bottles). No tea of coffee is available on shifts.

While fire fighters understand there are complications with management of food, what we do not accept is the agencies like DPaW manage food very well - as they are feeding their staff (and us if we are lucky) and DFES do not use the same approach. It appears to BFB members that as we are not the responsibility of DFES – and to be honest – have put up with poor food for too long without complaining – we get the basics.

RECOMMENDATION 9: – That this Enquiry reviews the Welfare at this fire, who is responsible and makes Recommendations about minimum standards on major fires. We suggest it seek advice from Brigades who attended and the Volunteers Association.

4. CRITICAL INFRASTRUCTURE AND TARGETED CLEARING ZONES

Loss of critical infrastructure, like Sampson Brook bridge, Powerlines, Communication Towers and Town Water (not including private houses), was due to the severity of the fire. However, it could have been better managed by better asset protection and operational awareness/response planning by asset managers and responders. For example, wooden bridges across thick scrub in creek-beds, communication towers “in” mature forest and powerlines “over” large trees are inevitably going to be lost.

Pre-planned responses such as declared minimum Clearing zones need to be implemented so that asset managers can protect infrastructure, minimise damage and ensure key operations are maintained during the fire. Responsibility needs to be directed to one key agency, e.g. DFES or Department of Premier and Cabinet to ensure that it is applied across all fire prone Shires by the various asset managers. In addition, when key corridors like Highways are under attack, additional appliances should be located at threatened assets. To our knowledge there were no brigades tasked to protect the Sampson Brook Bridge or others?

RECOMMENDATION 10: – We seek the enquiry provide guidance on clearing of flammable vegetation around critical infrastructure to reduce the risk of the loss of services and the related impact and cost on emergency services and the community. At least 20m is recommended for houses and should be the minimum for public infrastructure.

5. FIRE ESCALATION AND PREVENTION – DRAINS AND VERGES

Evidence from the Yarloop and Waroona fire behaviour showed that the fire ran fastest (Rate of Spread ROS) along unburnt road verges and irrigation drains when it ran out onto the Coastal Plain. This made it impossible for brigades to slow the rate of spread. This resulted in the fire penetrating much further out onto the Coastal plain that it may have if fuel loads were better managed.

Better clearing practices, burning or use of herbicide, in part, or for all of these is required to slow down the run of future fires.

RECOMMENDATION 11: – We seek the enquiry provide advice on requirements for managing rate of spread. Especially roadside vegetation, drains and similar. This may include developing a tiered level of risk and responsibility, with landholder's taking back managing local roads, Shires and Asset managers major ones, and the State, the main corridors.

6. PRIVATE PROPERTY PROTECTION AND AWARENESS –CAPACITY TO PROTECT/DEFEND (STAY OR GO)

The relationship between landholders awareness of their properties fire risk, and the risk to fire fighters defending their property is not a major focus of the current DFES awareness campaigns nor is it of Shire based "Fire Prevention" messages, most of which is fixated on fire breaks. Developing clear guidance on property risk issues, protection zones, risk avoidance and best practices (as partially done in DFES brochures) should be increased, with incentives provided where possible (e.g. rate relief, insurance premium reduction).

Positive messages and rewards (rate reductions), combined with a concerted effort by Shires, Brigades and supported by DFES will help. Focussing on prevention is critical.

In addition, failing compliance, we seek the Enquiry advice on the usefulness of rating risk, eg markings placed in gates/driveways or electronically on databases and available on maps or in-field portable devices, and implementation – as proposed before.

RECOMMENDATION 12: – We seek the enquiry make recommendations on managing risk, such as mapping and the role of DFES & Local Government in providing incentives for rural properties to adopt low risk (defensive) systems around critical *private* infrastructure. This should be supported by advice for the Volunteers Association and Insurance industry to play a more active role.

7. SUPPORT FOR PRIVATE VEHICLES AT FIRES

It was apparent at this fire of the critical role of CBFCOs (and related Sector Commanders) and the use of private vehicles for incident management. However, CBFCOs operate differing types of vehicles with variable equipment. Shires also have differing support for use of private vehicles (nil, to minor), yet fire management demands that CBFCOs (and others) be on the fire ground. Support to cover the operational costs of attending fires should include specific equipment, covering losses, and a kilometre rate for fire related use. This is especially important in major fires where appropriately fitted out CBFCO vehicles and support crew make a major impact on operational capacity and communication. If this is not supported, and their core role is to be maintained, appropriate vehicles will need to be supplied – noting the high cost and inconvenience.

RECOMMENDATION 13: – The enquiry note the diversity of approaches for BFBs and seek Local Governments and DFES recognise their roles and provide more equitable support for use of appropriately equipped private vehicles.

8. COMMUNICATION

Communication is a major issue at fires, at all levels of management. Electronic and social media is becoming a highly regarded facet of fire information and has potential for better use and management by DFES **for fire fighters**.

DFES currently operate a Volunteer portal with access to members. However, to our knowledge neither this, nor other sites, are used in major fires to provide critical information for fire fighters. In most cases it appears to brigades that systems are entirely focussed on communication upwards and to the general public, and not providing key support to those who are doing the job and risking their lives - fire fighters. We are unaware of any communication at the Waroona-Yarloop fire targeted for BFB volunteers (or similar). When briefings do occur they are essential, but better prepared crews could do a much better job if more information was available to them. Such information (which is already collected and provided within DFES to employees and management) could include;

- Daily Fire maps,
- Sector maps,
- Daily updates (fire and/or sector level),
- Location of command centres (e.g. ICVs and IC centres) and changes,
- Weather forecast,
- Infrastructure and critical assets,
- Risks to fire fighters on sectors,
- Access routes to Command Centres,
- Welfare locations, issues (and changes),
- Briefing times,
- Contacts.

At an operational level, we are aware of the DPaW (Spartal support system SSS) provided to crews. This provides real-time information on the fire and supports real-time reporting to Commanders.

However in BFB appliances, apart from some with GPS devices, there are no means of tracking information, nor reporting. Tools such as SSS or specific devices (eg iPads and similar) could be used, updated, and moved between vehicles on the same sector (for example). This would improve operational support and prevent the loss of knowledge between shifts.

For planning, access at a restricted level for CBFCOs and key staff to the DFES Web Browser system, would also increase awareness and lead to better decisions. This could include access to crewing (forecast work timetables), capability, hours worked, and similar. At present (as noted above) the communication around Resources and Planning is critical but haphazard, and often sensitive to the availability of key personal (who may be busy, asleep, or unavailable). Diversifying the knowledge base does not mean the Chain of Command is at risk, as appears DFES believes (by the gaps noted here) but a better informed BFB-Shire base.

Finally, as a case study, several Dardanup brigades set up Facebook pages to enable communication within local area groups. This meant busy volunteers could have useful information shared quickly and provide alerts within social groups. These sites can support the DFES approach and are acknowledged do not supplant primary information on the DFES website.

RECOMMENDATION 14: – We seek the enquiry provide advice to DFES and DPaW to provide more and substantial information to fire fighters – to aid fire control and safety. Empowered volunteers are likely to be more effective and better able to contribute.

9. LANDHOLDER ACCESS

Given the extensive impact on private property, Dardanup BFB crews were in regular contact with farmers and related businesses. Two consistent message from them during the fire was to offer support (water, knowledge, contacts) and the other was to seek access to check on animals or crops.

In most cases, Brigades operated within the restrictions (permit system) placed on access by DFES and supported the WAPOL restrictions and process. However, in cases where it was 'reasonable' (the fire was contained, and access safe), crews guided individuals (who by-passed road blocks) back to their property to attend to animals, risks and support active fire management. Crews should not have been in this position and expected that DFES and WAPOL would have approached the system with better understanding of the needs of fire fighters and landholders.

In addition, key landholders, known to FCOs and CBFCOs suffered significant animal and crop issues from an inability to return, to their farms, or get access to key services, e.g. vets, fuel, etc. Similarly, allowing Harvey Water earlier access to critical supply points would have helped crews and farmers.

RECOMMENDATION 15: – We seek the enquiry review access restrictions (permits) and impacts. We also request flexibility be provided at Sector level, especially to allow access to those who are local (verified by BFBs/Shire) and can support fire management – and - when they are required to manage key agricultural issues, e.g. protect animals and irrigation systems.

Government of **Western Australia**
Department of **Agriculture and Food**

Mr E Ferguson,
Special Inquirer
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2 Havelock St
WEST PERTH WA 6005

Your Ref:
Our Ref:
Enquiries: Andrew Watson (9368 3282)
Email: andrew.watson@agric.wa.gov.au
Date: 11 March 2016

Dear Mr Ferguson,

SUBMISSION TO WAROONA FIRE INQUIRY ESTABLISHED UNDER THE PUBLIC SECTOR MANAGEMENT ACT 1994.

Please find attached, a brief submission outlining a model for improved bushfire management in Western Australia based on the Landcare model of the 1980s and 90s.

The submission addresses Terms of Reference 1 (a) and (b). Should you require further information regarding this matter, please do not hesitate to contact me in the first instance, on 9368 3282.

Yours sincerely

Andrew Watson
COMMISSIONER OF SOIL
AND LAND CONSERVATION

Landcare in Western Australia: a model for improved bushfire management

by Andrew Watson[i] and Roger Underwood[ii]

1. Introduction

The landcare movement that developed in rural Australia during the late 1980s and 1990s was a response to growing concerns about land degradation in agricultural areas. The priority concern was salinity, which threatened farm and townsite assets, the environment and infrastructure.

Today, a similar concern is mounting over the threat of bushfires. Although the bushfire threat has always been present, it has escalated during the last decade, and is now regarded as being virtually unmanaged. As with salinity, rural residential areas (and community infrastructure), the environment and farms are threatened. And as with salinity there are two equally important strategies that must be pursued: prevention (or damage mitigation) and response (plus recovery).

One of the biggest problems with bushfires is that the bushfire management system in WA is fragmented, poorly coordinated and lacks shared goals. The State's strategic approach is focused almost entirely on emergency response and post-fire recovery, not on prevention or damage mitigation.

The landcare movement (although it has declined in recent years) is considered to have been a success in promoting and facilitating a new approach to land management in agricultural areas. Can this provide a model for bushfire management?

2. The Landcare model

The essence of the landcare movement was the creation of a 'bottom-up' system of organising land owners and promoting and coordinating responsible land management. The twin aims were (i) to prevent, or minimise the impact, of land degradation and (ii) to repair or recover affected areas.

The essential structure was built up as follows:

- Individual land owners (farmers) undertook to prepare a "farm plan" for their property. The plan spelled out the measures to be taken to recover degraded land and to minimise the threats of further degradation.
- Adjoining land owners and land managers came together in informal groups called "Catchment Groups", usually based on a designated catchment area (for example The Morbinning Catchment, based on a tributary of the Avon River). Catchment Group members met regularly, had their own committee and leadership, helped and assisted each other with

projects such as tree planting, and ensured farm plans were coordinated across land ownership boundaries.

- The Department of Conservation and Land Management also became involved as a land-owner and began to prepare management and recovery plans for threatened reserves.
- Within each Shire a statutory committee known as the Land Conservation District Committee (LCDC) was appointed under the Soil and Land Conservation Act 1945. The role of the LCDC was to provide leadership, to manage projects and carry out other works for preventing or mitigating the effects of land degradation and to promote soil conservation in their district. Committee members were appointed for a three year term by the Commissioner of Soil and Land Conservation.
- LCDCs were also empowered to make recommendations to the Minister for Agriculture, to gazette By Laws relating to land management and to raise funds for carrying out works by means of a soil conservation service charge or a rate collected through the Local Government Authority.
- There was also a State-level Soil and Land Conservation Council (SLCC), members of which were appointed by the Minister. SLCC had representatives from LCDCs, NGOs, producer groups, local government and government agencies with an interest in land conservation. The SLCC helped to shape State and Commonwealth landcare policies, advised on the application of State and Commonwealth grants, and assisted in the coordination of service delivery by State Agencies.

3. Outcomes

During the 1980s and 1990s, the landcare movement, primarily through the LCDC committees and Catchment Groups, were successful in promoting the development of farm and catchment plans which in turn led to the adoption of more sustainable farming practices. These included:

- No-till cultivation;
- Extensive tree planting, especially along drainage lines and on recharge areas;
- Drainage or pumping;
- Fencing off and regeneration of remnant vegetation and water courses;
- Rabbit control

In some areas (for example the Darling Creek project in the Shires of Carnamah, Three Springs and Perenjori), LCDCs were able to develop regional management strategies encompassing an entire drainage system, covering adjoining Shires and hundreds of land-owners. In other areas (for example the Yenyenning Lakes), a single Catchment Group initiated a management strategy for an important wetlands and adjoining farmland.

Within designated "threatened towns" programs were set up to lower saline groundwater through pumping and revegetation and for the treatment of saline and waste water for use in irrigation of community facilities such as football ovals or golf courses.

However, the movement has left behind a legacy of changed attitudes and improved farm management adopted by a new generation of farmers, and a new farming culture based on land conservation.

6. What is the relevance to bushfire management?

Bushfires, like salinity, can cause enormous social and environmental damage. Every landowner in rural and semi-rural WA is potentially threatened.

And yet while the threat is real, the approach to dealing with it has become increasingly ineffectual. We see:

- The prevalence of the "it will never happen to me" philosophy, especially in rural residential areas. This destroys the impetus of self-interest;
- Very few farmers have a bushfire strategy for their property (a written plan dealing with bushfire prevention, damage mitigation, asset protection and action in the event of a fire), and there is no mechanism for coordination of strategies across districts or tenures.
- A lack of interest or priority from Local Government. For example, few LGA in WA chose to enforce the hazard reduction provisions of the Bush Fires Act, and few country Shires show leadership in undertaking fuel reduction on road or bushland reserves;
- Many rural residential areas are totally unprepared for an incoming fire; in forest and tourist regions, towns are mostly undefendable from high intensity fire;
- While rural areas continue to have Volunteer Bush Fire Brigades, and they do great work as firefighters, the brigades are largely excluded from fire damage mitigation works such as fuel reduction burning, and there is no effective force for bushfire leadership and coordination in communities.
- Some communities in the semi-urban areas have developed "Bushfire Ready Groups" which attempt to raise awareness. However, the groups have no statutory functions or support, and there is no coordination between groups and they are largely ineffectual.
- Bushfire management is today in the hands of the Department of Fire and Emergency Services, a city-centric organisation whose culture is emergency response (fire suppression), not bushfire management. WA is the only mainland State in Australia where rural fire management is in the hands of metropolital firefighters.
- The 'bushfire message' in WA comes down from on high. People are asked rhetorically "Are you bushfire-ready?". The concept cuts no ice with most rural people, especially those who believe "it will never happen to me".
- The Department of Parks and Wildlife has a responsible attitude to fire management, but is starved of funds and resources. It is not able to manage the threat in southwest national parks and State forests, let alone deal with fire in the hundreds of nature reserves scattered throughout rural WA.
- Other land-owning government agencies (Department of Water, WA Planning Commission, Water Corp, Railways, Main Roads etc) do almost zero bushfire management.

At its peak in 1995 there were nearly 150 Land Conservation District Committees operating in rural Western Australia. They covered about 90% of the state's agricultural and rangelands districts. More than 80% of farmers were actively engaged with their LCDC.

4. Keys to success

There were two key features of the landcare movement:

(a) The first was the development of strong collaborative arrangements between State, Federal and local Governments. This was a shared concern at all levels about the expanding impact of salinity on agriculture, water supplies, built infrastructure and natural resources (including biodiversity).

This shared concern led to a series of very significant funding programs including the State Landcare Program, the Federal Decade of Landcare Plan and the National Heritage Trust. This funding provided resources for catalytic projects on the ground, aimed at stimulating a change in the way the Australian landscape was managed, and in capacity-building and research.

This high degree of alignment between the three tiers of Government, farmers and the broader community reflected a keen understanding of, and a shared concern for the threat of land degradation. The community was happy to provide governments with a mandate to apply funds to this area over many years.

(b) The second key element of the landcare movement was that it was essentially a "bottom-up" movement. It started with people who could see that their assets (on the farm, in the country town or the nature reserve) were threatened. A movement starting in the city and then attempting to convince people out in the country that they should change their ways, when the people out in the country could not see the need for it, would have been doomed to failure.

5. What transpired?

The landcare movement fell away in the years after about 2000. The Federal government changed its investment policy, focusing on biodiversity conservation rather than on-farm or on-catchment projects that would make farming more sustainable. Without federal funding, existing programs could not be maintained or new ones commenced. The professional and technical support base in the Department of Agriculture fell away as funds declined.

Today only about 40 LCD committees remain active. Funding is now largely derived from non-government philanthropic organisations via Regional NRM groups, although the Federal government continues to provide funds for biodiversity-related projects.

In short, despite the annual loses and devastation, bushfire management in WA remains poorly organised and ill-led. Many individual stakeholders might be concerned about protection of lives, property, infrastructure, environmental and cultural assets from the impacts of wildfire, but many ar not, and there is no system in place to make this happen.

7. How might the landcare model apply?

The following five steps demonstrate how the landcare model could be applied to bushfire management:

1. The basic message from all levels of government and community leaders would be changed from "Are you Bushfire-ready" which conveys no measure of urgency or threat, to "It **will** happen to you!" which focuses on the inevitability of bushfires and the damage they cause. It will be a hard sell, with a professionally designed communication strategy. This change will recognise that the key to improved bushfire management is convincing rural people that their lives and assets are under threat, in other words, generating self-interest.

2. They will then be taught and encouraged how to respond to the threat. At the lowest level, every property will have a fire management plan and there will be local groups, analogous to the Catchment Groups who will assist in preparation of plans, promote coordination of plans and organise fire management projects. Good bushfire prevention/damage mitigation programs will be rewarded and celebrated, the way landcare successes were.

3. Local Government Authorities will lift fire to at least the equal top of their priorities, showing leadership in the management of hazards on their own land, enforcing the Bush Fires Act, and helping to create, fund and support a local Bushfire Management Committee. The LBMC will be analogous to the LCDC and be the lead organisation in each shire promoting high standards of bushfire management.

4. Every LGA will have a bushfire management strategy, setting out goals, priorities, cooperative arrangements, training and education programs, and the enforcement policy. These plans will be tenure-blind, and will bind the crown. The LGA will be required to publicly report progress against the plan annually. All land-owning government agencies will become part of this system, and they will want to be part of it, as responsible citizens and good neighbours.

4. There will be a Rural Fire Service (RFS), replacing DFES in rural areas, to provide the committees and landowners with professional and technical advice, and to coordinate the fire preventative work of government land-owning agencies. In this regard, the RFS will be analogous to the role played by the Department of Agriculture in supporting landcare.

5. There will be a State Bushfire Council, representative of rural stakeholders, with the role of advising government on policy and funding priorities, legislation and Federal liaison, and for bringing pressure to bear where necessary on LGA or government agencies. This will be analogous to the former Soil and Land Conservation Council.

6. Federal funds will be made available to district committees for planning, and for bushfire prevention/damage mitigation programs. As the new approach starts to succeed, these funds will become available through the Federal government not needing to fund bushfire recovery to the same extent. The Feds would prepare a clear investment strategy that makes every stakeholder aware of their funding priorities, and which would reward good management, not failed management as is currently the case..

8. Conclusion

We believe that a "Firecare" model would revolutionise bushfire management in rural WA in the same way that the landcare movement was so effective in changing attitudes, building capacity and promoting improved farming and townsite management practices.

10 March 2016

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[i] Andrew Watson is Commissioner of Soil and Land Conservation for Western Australia

[ii] Roger Underwood is Chairman, Bushfire Front Inc of Western Australia

Department of Fire and Emergency Services
Waroona Fire – January 2016

Submission prepared by
Fire and Emergency Services Commissioner
Wayne Gregson APM

March 2016

GOVERNMENT OF WESTERN AUSTRALIA

DFES
Department of Fire & Emergency Services

V1

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The Department of Fire and Emergency Services submission to the Public Inquiry into the January 2016 Waroona Fire

PREFACE

Over several days in early January 2016 a major bushfire emergency occurred in the Shires of Waroona and Harvey, Western Australia. The fires burned through more than 68,000 hectares of land. The impact was devastating to local communities, particularly the town of Yarloop. Two people lost their lives, 162 homes were destroyed and community infrastructure and agricultural property were damaged.

On 20 January 2016 the Honourable Colin Barnett MLA Premier of Western Australia announced an independent *Public Inquiry into the 2016 Waroona Fire (Public Inquiry)*, to be undertaken by Mr Euan Ferguson AFSM. The terms of reference (ToR) for the *Public Inquiry* are to examine and report on:

1. The response to the January 2016 Waroona Fire

(a) The effectiveness of pre-incident bushfire prevention and mitigation activities;

(b) The effectiveness of emergency management plans and procedures;

(c) The effectiveness of the suppression strategies and tactics used during the fire;

(d) The effectiveness of incident management, including coordination of agencies, volunteer fire and emergency services, and interstate assistance;

(e) Protection of essential services infrastructure and access to essential services (power, transport, water, communications) by emergency services organisations and the community;

(f) The effectiveness of public messaging including the accuracy and timeliness of emergency warnings issued to residents and visitors;

(g) Effectiveness of assistance to and management of those affected by the fire:

(i) Evacuation procedures

(ii) Communications with the community over the course of the fire

(iii) Provision of welfare support

(iv) Management of people seeking to return to their properties, and;

(h) Livestock and companion animal management and welfare issues.

2. Lessons learned from previous bushfire emergencies

(a) The extent to which the findings and recommendations of the following Western Australian bushfire reviews undertaken since 2011 have been implemented:

(i) *A Shared Responsibility – Report of the Perth Hills Bushfire February 2011 Review* (Keelty, 2011);

(ii) *Appreciating the Risk – Report of the Special Inquiry into the November 2011 Margaret River Bushfire* (Keelty, 2012);

(iii) *Post-Incident Analysis of the 2011 Margaret River and Nannup bushfires* (Noetic Solutions, 2012);

(iv) *Parkerville Stoneville Mt Helena Bushfire Review* (State Emergency Management Committee (SEMC, 2014);

(v) *O'Sullivan and Lower Hotham Bushfires Review* (SEMC, 2016); and

(vi) *The Western Australian State Emergency Management Committee Preparedness reports*

(b) The effectiveness of reforms implemented by the State since 2011 affecting the State's ability to prevent, mitigate and respond to major bushfires and the community's understanding of and preparedness for them.

3. The need for further reform

Any legislative, policy or functional reforms relating to bushfire risk management, emergency management and processes for review of major incidents, to strengthen the State's capability to efficiently and effectively manage bushfire related risk

EXECUTIVE SUMMARY

This document is the primary submission by the Department of Fire and Emergency Services (DFES) to the *Public Inquiry into the 2016 Waroona Fire (Public Inquiry).*

DFES has undertaken major ongoing reform since M J Keelty AO APM handed down his final report on the *Perth Hills Bushfire February 2011 Review*. Mr Keelty was scathing of the organisation,[1] citing a level of culture and accountability that was well below the standard expected of a government agency with such considerable power and responsibilities.

By focussing on improving its structure, standards, systems and style, the organisation has come a long way since 2011. Many major initiatives have been completed, others are underway and more are planned for the future. Although the journey is far from complete, there have already been substantial improvements to the effectiveness of emergency management in Western Australia. To assist the *Public Inquiry* in considering their ToR some of these reforms are detailed in this submission.

DFES is not the only entity to have changed and improved since 2011. Many other State agencies and local governments and their volunteers have also taken significant steps forward to meet the challenges identified by Mr Keelty. Emergency service volunteers continue to be essential to our ability to respond to all manner of emergencies and natural disasters across our vast State. They performed a major role in the response to the Waroona Fire..

However, the threat of bushfire has continued to escalate with intense, hot and dry weather occurring in areas of high fuel load, causing more severe fires. This has not only tested Western Australia, it has challenged our whole nation. As each year goes by it is reported across Australia that new records are being set for the intensity of bushfire. In fact, the last annual report submitted by DFES reported a 20 per cent increase in severe[2] bushfires from the previous year.

This submission addresses the *Public Inquiry's* ToR, drawing upon the report of the *Joint Multi-Agency Operational Audit Waroona Fire 2016 (*the *Operational Audit)* as a key source of information about the response to the Waroona Fire. This submission does not seek to repeat in detail the information already provided through *the Operational Audit* or other material provided by DFES to the *Public Inquiry*, but rather it highlights key facts and points and identifies opportunities for reform.

It is important to note that some of the suggested reform or proposed improvements put forward by DFES in this submission are seemingly at odds with some of the 'Preferred Options' contained in the *Review of Emergency Services Act Decision Paper* (the *Decision Paper*) which is a major initiative being led by DFES. This anomaly is because the *Decision Paper* is based on open consultation and consideration of all stakeholders' views including that of central agencies, whereas this is solely a DFES submission to the *Public Inquiry*.

[1] This before DFES was established. The former organisation Fire and Emergency Services Authority (FESA) was established as a statutory authority and was later transitioned to a department.

[2] Whilst the number of landscape fires has been consistent year to year, the intensity of these fires has risen markedly.

For ease of use, this submission is set out in the Terms of Reference of the *Public Inquiry*.

ADDRESSING THE TERMS OF REFERENCE

ToR 1 - THE RESPONSE TO THE JANUARY 2016 WAROONA FIRE

Joint Multi-Agency Operational Audit Waroona Fire 2016

During January and February 2016, members of the Department of Fire and Emergency Services (DFES) and Parks and Wildlife (P&W), working with officers from the New South Wales Rural Fire Service and Emergency Management Victoria[3], conducted an Operational Audit of the Waroona Fire. These officers produced a report entitled *Joint Multi-Agency Operational Audit Waroona Fire 2016 (the Operational Audit)*.

The *Operational Audit* has been provided to the *Public Inquiry* and this submission does not seek to repeat in detail the information contained in that document. It has been necessary, however, to reference some key facts and opinions reported by the *Operational Audit* as they identify opportunities for reform.

DFES has received the Operational Audit and is now considering the implications of the opinions, observations or findings contained in the report.

(a) The effectiveness of pre-incident bushfire prevention and mitigation activities;

Fuel Management

There are multiple entities responsible for fuel management activities in the area impacted by the Waroona Fire, primarily the land owners and land managers. Despite some progress, there is currently no 'single source of truth' for identifying bushfire fuel loads or management plans and activities for the area where the fire occurred.

This is the case for the majority of Western Australia and is a major impediment to better practice bushfire risk management. It also has implications for incident management due to the lack of visibility of fuel loads in areas affected or threatened by fire.

By virtue of an agreement with the Department of Lands (DoL), DFES is responsible for fuel management on unallocated Crown land and unmanaged reserves in gazetted fire districts in Western Australia. This includes some small areas in the locations affected by the Waroona Fire. Small pockets of mitigation were carried out in these areas by DFES in 2015 but they had little or no impact on reducing the effect of this fire. Yarloop is not a gazetted fire district so DFES is not responsible for risk in or around the town-site. However, in late 2015 the agency did participate in a bushfire risk assessment and the application of treatment options at the Yarloop Primary school.

[3] These interstate representatives were coordinated and on behalf of the Australian Fire Authorities Council (AFAC)

The *Operational Audit* identified a number of barriers to effective bushfire risk mitigation in the incident area and noted the need for *"…mechanisms for ensuring appropriate, tenure blind management of fuel loads on both public and private land to mitigate bushfire risk…"*[4] as a key area in which the State could improve.

The *Operational Audit* also identified that *"…much of the remnant bush on private property, and along drainage infrastructure, was long unburnt. In these areas, fire behaviour was likely very intense and rates of spread very high, which would have made suppression difficult under the conditions at the time"*[5]

Bushfire Risk Management Planning

In 2014 DFES led the implementation of a major reform known as the Bushfire Risk Management Planning project (BRMP). The project provided the framework for local governments to develop a tenure blind bushfire risk management plan within their municipality. A Bushfire Risk Management System (BRMS) was developed as part of this initiative and is currently available for use across the State as a viable mechanism for recording and monitoring bushfire fuel management plans and activities.

The current penetration of the BRMP and the use of the BRMS are low, with limited local government areas using this model (it was not used in the fire affected area). This matter is further covered in this submission in addressing *Public Inquiry* ToR 2b and 3.

Another important issue is that there is currently no state-wide prioritisation of fuel load management activity in Western Australia. Whilst the development of contemporary tenure blind fuel load maps through the BRMP framework will ultimately identify where the highest bushfire risk exists, under current structural arrangements and mitigation efforts would be prioritised only at local government jurisdictional level, or in respect of State lands, on an agency by agency basis. DFES' view is that this is not better practice or a cost effective approach to mitigating the risk that high fuel loads present in Western Australia. A way forward is suggested in this submission in addressing *Public Inquiry* ToR 3.

Yarloop Primary School

One area that had been subject to recent risk assessment and fuel load treatment was the Yarloop Primary School. This school is one of 61 public schools covered by a DFES and Department of Education (DoE) Memorandum of Understanding for the purpose of coordinating bushfire risk management activities. DFES and DoE undertook a bushfire risk assessment in September 2015 and identified treatment actions were completed. Whilst DFES does not have sufficient information to know if the treatment actions assisted, it is worth noting that the school was not destroyed.

Improving Emergency Preparedness through Community Engagement

The DFES Community Engagement Branch develops and implements community engagement programming, communication and education campaigns across all hazards. The area affected by the fire is serviced by a regional Community Engagement Officer based

[4] *Joint Multi-Agency Operational Audit Waroona Fire 2016,* p24
[5] *Joint Multi-Agency Operational Audit Waroona Fire 2016,* p17

in the DFES South West Region. This officer supports staff members and volunteers throughout the region to build localised strategies for community engagement.

Regional Community Engagement Officers were established in 2012/13 as part of the reforms to address the lessons learnt from the Perth Hills Bushfires February 2011 review. There is measurable evidence that this role has made a significant difference to the regions in which they have been deployed, including a direct link to the growth in the number of Bushfire Ready groups that have been formed in the areas they service.

DFES manages its limited community engagement resources and efforts through a prioritisation process that provides for a targeted and intensive approach in collaboration with volunteers. A number of towns in the fire affected area were the primary focus of DFES Community Engagement activities.

There is anecdotal evidence to suggest this approach was evident during the bushfires direct threat to Preston Beach, where brigade members enacted key lessons learnt through recent preparedness activities. They ensured residents, who were unable to evacuate because of egress and access issues, were relocated to a safer place on the beach. Lake Clifton residents also self-evacuated once the bushfire became a threat to lives and property, due to an increased understanding of bushfire behaviour.

As noted in the *Operational Audit*, Yarloop was identified as a secondary rather than a primary target for community engagement when DFES prioritised 'Areas of Community Engagement Focus' (ACEF) for the 2015-16 bushfire season[6].

DFES' preliminary post fire analysis of property damage has identified that the homes in the town of Yarloop which were devastated by the Waroona Fire were mostly built in the early to mid-1900s and were open-eave timber construction dwellings without properly established building protection zones. There was also very little evidence of independent water sources, generators and other equipment required (as recommended by DFES) to actively defend homes.

In 2014 DFES commissioned an independent evaluation of the ACEF program to further strengthen this initiative. DFES will now consider the *Operational Audit* and the findings of the *Public Inquiry* (when released) to determine if the approach requires modification around issues such as housing vulnerability.

These matters will be further covered in this submission in addressing *Public Inquiry* ToR 2b and 3.

Local Preparedness – Resilience to Bushfire

The *Operational Audit* identified that there were varying levels of local preparedness throughout the area affected by the Waroona Fire.

The *Operational Audit* also identified a range of preparatory forums and exercises that were undertaken or planned in the communities affected by the Waroona Fire[7].

[6] *Joint Multi-Agency Operational Audit Waroona Fire 2016,* p18

(b) The effectiveness of emergency management plans and procedures;

Westplan Fire

In respect of Westplan Fire, the *Operational Audit* noted that "… *the response to the incident and the arrangements implemented for the management of the fire were consistent with the agencies' obligation under the Westplan. Further the OA found the arrangements to be effective in detailing emergency management arrangements for the Waroona fire and facilitated the emergency management arrangements between stakeholders, and ensured an adequate and effective response…"*[8]

The *Operational Audit* did identify a number of areas that could be improved in the completion and execution of policy, plans, procedures and paperwork. This includes incident naming conventions and the accuracy and consistency of correspondence supporting appointments made under *section 13 of the Bush Fires Act 1954*.[9]

Local Emergency Management Arrangements

The *Operational Audit* identified that *"…exercising of the Local Emergency Management Arrangements (LEMA), Bushfire Incident Support Group and rural-urban interface incidents were conducted in 2014 and 2015…"*[10]

The *Operational Audit* also noted *"…that the Shire of Waroona LEMA was overdue for review, this was not a factor in the management of the response..."*[11]

Operational Plans

In respect of operational plans, the *Operational Audit* noted the following "*Incident Action Plans (IAPs): In general, the IAP's (sic) at the Waroona Fire lacked sufficient detail, to effectively direct the response and recovery activities (noting the guidance given for IAP objectives and to some extent, strategies, in Westplan Fire)"*[12]

This is an important issue that was also highlighted as a deficiency in the *Perth Hills Bushfire 2011 Review* and will be followed up. DFES recognises that a training, simulation and education focus is required if it is to achieve better outcomes in the performance of IAPs during future emergencies..

Total Fire Bans

The *Operational Audit* noted that DFES did not activate a Total Fire Ban (TFB) during the initial response period for the Waroona Fire, primarily because the weather conditions and prevailing circumstances were considered not to meet the criteria for activation[13].

It appears the *Operational Audit* made the assessment that this decision was appropriate and ultimately had no bearing on the response. DFES will further examine this area to see if any improvements could be made.

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[7] *Joint Multi-Agency Operational Audit Waroona Fire 2016* p 17
[8] *Joint Multi-Agency Operational Audit Waroona Fire 2016,* p 32
Joint Multi-Agency Operational Audit Waroona Fire 2016 p 47
[10] *Joint Multi-Agency Operational Audit Waroona Fire 2016,* p 19
[11] *Joint Multi-Agency Operational Audit Waroona Fire 2016,* p 47
[12] *Joint Multi-Agency Operational Audit Waroona Fire 2016,* p 44 & p 47
[13] *Joint Multi-Agency Operational Audit Waroona Fire 2016,* p 13

(c) The effectiveness of the suppression strategies and tactics used during the fire;

DFES will need to fully analyse the detail of the *Operational Audit* and ultimately the findings of the *Public Inquiry* (when released) to consider any lessons learnt from the suppression strategies and tactics that were employed during the Waroona Fire. DFES notes that the *Operational Audit* made the following assessment:

> "*Early detection followed by a rapid and appropriate level of firefighting response under particularly dynamic and challenging conditions*" was noted as something that worked well and should be built upon[14]

(d) The effectiveness of incident management, including coordination of agencies, volunteer fire and emergency services and interstate assistance;

Incident Management

The Operational Audit identified a number of as areas where incident management could improve.

The *Operational Audit* found:

> "*The lack of sufficient, appropriately skilled/experienced field and IMT personnel within relevant WA agencies to manage multiple concurrent and/or very large, complex and protracted incidents*" was an area that could be improved upon[15]

Currently, increasing the depth of incident management competency in Western Australia is already being tackled through some key DFES reform strategies including the DFES Pathways Project and preformed incident management teams, which are further covered in this submission in addressing Public Inquiry ToR 2b.

The *Operational Audit* also identified:

> "*Information systems are not common across all agencies involved in fire management, particularly those related to resource management and situational awareness"*[16]

This issue continues to challenge response agencies' ability to effectively manage incidents and will be further covered in this submission in addressing Public Inquiry ToR 3.

State-wide Coordination of Resources

The *Operational Audit* identified that resource deployments were made to the incident without the IMT's knowledge or request.[17] This has been a reoccurring theme of post incident reports into previous fires. Whilst further detail will be sought, this is symptomatic of

[14] *Joint Multi-Agency Operational Audit Waroona Fire 2016,* p 67
[15] *Joint Multi-Agency Operational Audit Waroona Fire 2016,* p 47
[16] *Joint Multi-Agency Operational Audit Waroona Fire 2016,* p 47
[17] *Joint Multi-Agency Operational Audit Waroona Fire 2016,* p 51

a number of issues related to the broader coordination of emergency service resources in Western Australia.

A challenge experienced during the Waroona Fire and other recent major bushfire emergencies in Western Australia is that the deployment and redeployment of resources from one local government jurisdiction to another requires individual negotiation with local authorities. This takes time and often has mixed results. This matter is further discussed in this submission in addressing *Public Inquiry* ToR 2b and 3.

Interstate Assistance

DFES notes that the *Operational Audit* identified that interstate support arrangement was "…effective and was implemented smoothly…"[18]

(e) Protection of essential services infrastructure and access to essential services (power, transport, water, communications) by emergency services organisations and the community;

The *Operational Audit* identified that throughout the emergency, Incident Controllers were "…seeking to manage exposures to critical infrastructure…"[19]

DFES will need to fully analyse the detail of the *Operational Audit* and ultimately the findings of the *Public Inquiry* (when released) to consider any lessons learnt relating to essential services and other critical infrastructure.

(f) The effectiveness of public messaging including the adequacy and timeliness of emergency warnings issued to residents and visitors;

Public Messaging

As would be expected, there was a large amount of community focussed messaging that occurred during the Waroona Fire and DFES performed a significant role in this function through its Media and Corporate Communications directorate. Some of the action DFES took includes:

- Over the four day period, from 6 to 11 January, the community was advised, every hour, to take action. Specifically, they were advised to either leave the area or be ready to actively defend their homes.
- Commendably 97 per cent of the community warnings in this time went out to multiple communication channels within a target timeframe (within 10 minutes of being created). This includes messages to the media, stakeholder agencies, internal staff, the DFES website and DFES Twitter feed. It also includes the P&W website and Twitter for P&W managed fires.

[18] *Joint Multi-Agency Operational Audit Waroona Fire 2016,* p 37
[19] *Joint Multi-Agency Operational Audit Waroona Fire 2016,* p 50

- In line with the scheduled protocols, the State Operations Centre based Coordinator Public Information contacted the IMT-based Public Information Officer to gather incident information for inclusion in the alerts and warnings. There were 177 updated warnings issued during the course of the incident, with 75 per cent of these alerts issued within the first six days of the incident.
- Post event consultation with the Yarloop community through the DFES Community Liaison Unit (CLU) identified that the majority of the Yarloop community opted to evacuate in response to the emergency on Thursday 7 January 2016.
- The public information function provided valuable support to the in-field operation, recommending the elimination of duplicated warnings in the early hours of 6 January, suggesting the warning areas be revised throughout the day of 7 January and ultimately recommending to the IMT that Yarloop be explicitly mentioned in the warning.

DFES has identified that as with any demanding situation, there are always some elements of the public information that could be improved. The benefit of hindsight shows that the towns of Yarloop as well as Cookernup, Hamel, Lake Clifton and Wagerup could have been explicitly mentioned in the Emergency Warnings much earlier alongside Waroona and Harvey. This submission notes that the *Operational Audit* did not postulate why Yarloop was not specifically mentioned in an Emergency Warning earlier than 1935hrs on 7 January 2016.

On the fire-ground, the Public Information section was physically separated from the Incident Controller and the Operations team. This made it difficult to know what was happening at critical times when things were changing rapidly. As up to date information is critical for producing accurate warnings and media updates, it is always preferable that a larger operations room houses the Public Information section together with the IC and operations team.

It is also preferable if the IC is to be absent for long periods (attending public/operational meetings and media commitments) that the Deputy IC be delegated authority to ensure the alerts and warnings contain the latest information (or vice-versa).

DFES notes that the *Operational Audit* has dedicated several pages of its final report to public information and this will need to be further analysed along with the findings of the *Public Inquiry* (when released) to consider any lessons learnt relating to this matter.

DFES and the National Review of Alerts and Warnings

The National Review of Alerts and Warnings, published in November 2014, set the standard across Australia for Emergency Public Information. DFES was an integral contributor to this report and cited as an example of good practice.

Particularly DFES was praised for the templates it uses to communicate with the community across all hazards. DFES took an evidence based approach to develop these templates, testing different messages and formats directly with the community and refining them to ensure they are fit for purpose. These templates are now shared as an example of best practice with other states and territories and cited in the national review.

Alongside Victoria, DFES also commissioned research and evaluation to improve the construction and language of warnings which highlighted community desire for detailed information.

DFES is currently leading the development of a Critical Messaging System similar to that used by some other states in Australia. This will bring DFES into line with many other states and territories in Australia which have capitalised on technology to achieve efficiencies and effectiveness in the timeliness and synergy of messages. The new system is scheduled to be in place ahead of the next fire season.

Centralised and Decentralised Information Models

Many different centralised and decentralised models are used across Australia to disseminate alerts and warnings. For example, in South Australia the State Emergency Service is the designated hazard leader for storm, flood and heatwave events. Their Public Information function is managed through a small, centralised team.

By contrast, Victoria favours a decentralised model where local Incident Controllers, Public Information Officers and their teams create and publish advice without support from the State Operations Centre. The State Control Centre provides a monitoring and support function across all public information, working with local teams if they require additional support.

DFES currently uses a hybrid model whereby the Incident Controller, Public Information Officer and the Alerts and Warnings Officer (when activated) remain responsible for setting the warning area, boundaries and deciding the wording for warnings. They are also responsible for reviewing these on a regular basis.

In Western Australia, the Coordinators of Public Information in the State Operations Centre provide support to this function by typing this information, uploading it to the website, recording it on the information line and being the front line for media requests from journalists not at the fire-ground. It is noted that this support is necessary as the Critical Messaging System is not currently in place in Western Australia.

Future Information Models

The National Review of Alerts and Warnings found that there are pros and cons to both centralised and decentralised models of public information. The review recommends that agencies encourage fit-for-purpose arrangements rather than conform to any particular model.

While support from the State Operations Centre worked well during Yarloop, the implementation of Critical Messaging in 2016 presents an opportunity for Western Australia to review the model of public information dissemination once the system is established. This review will take place once the system has been designed, tested and embedded in the organisation and within the state arrangements.

Social Media Communications

Some social media listening and monitoring activities were in place during the Waroona Fire. Monitoring listened to community discussions across social media and websites and helped to identify potential early issues, concerns and misinformation which were then sent to the appropriate DFES teams to consider.

However, expanded use of the DFES social media platform, including setup of a DFES Facebook page, was not in place at the time of the Waroona Fires. If it had been, it may have helped with improved reach, frequency and engagement of DFES alerts, warnings and other information amongst the Waroona community.

Enhanced social media intelligence gathering activities were not in place for the Waroona Fires. If they had been, it may have helped with improved situational knowledge, direct from community members on the ground.

(g) Effectiveness of assistance to and management of those affected by the fire:

(i) Evacuation procedures
(ii) Communications with the community over the course of the fire
(iii) Provision of welfare support
(iv) Management of people seeking to return to their properties

Community Liaison

In 2012 DFES introduced an initiative to deploy a Community Liaison Unit (CLU) during major emergencies. In the case of the Waroona Fire, the DFES CLU ensured residents received accurate incident information at evacuation centres. Local issues were passed onto the IMT to be resolved and welfare services were initiated. Despite the difficulties experienced with displaced communities, the majority of residents whose properties were destroyed were contacted soon after the notification process was instigated.

The *Operational Audit* has examined and reported on matters pertaining to community management including evacuation and re-entry and this will need to be further analysed along with the findings of the *Public Inquiry* (when released) to consider any lessons learnt relating to this matter.

(h) Livestock and companion animal management and welfare issues.

There is little coverage in the *Operational Audit* in regards to livestock and companion animal management and welfare issues. Further post incident research and analysis will need to be examined including the findings of the *Public Inquiry* (when released) to consider any lessons learnt relating to this matter.

ToR 2 Lessons learned from Previous Bushfire Emergencies

(a) The extent to which the findings and recommendations of the following Western Australian bushfire reviews undertaken since 2011 have been implemented:

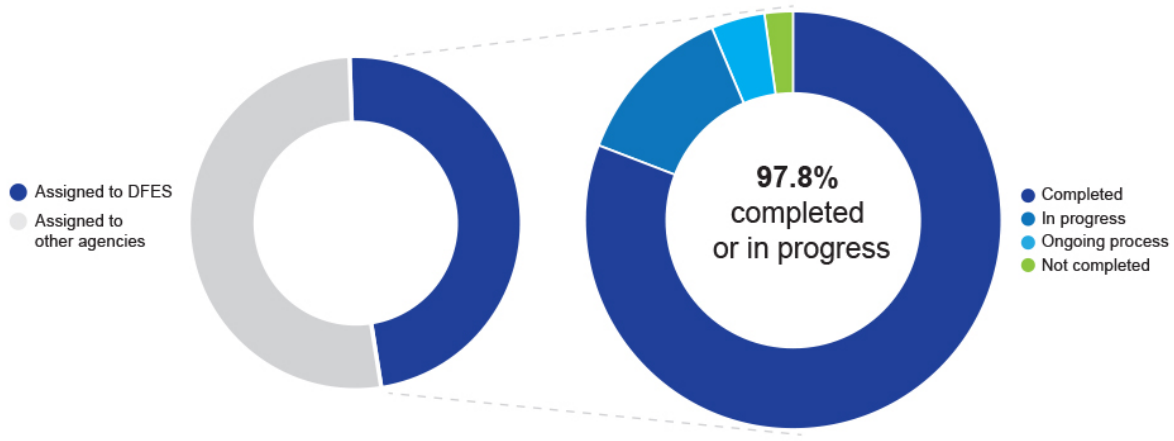
Governance Arrangements

DFES commissions and conducts Post Incident Analyses (PIA) and Major Incident Reviews (MIR) in accordance with the DFES Policy Statement 54 'Incident Analysis Policy'.

Since 2015, all recommendations for which DFES has carriage are formally assigned for implementation with progress and completion tracked through the organisations Integrated Planning and Reporting System (IPRS).

DFES has provided the *Public Inquiry* with a summary of action that has occurred against each recommendation for each of the six reviews set out in the Waroona 2016 Fire ToR [20].

In all there have been 123 recommendations across six reports of which 70 were assigned to DFES. Of these, 38 have been completed and two are part of ongoing organisational process, six are still in progress and one is not complete. There are also a further 23 recommendations that were received by DFES in late December 2015 and have yet to be fully assessed and action determined. When these are discounted, 97.8% of the recommendations allocated to DFES before 2016 are complete or in progress.



Note: Diagram does not include the O'Sullivan and Lower Hotham Bushfires Review (SEMC, 2016) recommendations

Additional specific comments or observations are made against each review.

(i) A Shared Responsibility – Report of the Perth Hills Bushfire February 2011 Review;

This review was highly critical of the then Fire and Emergency Services Authority (FESA). It was the catalyst for the State Government to instigate major changes in

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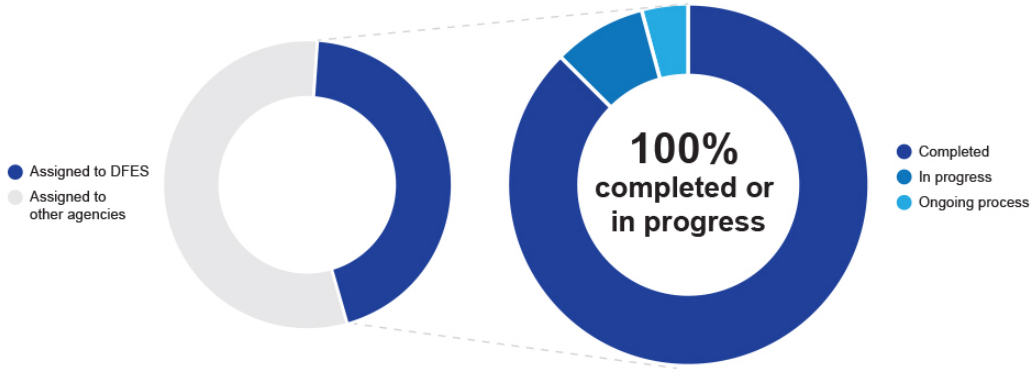
leadership at FESA and to direct the transition of the organisation from a statutory authority to a government department.

This review made 54 recommendations of which 24 were assigned to DFES. Of these 21 have been completed, two are still in progress and one ongoing process.

Recommendation 15 has been challenging to complete as it relies on local governments to set competency standards for Chief Bushfire Control Officers (CBFCO) and agreement with the multiple jurisdictions that manage CFBCO has not been able to be achieved.

The completion of recommendations 21 and 23 regarding fuel load assessment, management and monitoring have been stalled by a lack of fiscal and human resources. Partial State Government funding was achieved but is not recurrent with no further funding committed in future estimates. The BRMP framework and the BRMS system are now available to local governments but are not being widely used due to a lack of funding, competing priorities and limited resources.



When this review was publically released by the West Australian Premier, the Ministerial Statement contained additional State Government commitments (not covered by the recommendations) which DFES has also implemented.

DFES has undertaken major reform since this review, with many of the initiatives addressed in this submission under the *Public Inquiry* ToR 2b.

(ii) Appreciating the Risk – Report of the Special Inquiry into the November 2011 Margaret River Bushfire;

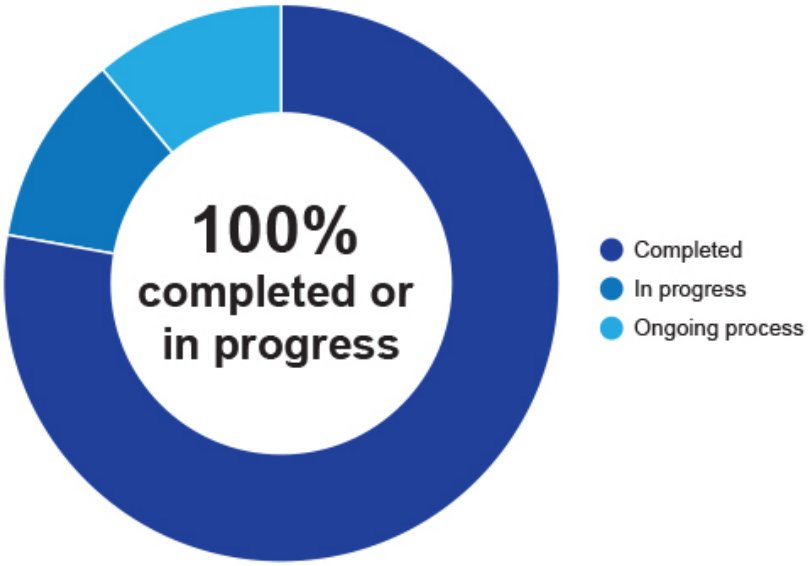
This review made 10 recommendations none of which were assigned to DFES.

Although not explicitly recommended, this incident review was the catalyst for DFES to establish the Office of Bushfire Risk Management (OBRM). This submission addresses this major initiative under the *Public Inquiry* ToR 2b.

(iii) Post-Incident Analysis of the 2011 Margaret River and Nannup bushfires;

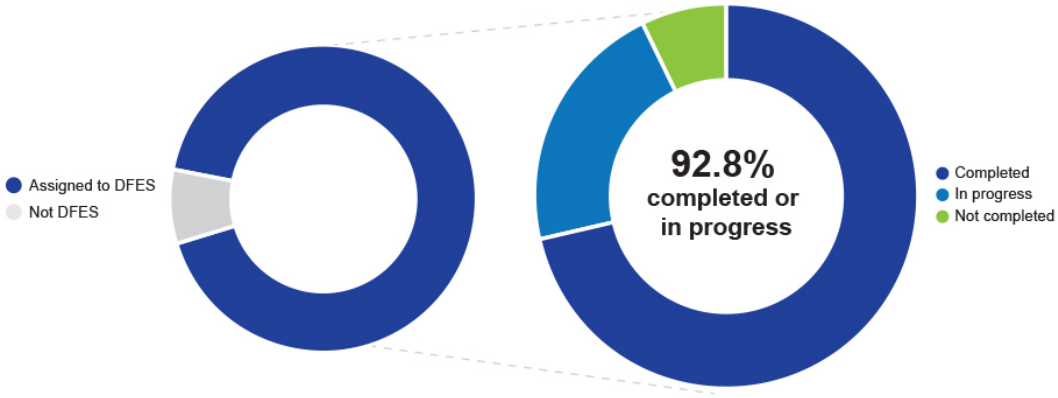
This review made nine recommendations all of which were assigned to DFES. Of these seven have been completed, one is still in progress and one ongoing process.

This review led to enhancements of the accommodation in the State Operations Centre whilst other recommendations have been fully completed due to the lack of shared information systems between DFES, P&W and local governments. Workarounds have been put in place to overcome system deficiencies.



(iv) Parkerville Stoneville Mt Helena Bushfire Review (State Emergency Management Committee;

This review made 25 recommendations of which 14 were assigned to DFES. Of these 10 have been completed, three are still in progress and one is not completed.



(v) O'Sullivan and Lower Hotham Bushfires Review; and

This review made 25 recommendations of which 23 were jointly assigned to DFES and the Department of Parks and Wildlife on 24 December 2015.

These recommendations have not yet been reviewed, however, DFES notes they broadly reflect the Department's continuing journey towards reform.

(vi) The Western Australian State Emergency Management Committee Preparedness reports.

This report is published annually by the State Emergency Management Committee (SEMC) with all areas requiring action by DFES attended to. These matters are then monitored and reported back to SEMC through Commissioner Gregson's participation in the SEMC.

Term of Reference 2b – The Effectiveness of Reforms

> (b) The effectiveness of reforms implemented by the State since 2011 on the State's ability to prevent, mitigate and respond to major bushfires and the community's understanding of and preparedness for bushfire risk.

DFES 2011 - 2016

It has been widely recognised that the DFES reform program has delivered substantial positive change to the organisation and its ability to deliver effective services to the community.

The organisation has come a long way since 2011 when it was identified that the standard of fire management in Western Australia was at a "…dangerously low level"[21]. Many major initiatives have been completed, others are underway and more are planned for the future. Although the journey is far from complete, some of these reforms have already made a significant positive difference to bushfire management including but not limited to:

- The introduction of an integrated, multi service zone response approach to increase capacity to respond in high risk bushfire areas such as the Capes area;
- Establishment of Office of Bushfire Risk Management (OBRM) focussing on the management of bushfire related risk for the state of Western Australia;
- The development and implementation of a Bushfire Risk Management Planning (BRMP) Framework and a Bushfire Risk Management System (BRMS) to support tenure blind bushfire risk management plans;
- The integration of rural urban interface defensive fire-fighting tactics into all levels of career and volunteer fire fighter training;
- Enhanced community engagement strategies to support communities before, during and after major bushfire emergencies;
- The development and implementation of a State Operation Centre (SOC) which provides a strategic level common operating picture for the government;
- The creation of learning pathways to address leadership and technical education and training for all operational and corporate staff as well as the volunteers that support emergency services in Western Australia;
- Establishment of a state of the art (emergency training) simulation centre;
- The comprehensive review of the State's emergency services Acts and the formulation of a Decision Paper Regulatory Impact Statement with a view to consolidating and modernising emergency management legislation in Western Australia;
- The development and implementation of an enterprise Safety Management System (SMS) enhancing the safety of staff members and the broader community before, during and after emergencies; and
- Establishment of a governance framework, standardised processes and methodologies for business improvement projects ensuring they are delivered on time; within agreed costs; and to the desired quality.

[21] Editorial: *Urgent action is needed on lessons from fire disasters*, The West Australian, 30 June 2011, p20

To assist the *Public Inquiry* to understand where some the DFES led reforms have been effective (or not) a number of the initiatives are explained.

THE ESTABLISHMENT OF THE OFFICE OF BUSHFIRE RISK MANAGEMENT

In 2012 DFES led the implementation of a major reform by establishing the Office of Bushfire Risk Management (OBRM), focussing on the management of bushfire related risk for the state of Western Australia. The project identified the roles and responsibility of the Office and established it within DFES. Since that time the OBRM has established regulation and oversight of prescribed burning in Western Australia.

The impetus for this reform was directly linked to the findings of *'Appreciating the Risk'* and the *Report of the Special Inquiry into the November 2011 Margaret River Bushfire* (Review).

Effectiveness of the Office of Bushfire Risk Management

Since 2012, OBRM has implemented key strategies to enhance the management of bushfire risk in Western Australia:

- Developed and implemented the Guidelines for Preparing a Bushfire Risk Management Plan (The Standard) and the Mapping Standard for bushfire prone areas (BFPA)
- Coordinated the development, designation and publication of the Map of Bush Fire Prone Areas (a key element of the Land use Planning reform for planning and building in BFPA.
- Oversaw the compliance with ISO31000 Risk Management Principles and Guidelines (ISO31000) and maturing process for P&W's prescribed burning activities and worked with DFES to establish ISO 31000 compliant practises, requisite manuals and training.
- Developed the Best Practice Guide for Prescribed Burning in the Kimberley Region
- Developed strong relationships between Non-Government Organisations (NGOs) who undertake prescribed burning in the Kimberley Region.
- Collaborated with NGOs to align their prescribed burning practices with ISO31000.
- Developed annual reporting requirements for local government to OBRM to facilitate reporting to the FES Commissioner on State-level bushfire risk.
- Enhanced the collaboration between State Government agencies in the management of bushfire risk through reforms in Planning in BFPA.
- Enhanced the collaboration and strengthened the relationship between State Government and local government through the process of developing and reviewing the map of BFPA and the local government permit to burn review (in progress).
- Enhanced coordination and collaboration between agencies with responsibilities for managing bushfire risk.

BUSHFIRE RISK MANAGEMENT PLANNING REFORM

In 2014 DFES led the implementation of a major reform known as the Bushfire Risk Management Planning project (BRMP) that supports local governments to develop a tenure blind bushfire risk management plan within their municipality.

The impetus for this reform was directly linked to recommendations of the *Perth Hills Bushfire 2011 Review*. The BRMP Project was tasked with the responsibility for obtaining

partial or complete achievement of recommendations 15, 21, 23, 38 and 53 of the *Perth Hills Bushfire 2011 Review*. This included conducting a pilot program with four local governments, testing the useability of the BRMP Guidelines and developing a software solution to support the BRMP process.

The pilot was conducted between March and July 2014 in the Southwest and Lower South West DFES regions and the objectives, feedback and key findings of the pilot were captured in a Pilot Report. The BRMP Guidelines, standards, processes and tools were defined and compiled by the OBRM and are documented in the Guidelines for preparing a Bushfire Risk Management Plan.

A Bushfire Risk Management System (BRMS) was developed against the BRMS Business Requirements and functional requirements documents.

Effectiveness of the Bushfire Risk Management Planning Reform

The BRMP project was successful in the provisioning and delivering the following outcomes:

- Standardised bushfire risk management processes for local governments;
- Confirmation that the BRMP Guidelines and BRMS work effectively in allowing local governments to produce a tenure-blind BRMP;
- Enhanced community and local government bushfire preparedness;
- Improved veracity of BRMPs through BRMS; and
- A Cabinet Submission to extend the rollout of the BRMP process throughout Western Australia.

Whilst the reform has been very effective in delivering essential core elements for state-wide bushfire risk management, the penetration of the BRMP and the use of the BRMS are low with limited jurisdictions currently using this model. Partial State Government funding was achieved but is not recurrent with no further funding committed in future estimates. The BRMP framework and the BRMS system are now available to local governments but are not being widely used due to a lack of funding, competing priorities and limited resources.

BRMP is further discussed in this submission in addressing the Public Inquiry ToR3.

CAPES ENHANCED SERVICE DELIVERY REFORM

In 2012 DFES led the implementation of a major reform project, the Capes Enhanced Service Delivery, which has significantly improved the service delivery arrangements within the extensive bushfire prone areas in the South West corner of the State.

The Capes District includes the local government jurisdictions in the Shire of Augusta Margaret River and the City of Busselton. The areas present a combination of diverse vegetation, rural urban interface population, lack of available firefighting water, challenging topography, extensive karst systems, and areas of poor mobile reception which make emergency response extremely difficult.

The impetus for the Capes Enhanced Service Delivery Project was not due to a specific recommendation of a Public Inquiry. In 2011 the State identified this as a priority reform initiative to address state bushfire risk/vulnerability.

The project was successful in delivering:

- Gazettal of the town sites of Yallingup, Cowaramup, Gnarabup/Prevelly and Witchcliffe as DFES fire districts. To support this the Bush Fire Brigades (BFBs) in these areas transitioned to dual registered fire brigades with responsibilities and capability to service a 'Special Capes Zone Response' area established for both structural and bushfire response;
- The development, exercising and implementation of the new special 'Capes Zone Response' arrangements between DFES, local government (LG) and the Department of Parks & Wildlife in the areas of high bushfire risk;
- The new Capes Zone Response provides a weighted response to all grass/scrub/bush fires in the Capes. Two zones have been created (iZone / oZone). These zones prescribe a minimum response of one appliance from DFES, P&W and LG as well as fire suppression aircraft. These zones are active annually from 1 December until 31 March and have been in place since the 2012/13 bushfire season.
- Provisioning of additional appliances and facilities, equipment (breathing apparatus and protective clothing), training and the necessary support required to undertake the additional responsibilities for the bushfire brigades of Yallingup, Cowaramup, Wallcliffe, Witchcliffe and Dunsborough Volunteer Fire and Rescue Services (VFRS);
- All brigades were provided with Structural Firefighting and Breathing Apparatus training to enhance their skills. All qualified members have been provided with extra personal protective clothing.
- The appointment of additional staff members in the Lower South West region to ensure initial and ongoing support and service delivery in the Capes area;
- Establishment of multi-agency/all hazards major Incident Control Centres (ICC) in Busselton and Margaret River; these all hazard facilities have undergone significant information technology improvements and are now able to manage a Level 2/3 incident. P&W, WAPOL and other agencies have familiarised themselves with both of these facilities and use them when appropriate;
- Bulk water tankers – In December 2013, two bulk water tankers were delivered to the Capes Region. One of the tankers is located at Yallingup Rural BFB and the other is at Witchcliffe BFB. These tankers provide valuable water supply to crews at bushfire and structure fires.

Effectiveness of the Capes Enhanced Service Delivery Reform

The enhancements, including the Zone Response Arrangements, have vastly improved rapid response arrangements and effectiveness by ensuring rapid, pre-arranged response by all services irrespective of tenure. These arrangements have been in place for four south-west summer bushfire seasons and are reviewed annually. Many hundreds of fires have been responded to under these arrangements.

The reform has also greatly enhanced the fire agencies' ability to deal with rural urban interface bushfires in this rapidly growing area of the State. Skills developed and equipment provided has increased the regions' ability to deal with structural fires as well as bushfires moving into the urban interface.

The new and enhanced ICCs at Busselton and Margaret River have been utilised during a number of inter-agency bushfires and storm events. These facilities provide a dedicated location for immediate establishment of a L2 to L3 IMT for DFES, LGs and P&W to operate from. They have also been effectively tested during a number of State exercises.

The provision of additional resources into the Capes region has also enabled greater flexibility to release resources to support other shires/regions without unduly impacting on local response capability. Recent examples include significant deployments to Esperance, Bullsbrook, Yarloop and Myalup fires. In the Yarloop/Waroona Fire alone the City of Busselton provided more than 380 volunteer days and the Shire of Augusta-Margaret River more than 200.

An additional benefit often quoted by the new dual registered brigades is the change in dynamics and demographics of these new brigades. The Chief Bushfire Control Officers and Captains often remark on the injection of younger volunteers that have joined, who are particularly interested in the high level of training and support that is now available to these local brigades.

The Capes initiative is further discussed in this submission in addressing the Public Inquiry ToR3.

COMMUNITY ENGAGEMENT REFORM

Since 2011 DFES has made significant progress in its interaction, support of, and communication with the community during and after a major emergency. DFES is now the Lead End User for the Bushfire and Natural Hazards Cooperative Research Centre (BNHCRC) 'Understanding and Measuring Social Resilience' cluster. DFES has also used an evidenced based approach to build one of Australia's most cutting edge community engagement programs.

Two key reforms include the establishment of regional Community Engagement Officers to help build community resilience and the introduction ACEFs.

Effectiveness of Community Engagement Reform

There have been significant improvements to community bushfire preparedness in ACEF areas including:

- Increased engagement of volunteers within the local community with a 44 per cent increase in Bushfire Ready Facilitators since 2011/12;
- Well-developed local informal and formal communication networks;
- Increased collaboration with volunteers and stakeholders;

- Targeted community engagement to high risk bushfire prone communities delivered through a coordinated multi-agency approach;
- Higher preparedness levels for residents in ACEFs with 58 per cent having a bushfire survival plan compared to 25 per cent non-ACEF residents;
- Increased expertise in effective community engagement at the local level, with community preparedness levels being measured;
- Increased firebreak compliance with reduced infringements;
- Increased number of early season burn offs and visible fuel load reduction; and
- Increased proactive contact by residents.

In 2011 DFES were unsuccessfully in achieving full funding support for a new Community Engagement service delivery model which was proposed to fully address the issues identified in *the Perth Hills Bushfire February 2011 review.* This impacted on the number of primary ACEFs that can be supported and in the number of region based Community Engagement officers that are deployed.

PUBLIC INFORMATION REFORM

In 2011 DFES commenced a program to improve its ability to manage public information responsibilities across four themes, capacity; relationships; quality; and ease/access. The reform program includes delivery of major projects such as the creation of a Critical Messaging System and the development of a digital media function.

The Critical Messaging System was a recommendation of the *2011 Perth Hills Bushfire report* which was originally assigned to Police in 2011. DFES assumed the lead in developing and funding this important initiative in 2015.

Effectiveness of Public Information Reforms

To date more than 80 reforms in this program have been introduced. These include:

- The number of coordinators of public information was increased from seven to 15;
- Training for 50 staff from DFES and external support agencies;
- A rolling program of tool development including checklists, process mapping, job role cards and a range of ‘how to’ public information videos;
- The introduction of tiered media training; advanced media training for District Officers, introductory for Station Officer Development and an external package for journalists on safety and personal and protective equipment at an incident;
- Development of a new audio-visual strategy and enhancing DFES photography arrangements to better inform the community regarding current incidents;
- The development and implementation of a Critical Messaging System. Work has begun on a new critical messaging system that will become a central hub for the issuing of public information during an emergency;
- Digital Communications. In July 2015 funding was allocated for three years to enhance DFES’ digital and social media communication capabilities by setting up a dedicated team. This team will better support the public by using Facebook as an additional communication platform, tweeting useful and most recent information to people and using social media monitoring to gather intelligence that can be fed back into the State Operations Centre; and

- A new mapping tool for boundaries has recently been developed in FESMaps to allow public information maps to be more easily produced. This will improve information delivery to the public and will identify any potential inaccuracies in alerts before they are issued.

LEGISLATION REFORM

Another major initiative being undertaken by DFES is '*The Review of the Emergency Services Acts'* which seeks to consolidate three existing Acts into one contemporary piece of legislation. Over an eighteen month period, three comprehensive phases of consultation, including eleven expert panel discussions, were conducted.

DFES released a Regulatory Impact Statement (*Concept Paper*) for consultation from April to July 2014. This led to over 5,000 submissions being made to the review. The *Concept Paper* examined the high level concepts for how emergency services can be better delivered to Western Australia under a single Act.

The comments provided through the Concept Paper consultations informed a *Decision Paper* (Decision Paper: Review of Emergency Services Act) which has received regulatory gatekeeping approval and has been submitted to Government for consideration.

The primary objectives of the *Review of the Emergency Services Act* were to:

- Increase community resilience by promoting a focus on shared responsibility for prevention, while also coordinating emergency preparedness and response delivery across government agencies, local government, volunteers and private landowners;
- Promote highly motivated, resourced and well trained emergency responders, both volunteers and career, who strive to keep themselves and others safe;
- Provide the framework, powers and protections necessary to allow all emergency services personnel and agencies to carry out their function in the best interests of the community;
- Clearly identify the roles, functions, responsibilities and control mechanisms required to enable government agencies, local government and emergency services personnel to achieve effective interoperability; and
- Simplify the current emergency services legislation and the provision of emergency services by eliminating duplication and overlap of effort.

It is important to note that some of the suggested reform or proposed improvements put forward by DFES in this submission are seemingly at odds to some of the 'Preferred Options' contained in the *Review of Emergency Services Act Decision Paper* (the *Decision Paper*) which is a major initiative being led by DFES. This anomaly is because the *Decision Paper* was based on open consultation and consideration of all stakeholder views including that of central agencies, whereas this is solely a DFES submission to the *Public Inquiry*.

Effectiveness of Legislative Reforms

The *Decision Paper* has received regulatory gatekeeping approval and been submitted to Government for consideration but approval has not yet been given for drafting. There has, however, been other legislative reform enacted through the work of DFES since 2011

including the designation of bushfire prone areas. A table setting out these changes has been provided to the *Public Inquiry*.

TRAINING AND EDUCATION REFORM

High quality training of staff and volunteers is central to DFES' ability to deliver competent response during emergencies such as the Waroona fire. Over the past five years DFES has made excellent strides in improving both the quality and the reach of its training across the state.

Two central reforms implemented by DFES since 2011 are (1) the creation of learning pathways to address leadership and technical education and training for all operational and corporate staff as well as 28,000 volunteers that support emergency services in Western Australia (Professional Pathways) and (2) the development and operation of a state of the art Simulated Training Centre (SIMCEN).

The development of an eAcademy is also underway.

PROFESSIONAL PATHWAYS

This project places training and development of all staff members and volunteers at the centre of the transformation of organisational capability and culture through a cohesive training framework. Commissioned in December 2011, the project expanded the existing rank-based competency development framework across all functional groups and added key leadership skill development and a focus on incident management.

The Pathways Project defined the skills, knowledge and training requirements for each rank, role or level while ensuring standards of training are maintained. Delivery of Pathways is a key part of the DFES capability platform and identifies essential skills and competencies to support a sustainable model for personnel to effectively and safely perform roles.

Delivery of Pathways will systematically deliver greater skilled and more competent staff members and volunteers to serve the community of Western Australia and assist in the protection and welfare of all personnel attending incidents.

The future sustainability of the DFES workforce is exponentially enhanced by the education, training and experiential opportunities now in place through Pathways. Increased volunteer capabilities delivered through the project will enable them to more fully participate in high level roles such as incident management.

All DFES staff members and volunteers now have access to a suite of courses, training and support appropriate to their role, level or rank within the organisation. With every promotion the pathway evolves, giving staff access to a range of new modules and courses linked back to the competencies of the job.

This project has delivered benefits including:

- Clarity for personnel on the skills required for their role and future roles;
- Transparency for managers of a person's progress and competency;
- Provision of a fair and systematic system that provides equal training opportunities;
- Reduction in risk (both safety and corporate) through a fully trained workforce;

- Evaluation measurements to ensure training quality; and
- It has improved the attraction and retention of staff and volunteers as a result of the transferable training and skills provided.

Speciality pathways have now also been implemented for niche roles such as aviation, fleet and equipment services. This allows talented staff members and volunteers to be identified early and trained with a view to developing specialist expertise to meet the needs of the organisation.

Bushfire Brigade Volunteer engagement in the training provided by DFES is varied and is usually dependent upon support or otherwise from their administering local government.

SIMCEN

To better prepare emergency service personnel to respond to emergencies and disasters DFES developed and now operates a 'state of the art' simulated training centre. The SIMCEN was launched on 4 April 2014 and now provides emergency responders with exposure, testing and experience in the environment more akin to what they can expect when disaster strikes.

It combines adult learning, emergency management experience, quality training methodologies and computer simulation to provide a realistic, scenario-based incident management and coordination. The centre's state-wide emergency management simulation capability applies to all hazards, including bushfire.

eACADEMY

DFES is now developing an eAcademy. This is a visible, transparent, automated, and fully integrated training system. The eAcademy will provide 24/7 training for all staff and volunteers allowing people in remote areas and those with work commitments to receive state-of-the-art support without the burden of travel or a huge time commitment.

It will also link virtual classrooms with Perth based training allowing participants to collaborate State–wide. Each year, new modules will be added or refreshed. For example, DFES is currently scoping the design of new modules for Public Information and Media Liaison Officers.

The eAcademy will also house all training records which will improve record keeping and allow volunteers and staff members transitioning to new roles to have previous qualifications recognised. However, under the current State arrangements there is no requirement for local government volunteers to access the eAcademy or for their records to be held by DFES.

GOVERNANCE REFORMS – DELIVERING ON PROMISES

The accountability of DFES as an organisation and of the individuals who serve is now strongly evidenced through an efficient and effective governance framework. Prior to the 2011, an enterprise-wide approach to governance was absent. FESA as an organisation

were notorious for not delivering on promises to 'getting something done' particularly in the sphere of business improvement to support front line staff members and volunteers[22].

Effectiveness of Governance Reforms

Significant focus is now given to investment decisions in relation to business improvement projects. Due to the nature of DFES' business, the majority of resources are expended in providing front line services with only a small percentage available to allocate to improvement initiatives. DFES has implemented an effective Annual Planning Cycle that ensures these investment decisions are strategically aligned, value for money and made for the 'right reason, at the right time with the right people involved'.

These projects must each be sponsored by a member of the CLT who is accountable for their delivery. Standardised processes and methodologies have been established and a Program Management Committee chaired by the Commissioner, oversees their progress. The details and progress of every project can be monitored by any staff member of DFES through an online portal and by volunteers through the innovation portal. DFES has delivered fifty major corporate projects since this methodology was employed.

OPERATIONAL IMPROVEMENTS

In recent years, the 'status quo' of operational preparedness and response on day-to-day emergency management operations has been continuously challenged and, reviewed. In many instances the results have transformed the way that DFES operates.

The *Public Inquiry* been provided (separate to this submission) with a comprehensive list of initiatives that have been implemented by frontline operations in DFES to address the changing environment and provide for continuous improvement.

[22] In 2011 an audit revealed over 150 projects 'in flight'. Most were without governance or other oversight and many had been underway for years

Term of Reference 3 – The Need for Further Reform

Any legislative, policy or functional reforms relating to bushfire risk management, emergency management and processes for review of major incidents to strengthen the State's capability to efficiently and effectively manage bushfire-related risk.

DFES Reform

The report of the *Perth Hills Bushfire February 2011* review was the catalyst for the State Government to instigate a major change in leadership at FESA and to direct the transition of the organisation from a statutory authority to a government department.

Since that time, DFES has been at the forefront of implementing reform, a significant amount of which focusses on enhancing the State's ability to prevent, mitigate and respond to major bushfires, and improving the community's understanding of and preparedness for bushfire risk.

Long Term Benefits

The intention of DFES in embarking on these reforms was not only to commence immediate improvement but also to create a platform for the achievement of long-term benefits for Western Australia in terms of incident, and in particular, bushfire management. The OBRM, Bushfire Prone Areas (BPA) and the department's broader BRMP initiatives have provided the structure, standards, tools and systems for the State to tackle some of the root causes of the bushfire threat based on risk.

Reaping the full benefits of these reforms requires focus and genuine participation by businesses, government agencies and jurisdictions throughout bushfire prone areas of the State. The lack of funding is major impediment. Partial State Government funding was achieved for the BRMP work but is not recurrent and no further funding is committed in future estimates. Local government are citing a lack of funding, competing priorities and limited resources as reasons they are not able to progress this important work.

DFES' approach to increasing the knowledge and skill of its workforce through the Pathways project is also a strategy that requires time before full benefits will be realised. The opportunity for people to fulfil their potential through education, training and experiential opportunities is now in place. However, Pathways is designed to support future sustainability and will not necessarily lead to immediate transformation or overnight success.

Legislation reform is also not something which can be achieved quickly. DFES' efforts to consult on and progress legislative change that will strengthen the reform have been significant. The largest piece of this work, the 'Review (and consolidation) of the Emergency Service Acts', is now with the State Government[23]. Depending on the findings and recommendation of the *Public Inquiry*, further changes may be required but a massive amount of focus and effort has occurred to get to the point where all regulatory gatekeeping requirements have been met.

The implementation of learning from critical reviews is well in hand. The *Perth Hills Bushfire February 2011 Review* assigned 24 recommendations to DFES. Of these, 87.5 per cent are

[23] 'Decision Paper' Review of Emergency Service Acts – Regulatory Impact Statement 2015

now complete with the remainder in progress. 70 recommendations were assigned to DFES across the six reviews set out in the Waroona 2016 Terms of Reference. Of these 23 were received in late December 2015 and they are yet to be actioned. Over 97% of the remaining recommendations are complete or well underway. It is clearly evident that steady progress is being made.

Organisational change, particularly elements that relate to the acceptance of new approaches, can often be confronting. Despite this, the commitment of our organisation, including corporate and operational personnel and volunteers, has proven fundamental to the successful implementation of reform measures thus far.

Although the journey is not yet complete some of these reforms have already made a significant positive difference to bushfire management.

2016 Further Challenges Exist

Over the period of the DFES reform program 2011-2016, severe bushfire events[24] in Western Australia have continued to increase, as has the catastrophic impact they are having on some of our bushfire prone communities. There is no doubt that major challenges remain for the State in respect of bushfire management, not all of which were evident in the Waroona Fire. These challenges extend through the areas of prevention, preparedness and response. Some of the biggest issues include:

- **Fuel Management** – in Western Australia fuel loads through rural areas are extremely high, an issue that cannot be resolved quickly or easily. Excellent tenure blind bushfire risk management structure, tools and systems have now been established through the work of the DFES Reform Program but there has been limited penetration in bushfire prone jurisdictions, primarily because there is no mandate, there are competing priorities and a lack of focussed resources.
- **Bushfire Preparedness** – despite inroads being made through the introduction of the DFES ACEFs model, research including post fire analysis continues to identify that many bushfire prone communities are not well prepared for fire emergencies despite the saturation of media campaigns, tools and materials.
- **Bushfire Response** – In Western Australia state-wide coordination of bushfire resources relies on negotiation with each of the 112 local governments that support the 580 volunteer Bush Fire Brigades. This model is unique to Western Australia and presents a myriad of complexities impacting on efficiency and effectiveness. The lack of currency and poor accuracy of local government volunteer records, which was identified in a recent audit by the Auditor General, also exacerbates this issue[25].

[24] Annual Report 2014-15 20% increase in high intensity landscape fires

[25] Support and Preparedness of Fire and Emergency Services Volunteers - Office of the Auditor General Performance Audit Report 2015

Next Phase of Reform

There is little doubt that there has been major improvement (by all participants) to the standard of bushfire management in Western Australia since 2011. State agencies, local governments and the community have improved their ability to prevent, prepare, respond and recover from bushfires through the development and implementation of a large number of reforms.

Despite this, bushfire risk has continued to increase with more intense, hot and dryer weather systems occurring in areas of high fuel load, causing severe fires which have had a catastrophic impact on communities. This scenario is not confined to Western Australia, it is occurring across the nation.

If we are to accelerate the progress of bushfire management in Western Australia then DFES believes that some far-reaching steps need to be contemplated as the next major phase of reform. For the purpose of assisting the *Public Inquiry* the following suggestions are offered for consideration when forming final recommendations.

The Establishment of Rural Fire Command

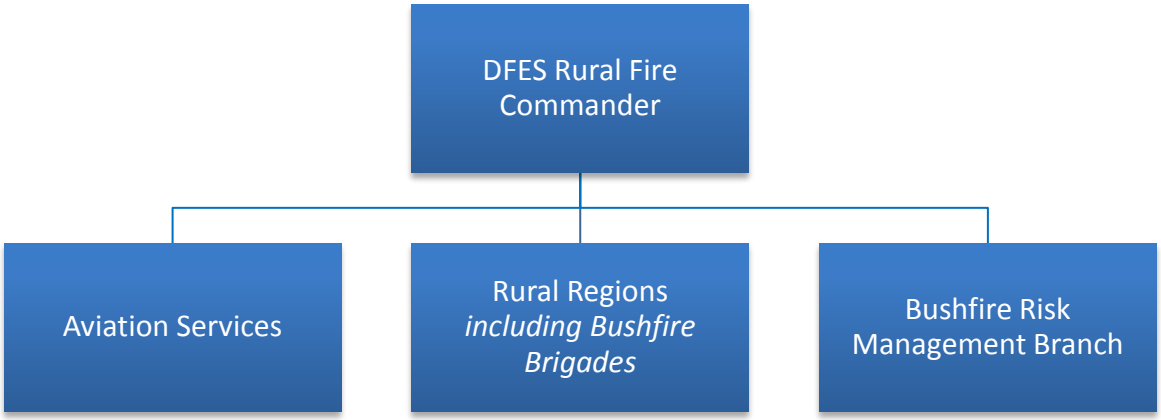
One option for the 'next phase' of reform that deserves serious consideration given the circumstances is to change the State arrangements to address bushfire management. This would send a clear message to the community on the importance the State places on this increasing threat to community safety.

This could be achieved by creating a more overt focus by the State on bushfire through the establishment of a Rural Fire Command with realignment of the DFES structure. The Rural Fire Command proposed would have responsibilities related to the State's bushfire prevention, preparedness and response activities.

The intention would be to establish a dedicated rural focussed command that is significantly de-centralised through a robust regional delivery model. This would ensure significant improvements across the breadth of rural fire management. A further body of work will need to be undertaken by DFES, in full consultation with stakeholders, to identify the impact on the current structure and arrangements including any additional resourcing requirements.

This improved focus on bushfire would also allow Volunteer Bushfire Brigades (currently the responsibility of local governments) to be transferred to this new Rural Fire Command which would have enhanced capability and capacity to support the regions. . This would bring BFBs into the same structure as all other volunteer emergency services in Western Australia offering advantages such as DFES being able to adopt a state-wide approach to the management of large fires.

This change is not intended to replace the important bushfire risk management role and responsibilities of local governments. Rather it is intended to provide significant additional support to bushfire volunteers and to local government with their jurisdictional obligations - particularly when underpinned by the changes sought in the consolidation of the emergency services Acts.



This submission has been written with acute awareness of the lack of political and public appetite for a so-called 'solution' that will lead to duplication, bureaucracy, red tape and increased costs. The public have strongly indicated they want to see less management tiers and more action on the ground. Local people and local knowledge better integrated in current structures. With this in mind, DFES recognises that duplicating agencies or introducing further layers of bureaucratic oversight will be extremely unpalatable.

Proposing a rural fire command achieves all of the desired outcomes of a separate service (more focus, specialised skill and a structure that supports rural communities) without doubling costs, overcomplicating the system and stymieing the growth and responsiveness of WA emergency services. This is not a 'white- noise' solution but rather one that promises real action and tangible benefits to local communities that can be delivered with minimal upheaval.

That is not to say the reform suggested would be without cost. Work undertaken by the *Review of the Emergency Services Acts* identified the indicative amount of funding that would be required for DFES to take responsibility for all Bush Fire Brigades[26]. There would also be additional costs to achieve a dedicated rural focussed command, albeit far less than establishing and operating a separate organisation. This cost will have to be weighed against the real and social cost to the community of severe bushfires.

If the transition is managed carefully it is expected that there will be significant opportunities for a dedicated rural focussed command to build greater mutual respect between career officers and volunteers, and vastly improve these relationships. This has been validated in a trial that has been running in the Kimberley region where DFES, in a partnership response agreement with local government, has taken responsibility for bushfire brigades. Another example is the 'Capes Enhanced Service Delivery' initiative discussed in ToR2b. The

[26] *Concept Paper: Review of Emergency Services Act* p98 Regulatory Impact Statement

success of the Kimberley trial has already led a number of other major local governments approaching DFES and asking to participate.

Likewise, whilst collaboration between DFES and P&W has improved markedly one of the remaining major challenges to a joined-up approach has been the inability of P&W to participate in the all hazards model. There is no doubt that the relationship between the agencies would benefit greatly with a dedicated rural fire command within DFES opening up more opportunities for focussed collaboration and greater interoperability.

A more decentralised mode of business delivery will also enhance the relationships with local government and the community, particularly those in higher bushfire risk areas.

Bushfire Risk Management Planning

It is DFES' view that the change in State arrangements suggested in this submission combined with a legislative mandate for BRMP through the enactment of the new Emergency Service Act, will accelerate the roll out of bushfire risk management planning in Western Australia, a matter that requires the highest priority.

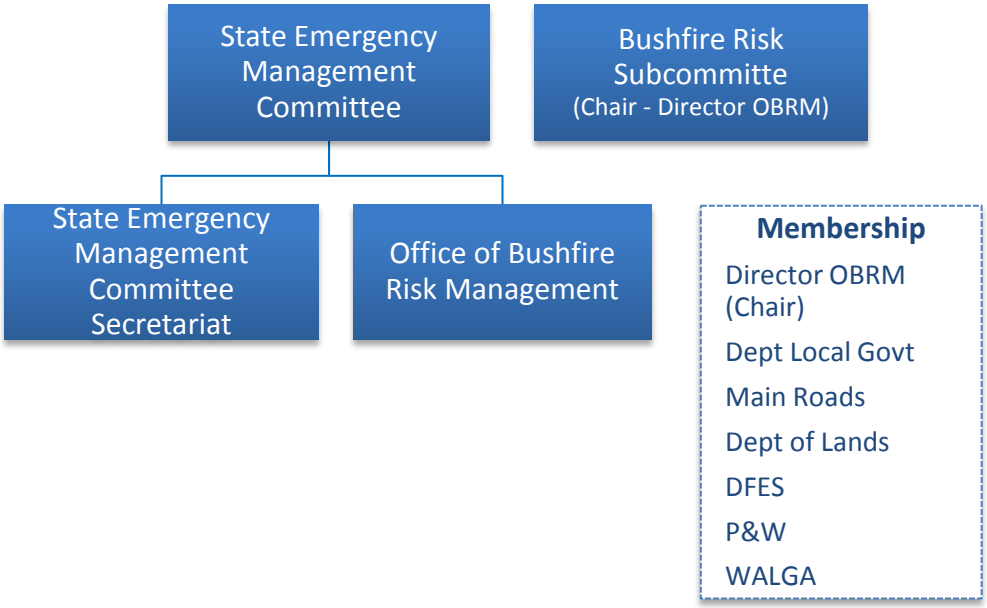
Prioritisation of Fuel Load Management

As discussed throughout this submission, there is currently no State-wide prioritisation of fuel load management activity in Western Australia. Whilst the development of contemporary tenure blind fuel load maps through the BRMP framework will ultimately identify where the highest bushfire risk exists, in the current arrangements the mitigation effort would be prioritised only at local government jurisdictional level or in respect of State lands, on an agency by agency basis. It is DFES' view that this is not a better practice or a cost effective approach to mitigating the risk that fuel loads present in Western Australia.

DFES believes that this issue can be addressed by creating a Bushfire Risk Sub-committee of the SEMC charged with mandating priority fuel load management effort. The membership of the committee should include:

- DFES;
- P&W;
- OBRM;
- Western Australia Local Government Association;
- Department of Local Government;
- Main Roads Western Australia
- Department of Education; and
- Department of Lands;

To facilitate this work and to ensure independence, it is also recommended that OBRM be moved from the DFES structure to sit alongside the SEMC Secretariat with reporting lines to both the SEMC and the Minister for Emergency Services. It is suggested that OBRM perform the role of secretariat to the new Bushfire Risk Sub-committee with the Director OBRM as Chair. This appointment would avoid the perceived 'self-dealing' conflict of interest issues that would arise with any of the other participating members.



Shared Information and Communication Systems

It is DFES' view that the importance of common operating systems for fire management in bushfire emergencies cannot be understated. The lack of alignment has been repeatedly found to have impeded bushfire operations in Western Australia and although some progress has been made since 2011, there are still many gaps that impact on situational awareness and resource management.

Whilst bringing volunteer Bush Fire Brigades under a DFES Rural Fire Command will assist, there is the need for a State Government mandate and appropriate resourcing to ensure that this matter is resolved. The State Government Chief Information Officer's (CIO) Information Communication Technology (ICT) Strategy should ensure that this improved capability is at delivered at a reduced cost.

Public Information

The Critical Messaging System under development is another important platform that needs to be shared. This system is expected to enhance public confidence by presenting a single source of information from all hazard management and support agencies in Western Australia. It DFES' view that all relevant government departments including P&W, Main Roads, the Department of Child Protection, and WA Police should participate in funding development of this system so it can become operational as soon as possible.

In respect of bushfire, once the Critical Messaging System is in place it will provide Western Australia the opportunity to adopt the strategy employed elsewhere in Australia, where Public Information is delivered direct to the media and the community from the Incident Management Team.

Capes Region Bushfire Management Enhancements

As described in ToR 2b, significant enhancements to bushfire management have been derived from the States decision to support the increase of bushfire management capability and capacity in the DFES Capes Region. There are many other regional areas in the south-west where there are a mix of tenures, high bushfire risk and large tracts of rural urban interface that would equally benefit from this approach. It is the view of DFES that the furtherance of the Capes model in high bushfire risk areas would add considerable value to bushfire management in Western Australia.

Conclusion

In late 2011 DFES embarked on a planned, focussed and deliberate path to develop and implement enduring change for the long term-benefit of the community of Western Australia. As the incoming Commissioner I issued my staff a challenge which they rose to meet - adopting a continuing culture of improvement and working hard to be the best they can be for the people of Western Australia.

Four years on and DFES has established itself as a leading emergency service organisation that is well placed for the future. There have been some quick wins along the way but a fundamental aspect of the organisations approach has been to implement reform that is sustainable.

This has all been achieved in an operating environment that has been challenging to say the least. One of those challenges is the increasing severity of bushfires. In recent years, emergency services across Australia have been pitting themselves against some of the worst fires ever witnessed with catastrophic consequences for many communities. Another has been the challenge to achieve meaningful and lasting reform against the backdrop of tough economic times.

Rather than being change weary, DFES embraces the opportunity to work with the Public Inquiry to identify the best way to improve the management of the bushfire threat in Western Australia. DFES appreciates the opportunity to provide this submission and believes that the suggestions contained herein provide the basis for exciting opportunities for more positive change

Government of **Western Australia**
Department of **Parks and Wildlife**

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Mr Euan Ferguson AFSM
Special Inquirer
Waroona Bushfire Special Inquiry
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Dear Mr Ferguson

DEPARTMENT OF PARKS AND WILDLIFE SUBMISSION TO THE WAROONA BUSHFIRE SPECIAL INQUIRY

Please find attached the Department of Parks and Wildlife's submission to the Waroona Bushfire Special Inquiry. This submission discusses the importance of prescribed burning in reducing bushfire risk, interagency emergency management arrangements and broadly addresses the three terms of reference for the inquiry with the specific focus on term of reference 1, parts (a) and (d).

Thank you for the opportunity to provide a submission.

Yours sincerely

Jim Sharp
DIRECTOR GENERAL

8 March 2016

Att.

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DEPARTMENT OF PARKS AND WILDLIFE

SUBMISSION TO THE PUBLIC INQUIRY INTO THE JANUARY 2016 WAROONA FIRE

MARCH 2016

Introduction

This submission by the Department of Parks and Wildlife of Western Australia (P&W) deals primarily with two important and strategic matters: the importance and effectiveness of science-based prescribed burning in reducing and managing bushfire risk, and recurring themes in interagency emergency management arrangements and coordination that warrant review and reform. Many aspects of those recurring themes have been the subject of several previous inquiries and reviews (Keelty 2011; SEMC 2014b), while more recently they have been highlighted and discussed at length in two reports (DFES 2015; SEMC 2015b) on the Lower Hotham and O'Sullivan bushfires from 2015.

This submission broadly addresses the three Terms of Reference (ToR) for the Public Inquiry into the Waroona bushfire. Consistent with the above priorities, the specific focus in relation to ToR 1 is on parts (a) and (d).

Historical Fire Context

Early fire policies

There is considerable evidence that, prior to European settlement of WA in 1829, Aboriginal people used fire widely and frequently for a range of reasons, although the actual frequency with which Aboriginal people burnt the different vegetation types is uncertain. Following European settlement, there was little attempt to deal with bushfires in the south-west until after the passage of the Forests Act in 1918 and the establishment of the Forests Department in 1919. Early foresters were concerned by the extent of fire damage from the severe forest fires that were allowed to run unchecked as a result of the cessation of Aboriginal burning and uncontrolled logging during the nineteenth and early twentieth centuries. From 1924 onwards, there was an attempt to apply a fire exclusion policy to most of the cut-over jarrah forests to protect regeneration.

During the 1920s and 1930s, fire management involved the subdivision of the forest into areas which had been cut-over for timber and regenerated, and those which had not. Attempts were made to completely protect cut-over and regenerating forests from all fire. Some limited prescribed burning to create ''firebreaks'' (narrow strips of forest between two tracks) was undertaken in the remainder of the forest. These narrow firebreaks did little to prevent bushfires burning much of the forest in these early years.

The policy of restricting the use of broadscale planned burning, and improved fire suppression, saw heavy fuels steadily accumulating with time in most forest areas by the 1940s. From the late 1930s onwards, bushfires had started to become very large and difficult to control as fuels accumulated across the region. There were major bushfires in the jarrah forest in 1949/50, and in the jarrah and karri forests in 1937 and in 1950/51. In long unburnt compartments with heavy fuel loads, bushfires became uncontrollable once they exceeded about one hectare in size, even under mild weather conditions.

Also at about this time there were large, intense bushfires in the southern forest areas, notably the area that is now the Walpole-Nornalup National Park and adjoining areas, where whole hillsides of karri and tingle trees were killed. Few, if any, people were killed by these bushfires because these areas were sparsely populated at the time.

Recognising that the attempted fire exclusion policy was failing, and as foresters better understood the role of fire in the environment, the Forests Department changed its position and, in 1954, introduced a policy of broadscale prescribed burning to manage fuel build-up. Because of the heavy fuels in most of the areas to be prescribed burnt, implementation of the policy was cautious and slow at first. Most of the initial burning in the northern jarrah forest was actually done in winter. Little effective burning was undertaken in the dense southern forests, principally because of lack of access and problems with predicting fire behaviour in complex karri and karri-tingle fuels.

The 1960/61 bushfires

The inevitable consequence of the early policy of fire exclusion culminated in massive bushfires in the summer of 1960/61. Preceded by drought, ignited by numerous lightning strikes and fanned by strong hot winds, intense bushfires burnt through the forests of the south-west. The town of Dwellingup was burnt down, as were the smaller settlements of Holyoake, Nanga Brook and Karridale. There were serious losses of houses, buildings, infrastructure, pasture, stock and fencing. Fortunately no one died in the bushfires, but many were injured, and the cost to the community was enormous.

In the wake of the 1960/61 bushfires, a Royal Commission was held. The report of the Commission (Rodger 1961) contains many recommendations concerning measures necessary to prevent and control bushfires. From the point of view of the Forests Department, recommendation 20 was the most significant. It read:

> *"The Forests Department is to make every endeavour to improve and extend the practice of control burning to ensure that the forests receive the maximum protection practical consistent with silvicultural requirements."*

This did not represent a complete redirection of policy for south-west forests, rather it unambiguously endorsed the policy which had been adopted in 1954. The Royal Commission's recommendations were adopted in full by the Government of the day.

The Department of Parks and Wildlife

P&W is the lead agency responsible for conserving Western Australia's native flora, fauna and natural ecosystems, and many of its unique landscapes. Under the *Conservation and Land Management Act 1984* (CALM Act), P&W manages more than 26 million hectares of land, including national parks, conservation parks, regional parks, State forests, timber reserves and nature reserves.

Fire management, whether for community protection or biodiversity conservation, is a key responsibility of P&W on lands for which it has statutory management responsibility under the CALM Act. In 2003, P&W was also given fire preparedness[1] responsibility for a further 89 million hectares of unallocated Crown land and unmanaged reserves outside townsites and across the State, managed in accordance with section 33(2) of the CALM Act.

The various terrestrial tenures managed under and in accordance with the CALM Act, as well as unallocated Crown land and unmanaged reserves, total about 114 million hectares. This area represents 45% of Western Australia and an area larger than New South Wales, Victoria and Tasmania combined.

[1] Preparedness in relation to the management of unallocated Crown land and unmanaged reserves means mitigation activities including, but not limited to, prescribed burning and the mechanical construction and maintenance of boundary and internal fire trails and fuel reduced buffers.

Fire management role

Fire management is, ecologically and socially, one of the most complex and challenging issues facing land managers. Prescribed burning, which is the deliberate use of planned fire lit under specified conditions of fuel and weather to achieve management outcomes, is sometimes controversial. As a land management agency, P&W recognises that in fire-prone environments, proactive fire management is integral to, not incidental to, good community, conservation and land management outcomes. If bushfires cannot be managed effectively, then it is unlikely that other land management objectives will be achieved.

Prescribed fire is used as a tool for fuel hazard reduction and bushfire mitigation and for ecosystem management. Planned fires are used to maintain and enhance nature conservation values (e.g. protecting and regenerating a diversity of wildlife habitats; rehabilitating degraded areas; and creating a diversity of post-fire structural stages), and to maintain ecosystem processes such as nutrient cycling. Fire is also used to achieve land management objectives such as catchment management and the regeneration of native forests and understorey vegetation after disturbance by timber harvesting. In many cases, planned burns are undertaken at landscape scales to achieve both protection and ecological management objectives by varying the seasons, fire intensities, and the intervals between fires. The Department has an obligation to ensure that the condition of the public land which it manages does not pose a threat to human life and property as a consequence of bushfires.

As a result of its State-wide responsibilities, P&W has some fire management and response capabilities in all regions of Western Australia, with a concentration in the more populated south-west of the State. Further, P&W's broadscale prescribed burning program provides excellent opportunities for the training and development of staff in fire management and response across a spectrum of forest and bushland fuels. The resources and expertise utilised in prescribed fire activities are consistent with those applied to bushfire suppression operations when required.

P&W has the lead role in responding to and suppressing bushfires on P&W-managed lands across the State (other than in the Perth metropolitan area/gazetted fire districts). In the three P&W south-west forest regions and in its Midwest and South Coast regions, P&W has significant fire management capacity and is currently supported by officers of the Forest Products Commission and the volunteer bushfire brigades of local government authorities. In other parts of Western Australia, P&W has more limited fire management resources. P&W also works closely with local government and the Department of Fire and Emergency Services (DFES) in bushfire suppression and management.

Each year many bushfires start on the public lands managed by P&W in the south-west of Western Australia. Figure 1 shows the number of bushfires recorded from 2011/12 to 2014/15, including the causes where known. Weather conditions often occur under which many of these fires, if not quickly contained, have the potential to develop into fast spreading, intense, uncontrollable bushfires that threaten lives, damage property and the environment, and are costly to the community.

	Deliberate Ignitions	**Accidental Ignitions**	**Lightning**	**Other Causes**	**Total Bushfires**
2014/15	240	62	72	71	445
2013/14	140	77	33	35	285
2012/13	182	68	69	43	362
2011/12	155	43	85	59	342

Figure 1: Bushfires and their causes on P&W lands in the south west 2011/12 to 2014/15

P&W responds to many more bushfires on other land tenures including private property in the south west and elsewhere in the State. In some areas this is under pre-determined multi-agency response arrangements for high-risk zones. Each year, P&W, DFES, and volunteer firefighters from local government bushfire brigades are called upon to protect the community and its valued assets from the impacts of intense summer bushfires in the forests, woodlands and heaths of the south-west.

Fire management policies

P&W's fire management business is guided by a comprehensive suite of policy documents (including Policy Statement No. 19 – Fire Management, and Policy Statement No. 88 – Prescribed Burning). These policies contain the fire management objectives for P&W-managed lands as well as policy statements pertaining to safety, risk management, use of fire, fire suppression, bushfire prevention, neighbour and community liaison, and fire research. Also included in the policies are principles for fire management and the requirements for policy implementation.

Management structure

The fire management business of the Department is enabled, guided and supported by a number of divisions. Inputs to the scope and direction of fire management works are provided by three divisions: Science and Conservation, Parks and Visitor Services, and Forest and Ecosystem Management. The Science and Conservation Division also provides research and technical support to fire management programs which are developed and implemented by the Regional and Fire Management Services Division. P&W's Fire Management Services Branch, together with the Department's nine regions, are located within the Regional and Fire Management Services Division. Fire management programs are developed and carried out collaboratively between regions, the Fire Management Services Branch, and the three above-mentioned divisions. The Regional and Fire Management Services Division is headed by a Director who reports direct to P&W's Director General.

Fire research and development

The 1961 decision to expand the use of low intensity planned fire to manage bushfires in Western Australian forests, following historical fire exclusion polices and the major bushfires of the early 1960s, initiated a program of scientific research and technical development to underpin fire management operations. This internationally acclaimed research, much of which has been summarised in the book, *Fire in ecosystems of south-west Western Australia: impacts and management* (Abbott and Burrows, eds.), published in 2003, focused on the following themes:

Aerial prescribed burning

In the 1960s, it was apparent that there were insufficient personnel and other resources to undertake the amount of prescribed burning that needed to be done during the limited number of suitable burning days by the traditional method of strip burning by teams of people walking through the forest. A technique for lighting prescribed fires by dropping incendiaries from aircraft under specific conditions of fuel and weather was conceived and developed in Western Australia. Not only did this allow more area to be prescribed burnt under the desired (prescribed) fuel and weather conditions, it was much safer and less expensive than using ground crews. This technology and approach is now applied world-wide.

Fire behaviour and prescribed burning guides

Over a period of more than 40 years of research, fire scientists developed a firm understanding of how forest fires behave (their speed and intensity) under different conditions of fuel quantity and type, fuel moisture content, weather and topography. They also developed fuel accumulation and fuel moisture (drying) models. This knowledge was incorporated into a fire behaviour prediction model and a prescribed burning guide (Sneeuwjagt and Peet, 1976; reprinted in 1998 and 2006), which is used by P&W field staff in rating forest fire danger, planning and implementing low intensity prescribed burns and in the planning for suppression of bushfires.

Fire ecology

Studies into the effects of forest fires on soil physical and chemical properties, flora, fauna, water resource values and forest regeneration commenced in the early 1960s and have continued since. This work has resulted in significantly increased knowledge about forest and other ecosystems and their responses to fire. While knowledge is incomplete, there is an adequate knowledge base upon which to devise and implement appropriate fire regimes that are likely to be beneficial to the environment.

Ongoing research capacity and activities

The Department continues this long tradition of fire research and development. These activities include further developing aerial ignition and other technologies, fire behaviour studies in various fuel types including coastal heath in the south west and hummock grasslands in rangeland regions, and ongoing research into the fire response of key species and ecosystems. Monitoring fire effects and forest health is an integral part of that research and development activity which informs adaptive management, fire planning and operational programs.

Fire training

P&W manages a comprehensive fire training program which aims to ensure that firefighters and incident management personnel (at the required numbers) develop and maintain competency and currency. P&W collaborates with DFES in the design and delivery of many components of that program. Departmental aircrew are trained for a variety of fire aviation roles including as air observer, incendiary machine operator, incendiary operations supervisor, helitorch ground crew, air attack supervisor, aircraft officer, air base manager and flight following (search and rescue) monitors. A revised prescribed burning training package based on national competencies is being piloted for P&W and DFES at present. Fire ecology courses for practitioners and burn program developers are also in development by P&W.

P&W also has a Fire Management Development Program to develop selected participants though targeted operational placements and roles. Leadership development programs are also available to identified departmental staff.

Operational resources – ground

P&W has built up a significant operational resource available for both the implementation of hazard reduction and ecological burns and for response to bushfires when they inevitably occur in such a fire-prone environment. See Attachment 1 for further details.

The Department also maintains a primary network of 10 operational fire lookout towers. These structures are strategically located across the south west and are staffed as required according to conditions.

As many major bushfire incidents occur in remote locations, P&W has developed portable incident control and communications facilities including buses and transportable offices that enable a large incident management team, support staff and fire crews to be managed and coordinated effectively without the need to utilise existing fixed infrastructure. P&W's large mobile communications trailer is fitted with satellite communication systems, internet connections, terminals, servers, radios, phones, faxes, plotters and printers. These mobile facilities are also used in the south-west to augment fixed facilities or to operate autonomously during major incidents.

Operational resources – air

In the past 50 years, P&W and its predecessors have overseen considerable development in the use of aircraft for fire management in Western Australia. Following the development of aerial ignition in the 1960s, in the 1970s the Department introduced spotter aircraft to augment and partly replace the fire detection system which had until then been solely based on lookout towers. P&W owns and maintains a fleet of 10 of these detection aircraft. P&W has more recently applied contracted fixed-wing aircraft to water bomb and help contain small initiating bushfires. See Attachment 1 for further details of aircraft types and numbers.

Aerial detection

Over the past five years, P&W spotter aircraft have flown an average of more than 4,600 hours each season. In conjunction with the network of lookout towers, these spotters provide an excellent fire detection and surveillance capacity over the south-west forests and play an essential part in maintaining the security of prescribed burns.

Aerial suppression

Water-bombing aircraft of the type used by P&W have proven to be effective under most conditions where the aircraft have been able to apply the water/foam drops within 30 to 45 minutes of a bushfire starting, and while it is still relatively small. P&W contracted water-bomber aircraft have flown on average (over the last 4 years) 975 operational hours each year, attending, on average, 184 fires and delivering 5.2 million litres of fire suppressant each fire season. These aircraft travel at 340 kilometres an hour and deliver up to 3,150 litres of water/foam each drop. They are highly effective in slowing the rate of forward spread of most developing bushfires to allow ground crews more time to gain access to the fire.

Aerial ignition

P&W also contracts aircraft which carry an incendiary machine, pilot and aircrew to conduct aerial prescribed burning throughout the State. This includes helicopter and fixed-wing aircraft based in the south west and the far north.

National and international collaboration and experience

Fire management has become an increasingly national and international business. P&W senior fire management staff are strong contributors on several national fire coordination bodies including the Australasian Fire and Emergency Services Authorities Council (AFAC), AFAC Rural and Land Management Group, Forest Fire Management Group, North Australian Fire Managers Group, National Aerial Firefighting Centre and the Bushfire and Natural Hazards Cooperative Research Centre.

Over the past decade P&W has also contributed teams of fire leaders, specialist staff and firefighters to many international and interstate firefighting efforts. This has included deployments of expert fire managers to assist in large-scale emergencies in the United States, Canada, Greece, Victoria, New South Wales, Tasmania and South Australia.

Response to Terms of Reference

1. The response to the January 2016 Waroona Fire

(a) The effectiveness of pre-incident bushfire prevention and mitigation activities

State of the landscape

Rainfall recordings across the south-west for 2015 were very low. This follows declining annual rainfall in the region over the last 40 years. Record high temperatures were also experienced at several locations in the south west, including Dwellingup, and soil dryness indices were drier than the five year average. This drying landscape is an important factor in the incidence, spread, control and mop up of bushfires, especially in a season when lightning strikes also occur. It is also a major consideration in aligning the windows of opportunity for prescribed burning with the availability of resources to implement operations and programs in an effective, efficient and safe manner.

The importance of landscape-scale prescribed burning

The extent of prescribed burning undertaken over the past 55 years in south-west Western Australia has enabled fire managers to achieve a high level of protection for community assets and natural values on and near the lands managed by P&W. There have been numerous examples where the fuel reduction burning program has resulted in relatively rapid containment of bushfires and significant saves, even under extreme fire weather conditions. Forest fire managers who are directly involved in fire control operations have no doubt about the value of fuel reduced areas in reducing the intensity of bushfires and in providing safe conditions to apply effective bushfire suppression tactics.

While the contribution of prescribed burning to bushfire control may be obvious to fire practitioners and many fire scientists, some commentators continue to question its value and call for the need to have statistical evidence to validate the effectiveness of prescribed burning. Some critics of prescribed burning offer accounts of severe bushfires burning through recently prescribed burned areas. On that basis they have concluded that it is either ineffective, or in order to be effective against major conflagrations burning under extreme weather conditions, fuel reduction burning has to be repeated every two or three years.

Contrary to the claims made by some critics of prescribed burning, there exists in Western Australia a large body of scientific and experiential evidence (Boer *et al*. 2009; Burrows and McCaw 2013; Cheney 2010; Gould *et al*. 2007; McCaw 2013; McCaw *et al*. 2008; Sneeuwjagt 2008) of the effectiveness of prescribed burning in significantly ameliorating the bushfire threat. Research (Boer *et al*. 2009) also demonstrates that the beneficial effect of prescribed burning on the incidence and extent of unplanned fires in south western forests continues for around six years.

Fuel characteristics and fire behaviour

The effect of fuel conditions on fire behaviour has been most recently investigated by Project Vesta (Gould *et al.* 2007). This national study involving the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and a variety of fire and land management agencies was conducted in the dry eucalypt forests of Western Australia, and examined the relationship between fuel age and fire behaviour by quantifying age-related changes in fuel attributes and fire behaviour in dry eucalypt forests typical of southern Australia. More than 100 experimental fires were lit under dry summer conditions of moderate to high fire danger at two sites with different understorey vegetation types, ranging in age from two to 22 years since fire.

This research demonstrated that the forward rate of spread of a fire is directly related to characteristics of the surface fuel bed and understorey layers, with the near-surface fuel layer having the strongest effect on rate of spread. The near-surface layer provides a common fuel descriptor for a wide range of dry eucalypt forest types that are visually very different because of the characteristics of the understorey shrubs. Experimental data also confirmed the influence of understorey shrub height on flame height, and the contribution of bark characteristics and surface fire intensity to the spotting process.

The Project Vesta experiments indicate that fires in fuels older than about seven years will prove difficult to control under average summer conditions of moderate to high fire danger in open eucalypt forest. This result is similar to the findings of Boer *et a*l. (2009) in which a landscape-scale analysis of prescribed burn and bushfire data spanning several decades concluded that beyond six years the benefits of prescribed burning will diminish significantly. The Project Vesta finding is also consistent with the conclusions of the Victorian study by McCarthy and Tolhurst (1998), which found that forests with an overall fuel hazard score above the high category offered little prospect of assisting bushfire suppression.

Based on the Project Vesta experiments, Gould *et al.* (2007) concluded that hazard reduction by prescribed burning will reduce the rate of spread, flame height and intensity of a bushfire, as well as the number of spot fires, by changing the structure of the fuel bed and reducing the total fuel load. The persistence of this effect will be determined by the rate of change in fuel characteristics over time, especially in forests with fibrous-barked trees and a shrubby understorey.

The role of prescribed burning in reducing the incidence of bushfires

A study by McCaw *et al.* (2008) demonstrated that prescribed burning will also reduce the incidence of bushfires by maintaining areas of sparse fuels that are less likely to remain alight following ignition. Lightning-caused fires should be randomly distributed at a landscape scale, making the expected incidence of ignition directly proportional to the area of each fuel age. Analysis of fire statistics for forests in the south-west of Western Australia between 2000 and 2006 shows that lightning-caused fires are less likely to be sustained in areas where the fuel is less than five years old.

The effectiveness of prescribed burning in managing bushfires

Published case studies (Cheney 2010; McCaw 2103) demonstrate the effectiveness of prescribed burning in limiting the spread and aiding the suppression of bushfires. The Mundaring-Karragullen fire which burnt during 15-25 January 2005 is an example of a high intensity forest fire that was eventually contained with the assistance of prescribed burns. The fire was the result of seven arson-caused ignitions on land managed by P&W east of Karragullen and within 20 kilometres to the east of the Perth Hills suburbs.

A study of the fire behaviour of the Mundaring-Karragullen bushfire was undertaken by former CSIRO fire scientist Phil Cheney (2010) to reconstruct the fires during the initial westerly and south-westerly spread on 15-17 January 2005. Three major tongues of the escalating fire travelling at an average rate of spread of 900 m/hr burned towards the Brookton Highway and the Perth Hills suburbs of Roleystone and Araluen. When it crossed the Brookton Highway, the fire ran into two and four year old fuels resulting from planned fuel reduction burns, where its spread was either stopped completely or checked to such a degree that suppression was straightforward and safe. Figure 2 shows the fire boundaries in relation to the earlier prescribed burns and the Perth Hills suburbs. Cheney found that the fuel reduction program carried out by P&W in the preceding years enabled suppression forces to safely contain the fire before it burnt into the Perth Hills suburbs of Roleystone and Gosnells.

Case studies can also provide an insight into how the final shape of a bushfire may be influenced by the pattern and extent of prescribed burning, and by suppression activities. For example, the spread of fire can be modelled for different fuel situations and the difference between the predicted and observed final fire shape and values impacted used as a measure of the difference attributable to fuel treatment. This approach was used by Cheney (2010) who was able to estimate the projected fire perimeter of the Mundaring-Karragullen bushfire in the absence of fuel reduction burning in the past 20 years. Such a scenario was commonly encountered in the ACT, NSW and Victorian fires of 2003 and the Victorian fires of 2006 and 2009. Under the 20 year old fuel scenario, Cheney estimated that the fire would have burnt westwards over the Darling escarpment and into the suburbs of Roleystone, Armadale and Gosnells less than 24 hours after ignition, causing significant damage and possibly loss of life. This projection is shown as the solid black line in Figure 2 below.

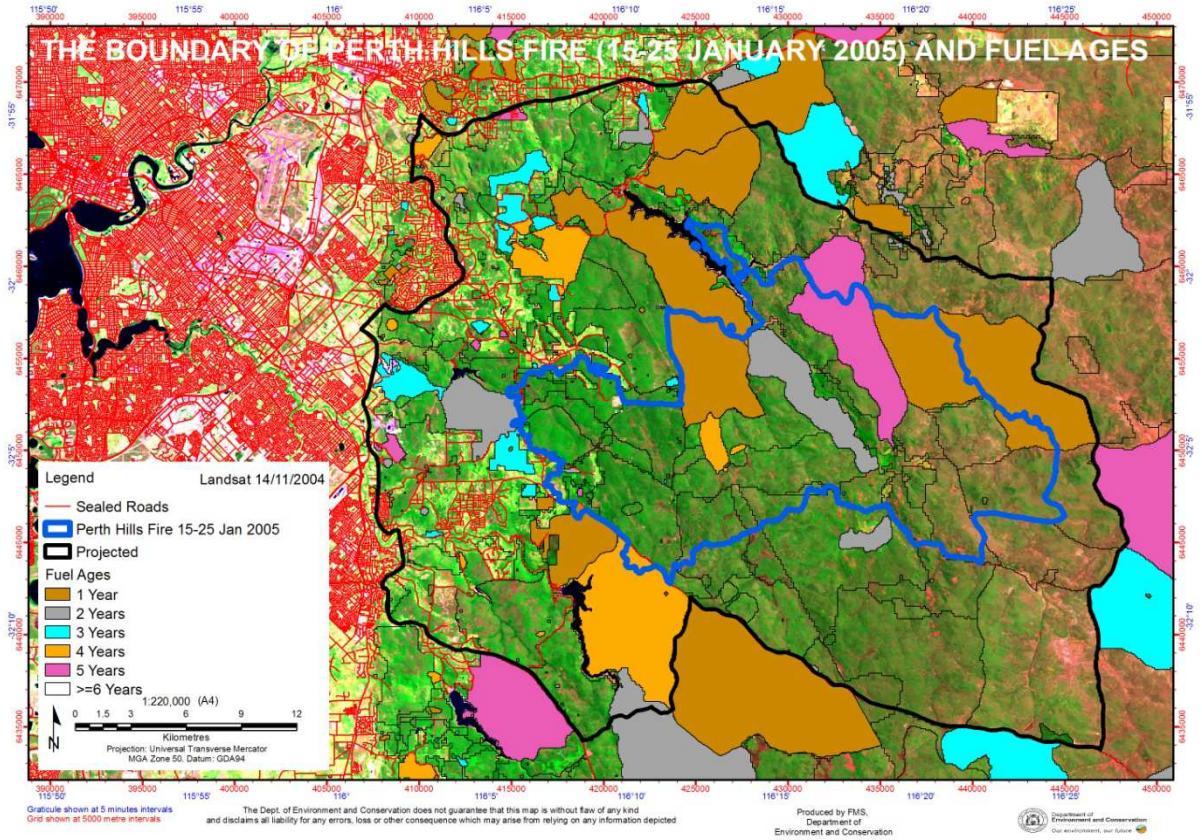

Figure 2: Plot of the perimeter of the Mundaring-Karragullen fire of January 2005 showing the fire in relation to the P&W prescribed burns and the Perth residential areas

Temporal and spatial scales to maximise prescribed burning effectiveness

The contribution of prescribed burning to bushfire reduction and control persists for several years. In order to understand the nature of that persistence any comparison between the areal extent of prescribed burning and bushfire areas should include a spread of years. An investigation into the possible relationship between the areal extent of prescribed burning in preceding years and the unplanned fires over subsequent years was undertaken by Sneeuwjagt (2008) on the south-west forest data from 1961/02 to 2007/08.

This period covers the start of the application of prescribed burning to broad areas of the south-west, with high levels in the 1960s and 1970s and gradual reductions as the burn program became more refined and targeted to achieve integrated biodiversity conservation and community protection objectives. The variations in the extent of the annual prescribed burning programs over the 47 years of this study provide sufficient data to determine

whether the different levels of annual burning have an impact on the total area of bushfires that occur in subsequent years.

The results of this analysis indicate that the area of bushfires is influenced by the amount of prescribed burning that has been achieved in the preceding period. A strong correlation exists between the area of prescribed burning achieved in one year and the accumulated area of bushfires averaged over the following five years. This correlation is remarkably strong despite the inherent variations from year to year in bushfire areas that may be due to confounding influences other than the amount of fuel reduced areas that is present across the landscape. In addition, a strong correlation exists between the area of prescribed burns averaged over four years, and the area of bushfires averaged over the subsequent four years.

Another study of bushfires and prescribed burning records dating back to the 1950s on approximately one million hectares of land within the Warren Region of south-west WA was undertaken by Boer *et al*. (2009). Their principal finding was that the area treated annually by prescribed fire had had a significant effect on the annual number and areal extent of unplanned bushfires over a 52-year period. They concluded that areas burned under a six year cycle significantly reduced the bushfire hazard. The research also showed that the annual extent of bushfires was significantly affected by the extent of connectivity of fuels over six years old.

The Western Australian analysis and experience indicate that in order to restrict the extent of bushfires to impacting less than one percent of the landscape each year, the proportion of the landscape that needs to be fuel reduced is between seven to nine percent per annum (or 35 to 45 percent over five years). In the case of south-west WA, the annual prescribed burning target of 200,000 hectares, which equates to about eight percent of the P&W-managed estate, is likely to result in an average bushfire extent of less than about 25,000 hectares per year (or about one percent) and more importantly, to significantly reduce loss of life and property and reduced environmental damage. Figure 3 shows the relationship between the extent of prescribed burning and bushfires since 1951.

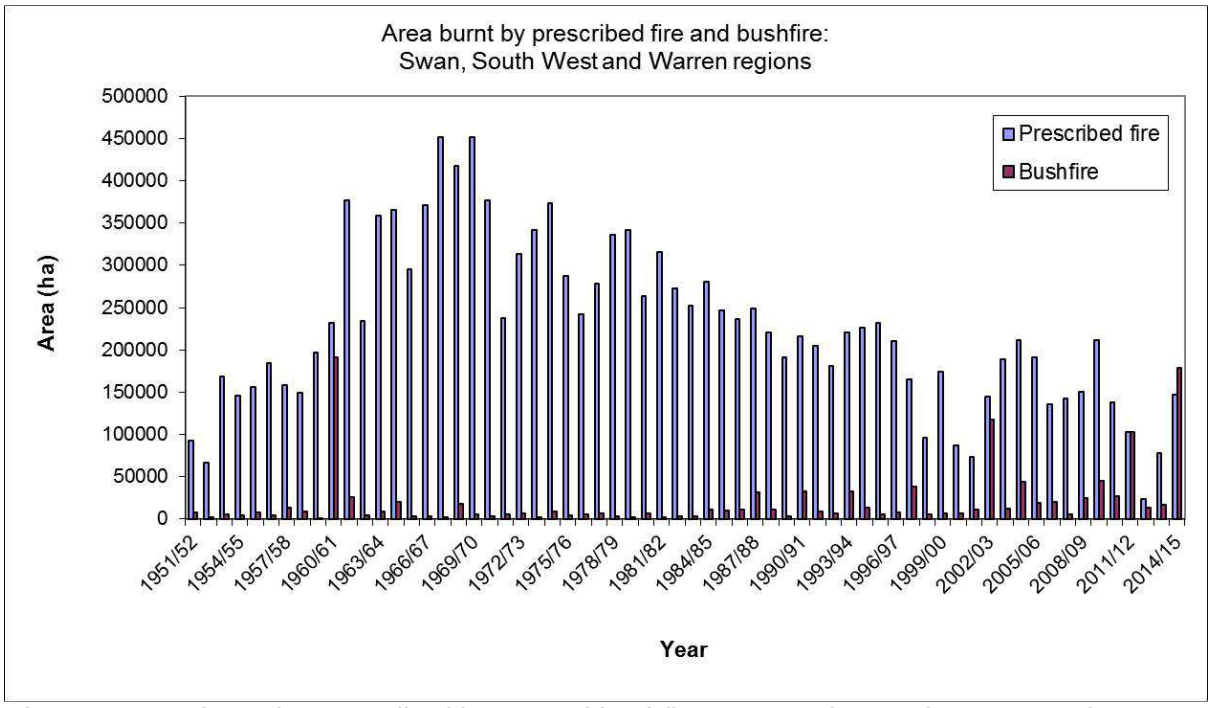

Figure 3: Area burnt by prescribed burns and bushfires across the south west 1951/2 to 2014/15

Burning for multiple outcomes

It is important to note that the reduction of fuels and the protection of communities can also be achieved while also managing biodiversity and achieving other land management outcomes. While no single fire regime is necessarily ideal for all fire management objectives, burning for multiple outcomes can be achieved and has been clearly demonstrated (Burrows and McCaw 2013) over a long period in the south-west forests under P&W's stewardship and science-based fire programs.

The operational and safety benefits of prescribed burning should not be underestimated. Fuel management can have important benefits to bushfire suppression that are subtle and difficult to quantify, such as increasing the safety, efficiency and effectiveness of suppression strategies and tactics. In this situation, the lack of fuel management decreases the probability of first attack success under increasing fire weather conditions. Land under a management program of fuel reduction reduces the potential harm to firefighters as well as neighbouring residents and communities.

Prescribed burning in areas subject to mining lease

A significant proportion of the total fire area (41%) occurred on State forest subject to bauxite mining operations by Alcoa of Australia (Alcoa), governed by the *Alumina Agreement Act* 1961. The significance of this particular land use lies in the heighted level of complexity in respect to the management of bushfire risk, which has resulted in predominantly high fuel loads across this area. This can be attributed to:

- The pattern of mining, which results in a very patchy landscape with large areas effectively unavailable for prescribed burning for extended periods of time. When mining/rehabilitation is complete, this landscape contains a wide range of vegetation types, structures and fuel ages within many small, dispersed, but contiguous parcels of land;
- There are narrow windows of opportunity within the mining/rehabilitation cycle for prescribed burning. Notionally these are:
    - Pre-mining (although these opportunities are significantly limited by the need for forest disease surveying and windows close well in advance of mining itself)
    - Within the period when regeneration is one to five years old,
    - When regeneration is (typically) *at least* 15-plus years old and able to withstand low intensity planned fire;
- Difficulties and costs associated with ignition methods in smaller, heavily vegetated multi-aged rehabilitated stands (i.e. scale too small for efficient aircraft ignition and heavy understory layer across very uneven ground making it potentially unsafe for on-ground hand lighting); and,
- Difficulties with conducting multi-stage ignitions in multi-aged revegetated areas and adjacent native forest under current climatic conditions (rehabilitation is usually contiguous with adjacent unmined native forest and not separated by mineral earth breaks).

Notwithstanding the difficulties outlined above, P&W (and its predecessors) have been working with Alcoa in attempting to address these issues. The parties have agreed arrangements and associated prescriptions relating to how mining-related operations, including site rehabilitation and fire management, should be conducted. To facilitate enhanced management, there is an ongoing process of joint regular review.

This issue of responsibility for fire prevention on the State Agreement Act areas has been the subject of specific legal advice provided to P&W by the State Solicitor's Office. This indicates that in parts of the lease where it would not interfere with mining operations, it is

possible for P&W to exercise its land management responsibilities; whereas P&W's ability to undertake such responsibilities where mining operations are in progress may be more restricted (e.g. P&W may need to obtain Alcoa's consent prior to entry). In any case, there are clear complexities and practical constraints to achieving meaningful prescribed burning and thus effective bushfire risk management within the mining footprint. P&W will refocus its efforts in this area.

Other constraints to an effective prescribed burning program

Decadal climate trends with declining rainfall have already been noted. These changes coincide with changing land use such as the shift in forest management priorities and the decline in timber production. A large landscape-scale prescribed burning program requires a workforce and fleet of equipment of sufficient size to maximise windows of opportunity and to conduct and manage multiple burns. In 1985, when the former Department of Conservation and Land Management was established to replace the Forests Department, there were 535 forest workmen stationed across the south-west. That frontline workforce in 2016 is less than 290 (Attachment 1).

d) The effectiveness of incident management, including coordination of agencies, volunteer fire and emergency services and interstate assistance

The Waroona bushfire was a major, complex and protracted incident and it is considered that most aspects of incident management were highly effective. There are also opportunities to learn and improve. P&W acknowledges the many positive benefits of advances in cooperation and coordination with other local government and State emergency services as well as the excellent assistance provided by several interstate agencies coordinated through the NSW Rural Fire Service. There remain a number of highly important components of major incident management and interagency coordination that could be more effective and continue to be highlighted in major bushfire reviews and inquiries (DFES 2015; Keelty 2011; SEMC 2014b, 2015b).

<u>Incident escalation and de-escalation</u>

Westplan Fire, State Emergency Management Policies and associated procedures and tools provide a mandate, framework and processes for the declaration of a bushfire as a Level 1, 2 or 3 incident as well as a mechanism for escalation and de-escalation. P&W adheres to this framework and processes. However, experience in the previous bushfire season (SEMC 2015b) as well as in managing the Waroona bushfire, suggest that understandings may not be common between the two major Government fire agencies. There may be a tendency for Level 3 incidents, which are under the control of the DFES Commissioner, to be considered for downgrading before, in P&W's view, weather, fireground and other conditions suit this. Prematurely de-escalating and handing back major incidents to land management and local authorities may carry with it considerable risk for the recipient organisation and the community. P&W recommends that the processes and rigour that are applied to bushfire declaration and escalation are consistently applied to this aspect of incident management, and that appropriate consultation occurs before de-escalation is decided.

<u>Section 13 of the Bush Fires Act 1954</u>

Section 13 of the Act, *inter alia* provides for the DFES Commissioner to "…authorise a bush fire liaison officer or another person to take control…". With guidance from the second reading speech for the 2009 amendments, and Westplan Fire, DFES becomes the Controlling Agency for the bushfire in these circumstances, irrespective of the agency or organisation that the authorised individual represents.

However, some issues remain in question. From an organisational perspective, legal, administrative and (additional) financial responsibilities associated with the bushfire

response apparently sit with the Controlling Agency, but these matters remain unclear in practice, especially where bushfires are predominantly on Parks and Wildlife-managed land or the Department provides the appointed (s.13) Incident Controller (IC), the majority of the IMT and/or wider resource commitments.

From the perspective of the authorised individual, where they are not DFES personnel, neither the Act nor the instrument of authorisation provide clear guidance as to reporting arrangements or tasking, and the instrument of protection from personal liability is not explicit. This lack of clarity has made the experience of P&W ICs authorised under s.13 problematic, especially taken in concert with some of the issues raised below in relation to the interpretation and application of AIIMS, the issues of interoperability and vertical communication, and in regional and state coordination. In this environment of uncertainty, the ownership of agency and personal records also becomes problematic for Level 3 incidents, and needs to be resolved.

Australasian Inter-service Incident Management System (AIIMS)

AIIMS is intended to provide a clear and scale-able structure, and common roles and processes for incident management. It is P&W's understanding that it is not intended to be a framework for regional and state coordination. AIIMS is founded on a principle that all of its functions are to enable an incident management team (IMT) to operate in a semi-autonomous manner with regional and state coordination centres providing strategic direction, and, if required, resources and logistics support within a broader situational context. Properly functioning, this system allows the IMT and IC to make decisions appropriate to the circumstances of the incident. Clear reporting relationships should be established from the IMT and IC through regional to state structures but that clarity should equally ensure that the state through the SOC does not act in ways that compromises the ability of the IC and IMT to manage the incident effectively.

Experience from the Waroona bushfire indicates that many of the AIIMS-related issues evident from the O'Sullivan and Lower Hotham fires in 2015 (DFES 2015; SEMC 2015b) are recurring. These include apparent state-level involvement in the autonomous mobilisation and demobilisation of resources without the concurrence or knowledge of the incident, duplication of some functions (including public information and some aspects of mapping and resourcing), and valuable incident intelligence acquired from specialist air and ground resources being provided to the state but not being made available to the incident in a timely manner. Ongoing and differing understandings, interpretations and applications of AIIMS between DFES and P&W mean that major incidents such as Waroona may be managed in a less than optimal manner. These issues have come to the fore over the 2014-15 and 2015-16 bushfire seasons and the Waroona incident provides the opportunity for their resolution.

Pre-formed Incident Management Teams

The Department has five colour-labelled Pre-formed Teams (PFT) which are rostered each week for major Level 2 and 3 incident management during the south west bushfire season. These teams currently have a standard composition of 54 members including all functional roles and unit leaders in the AIIMS 4 (the current version) structure including the operational roles of Sector Commander and above. The teams have the benefit of many members having worked together at previous incidents and in previous seasons. The full team is still minimal and usually needs to be substantially bolstered for incidents of the magnitude of the Waroona bushfire. Being rostered for seven days, these teams are available for deployment for five days or three nights given fatigue management and other requirements. They are therefore an essential but incomplete solution to resourcing the management of major incidents.

Large bushfires outside the metropolitan area often rely heavily on P&W PFTs. Red and Green PFTs were both deployed to the Waroona bushfire. When P&W PFTs are

augmented with personnel from DFES, local government and elsewhere, the team may function well, however the many positive benefits of having a pre-formed and practiced team are often not realised. Even when a P&W PFT is utilised, alternate shifts may still require the same number of Level 3-rated competent persons to be assembled and also retained across successive (alternate) shifts for operational continuity. Opportunistically assembled IMTs are also inevitable and necessary in these circumstances, and for dealing with incidents for which a PFT is unavailable due to other commitments. However, the concept, practice and benefits of teaming are reduced in such circumstances.

Until 2013/14 a small number of DFES regional personnel were members of P&W PFTs. This arrangement was found to work well from a P&W viewpoint. Since that time, efforts by both agencies to develop integrated joint PFTs have not yet overcome issues including differing industrial, rostering and funding arrangements as well as differences in the range of tenures and hazards dealt with and the associated availability requirements throughout the year. SEMC (2015b) has made several recommendations relating to future developments in this area which are yet to be fully examined and responded to. P&W supports the concept of multi-agency Pre-formed Teams for major bushfire incident management based on its own successful experience. However, such reform needs to take account of the cultures, resources, businesses and non-fire responsibilities of DFES, P&W, other agencies and local governments. In this context, it is important to recognise that P&W is <u>not</u> a multi-hazard, dedicated emergency management agency. Rather, P&W derives its fire management responsibilities from being a land manager.

<u>Resource management system</u>

Resource management at a major bushfire incident is a complex and multi-faceted endeavour. It involves tracking the resources (IMT and field) received and deployed, requesting of additional resources, and recording, monitoring and managing shift times and fatigue levels. It also involves allocating resources to sectors, divisions, roles and shifts in Incident Action Plans, planning the next shift/s and developing projections regarding future shift requirements and shortfalls over coming days and nights. Transitioning incident capability to recovery and demobilising suppression resources in an orderly manner is also important. Resource management is the hub of a major incident and pivotal to operational effectiveness and continuity, the logistics of transporting, accommodating and feeding firefighters and the wellbeing of potentially hundreds of people. Historical and current approaches differ between agencies, and the current reliance on T-cards, white boards and spreadsheets can be inefficient and open to errors. Brigade and other ‘self-deployments’, multiple staging areas and the current interagency arrangements for resource management for Level 3 incidents may also complicate the task.

Previous reviews and inquiries have emphasised the need for a computerised integrated interagency resource management system. Clear recommendations have come from the Parkerville (SEMC 2014b), Roleystone (Keelty 2011) and Lower Hotham and O’Sullivan bushfires (SEMC 2015b). P&W supports these recommendations as resource management is a major challenge each season. Several sophisticated systems designed specifically for bushfires and major incidents are in use in other jurisdictions and are likely to be suitable for application here. These need to be examined and evaluated in 2016.

<u>State and regional coordination</u>

Issues with processes and interactions between the IMT, the DFES Regional Operations Centre (ROC) and the DFES State Operations Centre (SOC) identified in the review of the O’Sullivan and Lower Hotham bushfires (SEMC 2015b) were apparent in the Waroona bushfire. To some extent this relates to the differing approaches of the two main fire agencies. DFES in essence has a centralised and top down approach, based on smaller, more centrally managed IMTs, while P&W has a decentralised and bottom up approach, involving larger more independent IMTs, supported and coordinated regionally and centrally

as needed. These differing approaches, interpretations and applications of AIIMS, coordination of roles and processes, different meeting rhythms and limited joint training and exercising, mean that the structures and arrangements are not optimally integrated. The coordination of State, region and IMT interactions may therefore by sub-optimal. These issues have been well described (SEMC 2015b).

Interoperability and vertical communication

Consistent with P&W's implementation of AIIMS and its decentralised culture described above, communication between ICs, districts, regions and the state vary according to the level and nature of the fire activity and the information that needs to be conveyed. P&W Duty Officers at all levels have established processes for adding value to documents and emails by regular scheduled teleconferences and other calls to confirm details, discuss strategies and options and to clarify situations. This regular and consistent human interface ensures that information is appropriately conveyed between key people and roles to achieve clear and timely outcomes.

DFES uses an electronic system called WebEOC to transmit information between incidents, the ROC and the SOC. The report on the major bushfires during the last season (SEMC 2015b, p.31), describes it as "primarily a tool for recording and communicating information and requests". Its limitations are also described in that report as well as the difficulties that may occur when one agency has that system while others involved in incident management do not. There were instances where it is considered that the quality of information in WebEOC was less than adequate and over-relied upon and as a result there was a lack of a common operating picture between the IMT, ROC and SOC, as well as between agencies.

2. Lessons learned from previous bushfire emergencies

(a) The extent to which the findings and recommendations of the following Western Australian bushfire reviews undertaken since 2011 have been implemented.

Since 2011, P&W has been involved in a number of major incident review processes relating to bushfire emergencies including the Perth Hills bushfire (Keelty 2011), Margaret River bushfire (Keelty 2012), Ellensbrook and Milyeannup bushfires (SEMC 2012b), Parkerville-Stoneville-Mt Helena bushfire (SEMC 2014b) and the O'Sullivan and Lower Hotham bushfires (DEFS 2015; SEMC 2015b). A tragic bushfire at Black Cat Creek near Albany also occurred in October 2012 and this incident also led to a review (DFES 2012) and some major reforms and improvements.

P&W has acted upon each of the recommendations of each review where they have been accepted by government. A summary of the recommendations and the resulting actions taken by P&W in relation to Perth Hills (Keelty 2011) and Margaret River (Keelty 2012) can be found in Attachments 2 and 3. Attachment 5 in relation to Parkerville (SEMC 2014b) contained few issues of relevance to P&W although it did highlight the need for a multi-agency resource management system. Attachment 6 lists the recommendations from the SEMC (2015b) report into the O'Sullivan and Lower Hotham bushfires which was released in recent weeks and has not yet been fully considered.

An independent Post Incident Analysis of the 2011 Ellensbrook and Milyeannup bushfires was commissioned by the Department of the Premier and Cabinet (DPC). DPC referred each of the resulting reports by Noetic Solutions to the State Emergency Management Committee (SEMC) for consideration and advice. P&W and other emergency management agencies provided input to SEMC to assist in developing that advice. Seventy four of the 91 lessons identified (SEMC 2012b) were accepted through the whole-of-government process. It was noted that in many instances the lessons were already being implemented as part of improvements to existing policies and/or practices. A summary of the recommendations and the resulting action taken by P&W can be found in Attachment 4.

P&W provides annual reports to SEMC on preparedness for emergency management response. The preparedness reports (SEMC 2012a, 2013, 2014a, 2015a) provide an overview of the Department's progress in implementing improvements to its operational capacity and inter-agency working arrangements to deliver optimal emergency response outcomes. Attachments 7a, 7b, 7c and 7d provide a summary of P&Ws reported preparedness for the years 2012, 2013, 2014 and 2015.

Whilst not specifically mentioned in the Terms of Reference for the Public Inquiry into the Waroona Fire, the Black Cat Creek major incident review (DFES 2012) made 10 recommendations, of which nine were accepted in principle by the Department of Fire and Emergency Services and P&W. Of these nine recommendations, eight have been completed or are the subject of ongoing action (e.g. common standard operating procedures). The final recommendation relates to commendations for bravery which, it is considered, should appropriately wait until all avenues of investigation into the incident have been completed.

Separately from the major incident review, P&W was issued with 10 Improvement Notices relating to the Black Cat Creek bushfire by WorkSafe WA. The requirements of all of these notices have been implemented by the Department to the satisfaction of WorkSafe WA.

(b) The effectiveness of reforms implemented by the State since 2011 on the State's ability to prevent, mitigate and respond to major bushfires and the community's understanding of and preparedness for bushfire risk

P&W has made significant advances over the past five years in its ability to contribute to the State's capacity to prevent, mitigate and respond to major bushfire through its implementation of bushfire review recommendations and an increased level of interagency cooperation and collaboration with local governments, DFES and other critical stakeholders.

<u>Alignment of prescribed burning with ISO31000</u>

During 2011/12, as a result of the Margaret River burn escape and bushfire (Keelty 2012), P&W's prescribed burn planning and approvals processes and procedures were aligned with the international standard *AS/NZS ISO 31000:2009 Risk Management – Principles and Guidelines*. The major reforms developed and implemented by P&W were endorsed by the Office of Bushfire Risk Management (OBRM) and an ongoing assurance program was established by OBRM to ensure compliance with the new processes and procedures. Audits have since been carried out in each of P&W's nine regions, including each of the six districts which manage the south-west forests. These audits confirm that P&W's prescribed burning activities have been planned and conducted in line with the international standard. The program is also subject to regular internal review and a process of continual improvement.

<u>Additional machinery and resources</u>

The downsizing of the forest industry over the past two decades has seen a significant reduction in the level of forest harvesting and heavy equipment that had traditionally been associated with the development and maintenance of forest access roads and tracks that regularly form the boundary for prescribed burns and offer control lines for bushfires. Additional Government funding allocated in the 2012/13 financial year was utilised to bolster the Department's heavy plant resources providing for additional bulldozers and front end loaders that are considered essential tools in managing bushfires. The funding also provided for the employment of some additional seasonal, frontline personnel during the fire season to assist with fire mitigation works and bushfire management.

Whilst the Department's resources had increased, there was still a limited capacity for the new resources to deliver effective pre-burn preparation works including scrub rolling, boundary track maintenance and dangerous tree removal.

Enhancements to the prescribed burn program

The O'Sullivan fire at Northcliffe in 2015 highlighted to Government the role that fuel reduced native vegetation plays in assisting firefighters combat and contain bushfires. Prescribed burning is the main tool used by P&W to reduce native vegetation fuel loads at a landscape scale under a set of prescribed weather conditions that minimise the risk of fire escaping from within the planned burn area. P&W's prescribed burn program has experienced increasing implementation costs as the impacts of a drying climate across the south west of Western Australia mean that opportunities for burning are fewer, and burns initiated later in the day as conditions are more suitable incur increased overtime costs. The Department's annual prescribed burning target of 200,000 hectares in the south west forests has not been achieved for a number of years partly due to the above and other factors (see Figure 3).

In May 2015, Royalties for Regions funds were allocated for an enhanced prescribed burning program. The funding was for $20M over four years with the goals of the project centred around providing greater protection for the community from the impacts of bushfire. The funding was for increased capability to cover overtime, improved flexibility and movement of personnel and resources across the south west, and the engagement of contractors to assist with the preparation and implementation of prescribed burns with the aim of achieving the 200,000ha prescribed burning threshold that provides effective mitigation at a landscape scale. In the first six months of the project to December 30 2015, P&W achieved 131,224 ha of prescribed burning – a 66% increase in achievement compared to the previous year's achievement of 86,781ha over the same six month period.

Fire Management Development Program

The Ferguson Review (2010) and the Keelty Inquiry (2012) identified the need for succession planning in fire as a priority for the Department to ensure that the levels of skills and knowledge of its officers are maintained. The Fire Management Development Program (FMDP) was initiated at the end of 2012 to provide participants with opportunities for development through exposure to varied fire-related works programs in diverse locations, facilitated by periodic transfer and short-term deployments and projects. The P&W *Strategic Directions 2014-17* document released in July 2014 reiterates the focus and commitment to succession planning in fire management. The document articulates the need to enhance and expand the FMDP to achieve a sustainable level of operational capability equal to that required to effectively and efficiently deliver the fire management program into the future.

The intent of the program is to develop fire officers that have the knowledge, competence and experience to be suitable for middle management fire roles such as District Fire Coordinator. The FMDP employs a range of Fire Operations Officers and Assistant Fire Operations Officers based across southern Western Australia and the Perth metropolitan area. A small number of positions have been located in other regional areas. The positions cover the range of Public Sector Award levels 1/2, 3 and 4, enabling staff to enter the program with differing levels of experience. A vital aspect of the program is the movement of participants through a range of positions, both geographically and functionally. The FMDP has recently been reviewed with regard to how it can be expanded to include and develop a broader range of participants and with a view to maximising its outcomes for the Department.

Safety improvements post-Black Cat Creek

The Improvement Notices issues to P&W by Worksafe following the Black Cat Creek fire of October 2012 resulted in improved levels of workplace safety and fire awareness for P&W personnel. Significant changes to the pre-fire season preparedness and training processes ensured that all personnel likely to participate in fire management were provided with the same minimum level of training in basic fire awareness, radio procedures, map reading and navigation as well as workplace safety. The standard of fire ground clothing and personal protective equipment to be worn has changed and is prescribed in Departmental doctrine. Heavy fireground vehicles have been modified with the removal of plastic panels and the addition of lagging on essential electrical componentry. Heavy fleet has also been fitted with fire curtains and water deluge systems, and some light vehicles are soon to be fitted with fire curtains.. The compulsory provision of fire blankets for each person travelling in the vehicle is supported by mandatory pre-season drills.

The design of P&W heavy fire trucks is the result of many decades of experience and lessons learned in prescribed burning and fighting bushfires in the forests, peri-urban fringes and other country of the south-west. At a fully-fitted cost of $280,000, these four wheel drive trucks, with numerous safety features which were further enhanced after the Black Cat Creek incident, are ideal for fire management in rural and semi-rural Western Australia.

Updated communications technologies and spatial data

P&W has invested in interoperable communications infrastructure that can service remote areas across the State and is consistent with the Emergency Services Communications Strategy. This equipment is available for 2-way radio communications use in emergency situations and includes approximately 1,550 mobile WA Emergency Radio Network (WAERN) compatible radios fitted to vehicles, boats, aircraft and offices, and approximately 500 portable radios and 100 repeater sites across Western Australia.

P&W owns, maintains and manages a satellite-based communications network that is integrated state-wide to transmit information between offices and the field, and it provides reliable and flexible communications for fire and other emergency operations as well as day-to-day business activities. Over 350 vehicles, appliances (including earthmoving machines and marine vessels) and aircraft are tracked via satellite-based GPS systems, allowing near real-time online spatial web-based monitoring and reporting. It has common channelling across DFES, State Emergency Service and volunteer bushfire brigades and can communicate on select channels with WA Police. P&W has established mobile communications facilities and portable technology caches to provide operational redundancy for radio communications, ICT and GIS. These include 2-way radios, portable repeaters and mobile communication facilities that can support a full incident management team. These facilities are supported by a team of rostered multi-skilled technical and operational staff.

P&W maintains GIS datasets that detail the location of fire sensitive infrastructure and engages infrastructure managers to provide for its protection from fire. An example is a biannual meeting with Telstra to exchange and update information pertaining to telecommunications infrastructure within P&W managed lands. Fire threat analyses include critical infrastructure as an input when determining the level of threat and appropriate mitigation strategies.

Participation in joint-agency Level 2 IMTs

P&W and DFES have established an agreed process to have small, regional joint Incident Management Teams (IMTs) for Level 2 incidents as necessitated by conditions and pre-determined triggers. During periods of elevated fire danger and levels of fire activity, and following a risk assessment, these IMTs are put in place. However, while this is a positive initiative, many of the issues raised elsewhere in this submission can have an impact on

their formation and effectiveness. This includes levels of trained and competent persons in regional areas capable of filling IMT roles which can be minimal during peak periods. This is partly an issue of other rostering demands on those staff.

Participation in State exercises

P&W along with local governments, has participated in DFES-run annual exercises in a southern bushfire season context. The exercises are intended to test State Emergency Management Arrangements inclusive of policies and procedures, interoperability between emergency management stakeholders, the functioning of incident management systems, reporting protocols as well as the ability of DFES to coordinate a response to multi-agency Level 3 bushfire events. The exercises are scenario-based with limited deployment of firefighting resources. While they could provide regional and State level incident-based training and validation activities designed to exercise IMTs and their interaction with DFES ROCs and the SOC, as well as other incident supporting groups and agencies, it is considered that they could be improved with clearer objectives and documented outcomes.

3. The need for further reform

A recent national review of natural disaster funding arrangements (Productivity Commission 2014) concluded that governments in general over-invest in post-disaster reconstruction and not sufficiently in the mitigation activities that would limit the extent of such disasters. While the Productivity Commission was unable to quantify the extent of underinvestment in mitigation (Finding 2.6), the report firmly makes the point that the rising costs of natural disasters are an unfunded liability for governments. In P&W's view, expenditure on emergency response versus bushfire mitigation needs to be rebalanced.

Over the last 15 years, bushfire suppression costs have increased significantly (see Figure 4). Particular components of that expenditure stand out, such as aerial suppression operations and support, and the use of contractors for earthmoving machinery and associated equipment. Larger and more protracted bushfires and the requirement for more personnel have also increased the costs associated with accommodating and catering for firefighters, including more recently, large interstate deployments. The multi-agency operating environment and a lack of clarity around the responsibilities when bushfires are declared Level 3 and s.13 is invoked contribute to P&W carrying a cost burden that is often disproportionate to the tenures involved. Protracted bushfires and excessive seasonal activity can also impact upon essential prescribed burning requirements, as well as other P&W statutory obligations and non-fire programs.

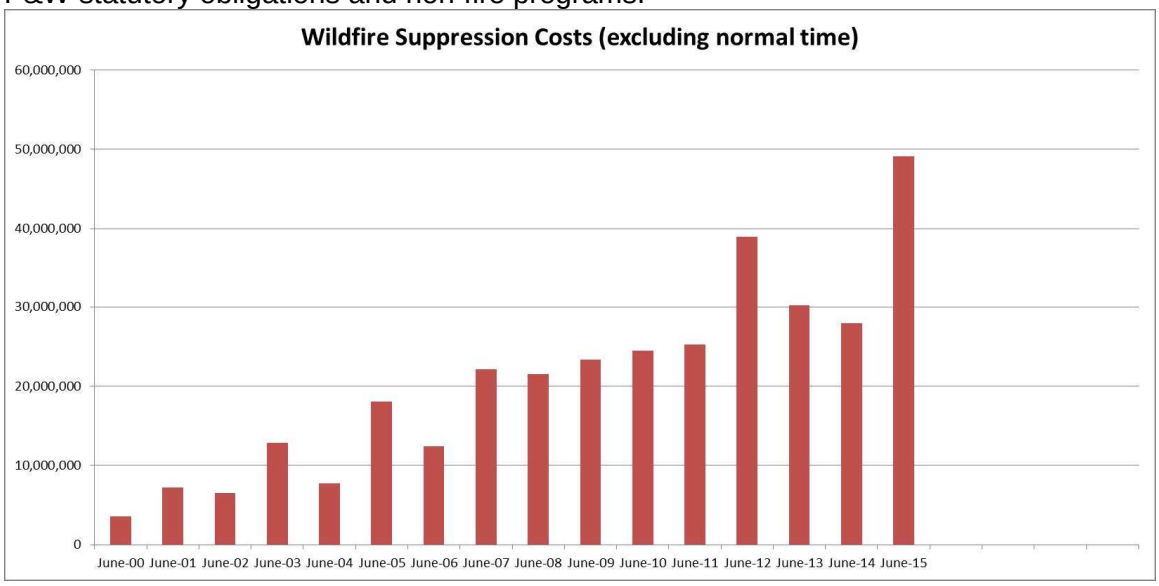

Figure 4: Bushfire suppression costs (excluding normal time) from mid-2000 to 2015

Overseas trends are comparable and instructive. In the United States, the US Forest Service reports (USDA 2015) that wildfire[2] seasons are now on average 78 days longer than in 1970. Twice as many acres are burnt by wildfire than three decades ago. Furthermore, while 98% of fires are manageable, mega-fires constitute 1-2% and consume more than 30% of agency funds. At the same time, while 16% of the annual budget was spent on fire in 1995, in 2015 more than 50% was spent on wildfire preparedness, suppression and related activities. Projections indicate that this could be as high as 67% of the budget in 2025. There has already been a 39% reduction in non-fire personnel up to 2015. The current and future impacts on the ability of the US Forest Service to sustain non-fire programs that contribute to heathy forests and ecosystems, water catchments, natural and cultural resources, infrastructure and recreation are immense. While the US Forest Service has a different funding model to that under which P&W operates, there are many parallels between the two countries and their fire management issues.

Aircraft costs are significant and need to be considered with regard to their effectiveness and value for money. The fleet of aircraft routinely used for bushfire suppression in Western Australia have been selected to be fit for purpose. Large Air Tankers (LATs) brought in from the east were used to lay retardant ahead of the main fire runs during the management of the O'Sullivan bushfire near Northcliffe in 2015. While generally effective in coastal heath, the required logistical support for mixing retardant and reloading such aircraft means that the ability to support the normal aircraft fleet operating across the south west is constrained. While smaller fixed-wing aircraft can operate from over 40 suitable airfields, LATS and Very Large Air Tankers (VLATs) have major limitations regarding the necessary runway length and supporting infrastructure. Turn-around times between drops are also significant whereas the normal fleet of fixed-wing and helicopter suppression aircraft with relatively rapid turn-around times are efficient, flexible, agile and cost-effective. They have been purposefully chosen for those attributes as well as the need to fit within the overall system of incident management tailored for WA.

Given the very high cost per drop of LATs and VLATs, when all inputs including logistical and support arrangements are included and effectiveness issues above are considered, their value is debatable.

Each of the issues raised in relation to ToR 1(d) – escalation/de-escalation, s.13 arrangements, implementation of AIIMS, pre-formed incident management teams, resource management, regional and state coordination and the interaction with the IMT, and interoperability – are interrelated and combine to warrant further consideration by agencies. For example, a more comprehensive approach to multi-agency training and development is considered beneficial. While P&W has relatively large but still insufficient PFTs, DFES has smaller teams and fewer persons with significant bushfire incident management experience able to fill many key roles in a full team structure based on AIIMS. This was apparent at Waroona as resources became depleted, leading to P&W requesting a second deployment[3] from interstate which largely comprised IMT roles such as Section and Unit Leaders plus fire behaviour and aviation specialists. Consistent training and development across agencies can only occur when there is more commonality in the understanding and application of AIIMS, similar preparedness through pre-formed IMTs of a size and structure appropriate for Level 2 and Level 3 incidents, and an agreed, more integrated, efficient and effective approach to coordination above the incident.

P&W considers that many of the skills required for combating forest fires need to be grounded and developed in a land management context and prescribed burning provides an

[2] While bushfire is the preferred term here, wildfire is commonly used in the United States of America.
[3] The first deployment from interstate involved frontline firefighters, plus some additional personnel to support their wellbeing and to provide for liaison and coordination with WA agencies, as well as their home state.

appreciation of boundary preparation and security issues, the capabilities of machinery, fuels, lighting patterns, the variabilities of weather and fire behaviour, dealing with hazardous trees, the challenges of achieving adequate mop up standards in different fuels, the use of specialist resources such as snorkel trucks, patrolling, safety under a forest canopy etc. As with the development of IMT personnel across agencies, the development of skilled forest firefighters through exposure to prescribed burning and land management activities is essential to the future of safe and sustainable fire management in Western Australia.

In the south-west of Western Australia, in which over 90% of the State's population resides, P&W actively manages 2.5 million hectares of fire-prone land, or approximately 46% of the total land area and the vast majority of vegetated land. Any reform needs to ensure that the Department maintains the capacity and capability to meet its statutory responsibilities. This includes appropriate levels of resourcing for fire management, developing people and expertise, continuing a long history of fire research and development, and having a clear mandate for prescribed burning and bushfire mitigation. In managing its land and fire, P&W also needs to be joined up with a wide range of cooperative partners. Bushfire risk management and mitigation need to be better coordinated across all land tenures.

References

Abbott, I. and Burrows, N.D. (eds) 2003, *Fire in ecosystems of south-west Western Australia: impacts and management*, Backhuys, Leiden.

Boer, M.M., Sadler, R.J., Wittkuhn, R.S., McCaw, L. and Grierson, F.P. 2009, Long-term impacts of prescribed burning on regional extent and incidence of wildfires – Evidence from 50 years of active fire management in SW Australian forests, *Forest Ecology and Management*, 259 (2009): 132-142.

Burrows, N. and McCaw, L. 2013, Prescribed burning in southwestern Australian forests, *Frontiers in Ecology and Environment*, 11 (online Issue 1): e25-e34, doi: 10.1890/120356.

Cheney, N.P. 2010, Fire behaviour during the Pickering Brook wildfire, January 2005 (Perth Hills Fires 71-80), *Conservation Science W. Aust*, 7(3): 451-468 (2010).

DFES 2012, Major Incident Review for the Black Cat Creek Fire 12 October 2012, Report prepared by Leading Emergency Services, Department of Fire and Emergency Services, Perth.

_____ 2015, Major Incident Review of the Lower Hotham and O'Sullivan Fires, Report prepared by the NOUS Group, Department of Fire and Emergency Services, Perth.

Ferguson, E. 2010, A review of the ability of the Department of Environment and Conservation Western Australia to manage major fires, Report to the Department of the Premier and Cabinet, Perth.

Gould, J.S., McCaw, W.L., Cheney, N.P., Ellis, P.F., Knight, I.K. and Sullivan, A.L. 2007, *Fire in dry eucalypt forest fuel structure, fuel dynamics and fire behaviour*, Ensis-CSIRO, Canberra, and Department of Environment and Conservation, Perth.

Keelty, M. 2011, A Shared Responsibility: The Report of the Perth Hills Bushfire February 2011 Review, Report to the Department of the Premier and Cabinet, Perth.

_____ 2012, Appreciating the Risk: Report of the Special Inquiry into the November 2011 Margaret River Bushfire, Report to the Department of the Premier and Cabinet, Perth.

McCarthy, G.J. and Tolhurst, KC. 1998, Effectiveness of Broadscale Fuel Reduction Burning in Assisting with Wildfire Control in Parks and Forests in Victoria, Fire Research Report No. 51, Department of Natural Resources and Environment, Victoria.

McCaw, L. 2013, Managing forest fuels using prescribed fire: A perspective from southern Australia, *Forest Ecology and Management*, 294: 217-224.

McCaw, W.L., Gould, J.S. and Cheney, N.P. 2008, Quantifying the effectiveness of fuel management in modifying wildfire behaviour, Paper presented at the 2009 AFAC Conference, where?, Australasian Fire Authorities Council and Bushfire Cooperative Research Centre, Melbourne.

Productivity Commission 2014, *Natural Disaster Funding Arrangements*, Inquiry Report No. 74, Canberra.

Rodger, G.J. 1961, Report of the Royal Commission appointed to enquire into and report upon the bushfires of December 1960 and January, February and March 1961, in Western Australia.

SEMC 2012a, *Emergency Preparedness Report 2012*, State Emergency Management Committee, Perth.

_____ 2012b, Margaret River Nannup, Noetic Solutions, State Emergency Management Committee, Perth.

_____ 2013, *Emergency Preparedness Report 2013*, State Emergency Management Committee, Perth.

_____ 2014a, *Emergency Preparedness Report 2014*, State Emergency Management Committee, Perth.

_____ 2014b, *Parkerville Stoneville Mt Helena Bushfire Review*, June 2014, State Emergency Management Committee, Perth.

_____ 2015a, *Emergency Preparedness Report 2015*, State Emergency Management Committee, Perth.

_____ 2015b, *Bushfires Review 2015 O'Sullivan and Lower Hotham*, State Emergency Management Committee, Perth.

Sneeuwjagt, R.J. 2008, Prescribed Burning: How effective is it in the control of large forest fires?, Paper presented at the 2008 AFAC - Bushfire CRC Conference, Adelaide, Australasian Fire Authorities Council and Bushfire Cooperative Research Centre, Melbourne.

Sneeuwjagt R.J. and Peet, G.B. 1976, Forest Fire Behaviour Tables for Western Australia, Forests Department WA, Perth.

United States Department of Agriculture 2015, The Rising Cost of Wildfire Operations: Effects on the Forest Service's Non-fire Work, Forest Service, August 4, 2015, http://www.fs.fed.us/sites/default/files/2015-Fire-Budget-Report.pdf.

Attachment 1: Parks and Wildlife Operational Resources for Fire

Personnel

517 Staff able to fill a wide range of incident management and support roles (includes 420 with part-time involvement in fire only)

282 Frontline firefighters (Conservation Employees under AWU Award; includes 93 seasonal firefighters)

Vehicles

112 Fire trucks (medium and heavy tankers)

208 Light fire units (primarily multi-purpose utility vehicles fitted with slip-on fire units as required)

2 High-lift pumpers (to extinguish fires in the canopy of tall trees that would otherwise need to be felled)

Earthmoving Equipment

10 Bulldozers (plus 1 additional contract dozer retained for the south west bushfire season)

10 Front end loaders

1 Grader

11 Low loaders (for shifting heavy machinery)

Additional machinery from contractors is placed on standby and utilised when needed according to fire danger and levels of fire activity

Detection Aircraft

10 American Champion Scouts (owned by P&W; also used by Air Attack Supervisors)

Ignition Aircraft

2 AS350 Squirrells (contracted to P&W; 1 Kimberley, 1 South West)

2 G8 Airvans (contracted to P&W; 1 Kimberley, 1 South West)

Suppression Aircraft

1 AS350 Squirrell

8 802 Air Tractors (contracted to P&W; plus 2 additional aircraft available when needed)

Attachment 2: Perth Hills Bushfire (Keelty 2011)

Perth Hills Bushfire (Keelty 2011): Bushfire Review Implementation Group Report - Progress Report (Parks and Wildlife)
8 February 2013

Status of Recommendations

The recommendations in this Briefing have been classified according to status of implementation. The categories of implementation are as follows:

Signed Off/Implementation Group Action Complete

These recommendations have been signed off by the Bushfire Review Implementation Group as no longer requiring oversight. The recommendations are either complete or residual work to complete them has been integrated into the routine business of the responsible agency.

13. *The State Government consider resourcing the Department of Environment and Conservation and local governments to develop and administer a comprehensive prescribed burning program in Perth's urban/rural interface to complement DEC's existing landscape-scale program.*	**DEC**

Outcomes

- DEC concluded a very successful spring 2011 prescribed burning program in the Perth urban interface. More favourable winter and spring conditions in 2011 than those present in 2010 greatly assisted in this regard. Community Fire Manager and Community and Emergency Services Managers (CESM) positions in some local governments and DFES Bushfire Mitigation Officers provided increased capacity in this area in 2011.
- DEC achieved a total burn area of 103,165 hectares in the south-west for the 2011/12 season.
- In response to the release of the Report of the Margaret River Bushfire Special Inquiry on 23 February 2012, all DEC prescribed burning within five km of townsites and rural subdivisions was suspended. This moratorium has now been lifted
- DECs prescribed burning processes have been reviewed and brought into compliance with the latest International Organisation for Standardisation (ISO) standard.
- DEC engaged, through the Bushfire Cooperative Research Centre, highly qualified consultants to assist with and guide the process of complying with the ISO standard.
- DEC was allocated $32.9M in additional funding over four years which includes $6.3M capital in the 2012-13 Budget.
- DFES, DEC and Local Government have continued to work closely to plan and undertake more collaborative hazard reduction measures as opportunities and approvals permit.

Residual or Ongoing Elements

- DEC to document its specific program for fire mitigation on DEC-managed lands around the Perth urban interface and integrate into its overall master burn plan.
- DEC will now brief DFES and WALGA on the results of this project and its intentions for targeted reporting of the program versus achievements in this area.
- DFES and local governments will develop a strategy for the planning and implementation of prescribed burning programs on non-DEC-managed lands, and resources required to implement this strategy.

14. *The Fire and Emergency Services Authority, the Department of Environment and Conservation and local governments take proactive steps to conduct their prescribed burning programs as joint exercises. This will give effect to:* • *Reducing fuel load* • *Improving inter-operability* • *A mutual understanding of the fire fighting techniques of each agency.*	**DEC**
Progress • DEC has reinforced the need to communicate with DFES and local governments regarding opportunities for joint operations on DEC burns. • DEC has completed a review of burn approval process to embed these communications routinely. • The daily approval process will now include a formal recording of district and regional efforts to invite DFES and/or local government to assist with implementation of prescribed burns. **Next Steps** • There are plans for DFES and local governments to develop a reciprocal process with DEC on this matter.	
19. *The State Government reaffirm its 2009 decision to approve DEC exercising greater flexibility in managing smoke within national guidelines, in order to achieve its prescribed burn program.*	**DEC**
Outcomes • The Minister for Environment issued a media statement on 18 November 2011 reiterating that that the Liberal-National Government supports DEC's prescribed burning program and approved DEC exercising greater flexibility applying smoke management guidelines.	
20. *The Fire and Emergency Services Authority, the Department of Environment and Conservation and local governments closely monitor the research and development of alternative fuel reduction techniques to ensure that the most efficient and effective programs are adopted.*	**DEC**
Outcomes • DEC, DFES and local governments already use alternative mitigation techniques as part of fuel management programs. • The program developed for fire mitigation on DEC-managed lands around the Perth urban interface includes the use of alternative techniques where appropriate. • A Bushfire Research Forum was held in Western Australia in October 2011. While the program did not include any sessions dealing with hazard reduction techniques other than the use of planned fire, the final session at the forum focussed on future research needs. Alternative risk mitigation techniques were discussed.	

22. *The State Government ensure that the continued development of the Fire and Emergency Service Authority's Integrated Bushfire Risk Management System (IBRMS) is dependent on an independent comparative assessment of its functionality and cost effectiveness against the Spatial Support System (SSS) used by the Department of Environment and Conservation.*	**DEC**
Outcomes • The Interagency Bushfire Management Committee (IBMC) through its subcommittee structure has closely examined the respective capabilities and uses of the IBRMS and the SSS and concluded that the systems were designed for different purposes, both currently fulfil differing business requirements and there is no unnecessary duplication or overlap. It has been determined that there is no requirement for an independent assessment of these tools.	
54. *The Interagency Bushfire Management Committee (IBMC) develop a consistent program of education, training (including media), testing and review of Level 3 Incident Controllers.* *This should include provision for a formal review of the performance of individual Level 3 Incident Controllers after* ***every*** *incident.*	**DEC**
Progress • The IBMC considered a "pathways" model for the development, accreditation and maintenance of currency of all Level 3 Incident Controllers who operate on bushfires in Western Australia. • IBMC endorsed a Level 3 Accreditation Pathway Process. **Next Steps** • Pathway Process is being implemented by DFES and DEC.	

Attachment 3: Margaret River Bushfire (Keelty 2012)

Implementation of Recommendations from the Special Inquiry into the Margaret River Bushfire November 2011 (Keelty 2012)

Keelty Special Inquiry into the Margaret River Bushfire November 2011	Implementation Status
Recommendation 1 The Department of Environment and Conservation review its current policies and operational guidelines in particular by: • strengthening the governance of operations by ensuring the Guidelines are relevant and practical; • ensuring the processes that are implemented for prescribed burns are: (a) value adding to the decisions and approvals required (b) informed by substantive input (c) focussed on outcome rather than process; • completing the draft management plan for the Leeuwin-Naturaliste Capes Area Parks and Reserves in accordance with the provisions of the *Conservation and Land Management Act* [*1984*]; • exploring the possibility of automating and streamlining the various processes for formulating a prescription for prescribed burns for ease of access and updating; and • clarifying the guidance provided to decision makers as to the 'edging' and security of prescribed burns.	The risk management governance documents (policy and manual) for the Department of Parks and Wildlife's (P&W - formerly the Department of Environment and Conservation) prescribed burning activities have been fully reviewed (see Recommendation 2). Operational guidelines relating to prescribed burning have been reviewed including the guidance on burn security and edging. The Leeuwin-Naturaliste Capes Area Parks and Reserves Management Plan was released by the Minister for Environment on 9 January 2015. An online tool and streamlined process for producing prescribed fire plans (prescriptions) was fully implemented State-wide in late December 2013. All prescribed fire plans are now produced in this system. All relevant P&W staff as well as the Forest Products Commission have been trained in its use. The online prescribed fire program started rolling out State-wide in December 2013.
Recommendation 2 The Department of Environment and Conservation urgently undertake a review of its risk management practices as they relate to prescribed burns including but not limited to: • reviewing risk management practices to ensure that they are in accordance with AS/NZS ISO 31000:2009;	P&W considers this recommendation to have been fulfilled as far as practicable and is applying ongoing monitoring and review processes as well as continuous improvement in accordance with the framework of AS/NZS ISO 31000:2009. The Office of Bushfire Risk Management accepted the substantial reforms made by P&W and has accepted them as P&W's 'business as usual' arrangements for

Keelty Special Inquiry into the Margaret River Bushfire November 2011	**Implementation Status**
• finalising and implementing the new complexity model developed in house by the DEC; • considering a broader set of parameters of risk by conducting an environmental scan or similar tool for areas under consideration for a prescribed burn; • updating the prescribed fire plans to reflect the broader risk considerations discovered through environmental scanning; • better informing the risk considerations by updating the 'Red Book' to reflect current research on burning in coastal heath; and • reconsidering the utility of the 'Red Flag Burn' notification on files and either adopting it as a policy across the State or removing it as a consideration.	prescribed burning with the inclusion of an ongoing assurance program (managed by OBRM); and periodic reporting requirements. Recommendation 4 addresses the requirement for updates to fire behaviour research in coastal heath.
<u>Recommendation 3</u> The Department of Environment and Conservation review its implementation of the findings of the Ferguson Review conducted in 2010.	P&W reviewed its implementation of the Ferguson findings. All are considered to have been satisfactorily addressed.
<u>Recommendation 4</u> The Department of Environment and Conservation be supported to conduct further research into the fuel management of coastal heath in the south west of Western Australia exploring alternatives to burning as well as best practice for burning.	Parks and Wildlife considers this recommendation to have been fulfilled as far as practicable through a collaborative project with CSIRO researching the fire spread equations for heath and mallee vegetation. This data has been presented in the form of a field behaviour guide suitable for use by fire practitioners. The Office of Bushfire Risk Management has made recommendations regarding fire behaviour guides that should be used by Western Australian agencies, following advice from CSIRO and a bushfire consultant. Information on shrubland fire behaviour and the application of predictive models is being incorporated in training material for a prescribed burning course that is being jointly developed by Parks and Wildlife and the Department of Fire and Emergency Services. Fuel and fire behaviour data will continue to be gathered in a range of coastal heathlands to broaden the basis for

Keelty Special Inquiry into the Margaret River Bushfire November 2011	Implementation Status
	verification of fire prediction guides. Parks and Wildlife will continue to explore opportunities for alternative methods to burning such as the tenure-blind vegetation management buffer project using mulching treatments around the town site of Kalbarri. The program is funded through the Natural Disaster Resilience Program.
<u>Recommendation 5</u> The Department of Environment and Conservation explore human resourcing models that: • make succession planning a priority; • look at options for the attraction and retention of staff; and • review how the salary levels of staff matches the decision making required in major activities such as prescribed burns.	• P&W commissioned and received a report on succession planning for fire management staff, which also highlights issues related to attraction and retention of staff. • 26 new dedicated fire management positions were approved including 16 salaried positions within the new Fire Management Development Program. This initiative will contribute to a staff succession program for fire specialists, increase the capacity of regional fire management program delivery and expedite the accelerated development of fire management staff across a range of levels. • P&W formed a working group to review salary levels of staff that participate in fire management activities, particularly those roles with strategic decision-making responsibilities. • P&W has received approval from the Department of Commerce to implement a fire management incentive package to identified roles within fire service. This was implemented for the 2013/14 bushfire season. • The Civil Service Association indicated that although members rejected the incentive package, the union would not challenge it but continue to pursue improvements through the upcoming fire agreement negotiations. • It is recognised that staff attraction and retention includes a number of factors including remuneration, occupational health and safety, welfare for staff including indemnity associated with decision-making processes, and support from Government. • P&W will continue to engage further with the Community and Public Sector Union with respect to any further potential initiatives that may be identified. • There are no funds available to implement a revised remuneration structure and this has been relayed to the union. Any future proposal will require Government approval and financial support.

Keelty Special Inquiry into the Margaret River Bushfire November 2011	**Implementation Status**
Recommendation 6 The Department of Environment and Conservation review its practices and procedures in the undertaking of prescribed burns so as to fully utilise the skills available to it in a seamless way including but not limited to: • volunteer bushfire brigades, especially in regard to use as a source of local advice; and • staff of the Fire and Emergency Services Authority of Western Australia.	The report of the Perth Hills Bushfire February 2011 Review recommended (Recommendation 14) that FESA and DEC and local governments take proactive steps to conduct their prescribed burning programs as joint exercises. P&W amended procedures for the spring 2011 prescribed burning season to give local governments, volunteer bushfire brigades and DFES officers the opportunity to participate in prescribed burns. Experience has shown that volunteer bushfire brigades and DFES staff had limited capacity to participate. Nevertheless, volunteer brigade resources will continue to be sought to complement P&W resources, provide additional local knowledge and to assist with identified risk treatments likely to be required by the Office of Bushfire Risk Management and DFES. .
Recommendation 7 The Department of Environment and Conservation review the utility of its current regional model in terms of the capability of operational centres such as Kirup to service major fire activity on land proximate to the rural urban area (this recommendation should also be considered in the context of Recommendation 5).	P&W considers this recommendation to have been fulfilled as far as practicable. P&W is foremost an integrated land management agency and its operational centres are located so as to meet all of its responsibilities as effectively as possible with the available resources. P&W will continue to work closely with DFES, local government, WA Police and other stakeholders to ensure that incident control centres across the state are appropriately located, resourced and enable multi-agency response. In July 2013 the Minister for Environment endorsed P&W's recommendation that no revisions were required to boost the capacity and capability of the operational framework in the South West Region (including Kirup office). This is due to the significant State Government investment in the area including State budget appropriation to P&W for additional staff members both in and adjacent to the region, extensions to seasonal contracts of frontline firefighting staff and the completion of fire mitigation activities such as firebreaks and strategic access trails. P&W is also able to deploy a Bunbury based mobile incident control centre within a matter of hours to service incidents requiring additional support.

Keelty Special Inquiry into the Margaret River Bushfire November 2011	**Implementation Status**
Recommendation 8 The Department of Environment and Conservation develop and implement a strategy to better inform the community about the complexities and decisions surrounding prescribed burns when they are undertaken in the rural urban area.	P&W considers that this recommendation has been completed as far as practicable and has entered an ongoing phase where P&W is continuing to liaise with key stakeholders to progress communication strategies including seasonal media activities, website improvements and seeking research opportunities. P&W has worked closely with DFES, OBRM and the community to develop a communications strategy to build and maintain community awareness and understanding of prescribed burning, smoke management, as well as the complexities and decisions surrounding prescribed burning in the rural-urban interface area.
Recommendation 9 The response operation to the Margaret River bushfire in November 2011 be the subject of a review with independent oversight.	The Department of the Premier and Cabinet (DPC) has carriage of this recommendation.
Recommendation 10 The Government consider enacting legislation to facilitate the review of all future major incidents, including but not limited to fire, earthquake, storm and marine inundation, and the emergency response to them.	DPC has carriage of this recommendation.

Attachment 4: Report on the Post-Incident Analyses of the 2011 Margaret River and Nannup Bushfires by Noetic Solutions

State Emergency Management Committee

October 2012

The majority of lessons contained within the Noetic Reports have been acknowledged and adopted by the agencies responsible. The response to the Noetic reports has also been significantly influenced by changes implemented across the emergency management sector to give effect to the recommendations of recent inquiries and reviews into bushfire management, in particular the two Special Inquiries conducted by Mr Mick Keelty AO APM.

It is within this context that the findings of the Noetic reports and the responses to the lessons confirm the progress being made by emergency management agencies and the emergency management sector to develop the State's preparedness for bushfire emergencies.

As also noted in this report, the significant changes that are underway in the sector will also establish and reinforce approaches to bushfire management based on continuous improvement and risk management principles. To that extent, the lessons provided by the Noetic Reports should not be seen as a „one-off" opportunity to make changes in response to the events and circumstances associated with the two specific incidents but as part of an ongoing commitment to monitoring, evaluation and learning in emergency management.

Agency response to the lessons contained in the Noetic Reports Annexure 1

Legend

supported and progressed **Not supported or barriers to implementation** **not supported**

Status Lesson

1. Experienced forecasters and fire behaviour experts should be embedded in DEC at least at a state level to ensure that fire risks are properly understood by decision makers.

Response

Department of Environment and Conservation (**DEC**) has been well served by a strong relationship with the Bureau of Meteorology (BoM), and specifically between BoM duty forecasters and **DEC**'s fire operations weather specialists.

DEC does not support embedding weather forecaster(s) for the following reasons:

- Forecaster(s) would be removed from their professional peer and support group who currently add value to forecasters' input, particularly in complex weather situations.
- **DEC** does not have a high need for forecasting services during several months of each year, outside the prescribed burning and bushfire seasons (September to May).
- During critical incidents **DEC** requires weather forecasting 24/7, which cannot be provided by a single "embedded" forecaster.

Technological solutions such as a shared portal for joint and simultaneous access to relevant information including burn maps and terrain models, possibly in conjunction with video-conferencing, could be used to enhance the forecaster/fire service relationship and provide the essential benefits of the “embedding" model. This will be further examined.

DEC supports the embedding of fire behaviour experts in principle. However, development of fire behaviour experts takes considerable time and the suite of skills and knowledge required is similar to that for other core fire management roles (Incident Controller, Planning Officer and Operations Officer) or for regional and State coordination roles. Quarantining skilled staff for fire behaviour analysis is currently difficult and opportunities are limited by the number of suitably skilled officers.

Agreements with interstate agencies provide access to a wider pool of fire behaviour experts for sustained demand periods but are not the solution in the crucial first 24 hours of major fires.

Next Steps

The 2012/13 budget allows **DEC** to establish a development program to build capacity in fire specific roles, addressing a range of fire related skills including Incident Management Team (IMT) roles, fire behaviour and the interpretation of meteorological information.

2. A risk management approach is needed which considers risks both inside the prescribed burn and the risks that will need to be managed if the fire escapes. This risk assessment should be dynamic in line with the four day and seven day weather forecast.

Response

In consultation with the Office of Bushfire Risk Management (OBRM), **DEC** has developed interim risk management procedures for prescribed burning which take greater account of values and risks outside prescribed burn areas.

Next Steps

DEC, through the Bushfire Cooperative Research Centre (Bushfire CRC), engaged consultants to work on the review and revision of **DEC’**s prescribed burning practices in order to ensure they are compliant with the International Standard for risk management (AS/NZS ISO 31000:2009). The highest priority actions identified by the consultants are being implemented during **DEC**"s 2012 Spring burning program and will be monitored for effectiveness by **DEC** in conjunction with OBRM. The remaining priority actions identified by the consultants will be implemented in 2013.

3. There should be clearly established criteria for burns which are specially challenging, and these criteria need to be extended beyond the intended boundaries of the prescribed burn.

Response

The assessment and recognition of risk levels associated with prescribed burns, and the identification and implementation of appropriate controls, is formally addressed as part of revised risk management procedures approved by OBRM.

Rather than making exceptions in the manner proposed in this lesson, **DEC** and the Fire and Emergency Services Authority (FESA) believe that all burns should have appropriate risk management criteria developed in line with risk management principles.

Next Steps

OBRM has established interim guidelines and will set and keep under review the standards necessary to regulate mitigation activities in line with risk management criteria.

4. Prescribed burns which meet the "red flag" criteria should have mandated risk management criteria imposed.

Response

The 'red flag' process referred to in the Noetic post incident analysis was a regional initiative and is not part of **DEC'**s formal fire management doctrine. In areas where the 'red flag' concept was previously used, it will be replaced by identifiers consistent with the new risk assessment process approved by OBRM.

Rather than making exceptions in the manner proposed in this lesson, **DEC** and FESA believe that all burns should have appropriate risk management criteria developed in line with risk management principles.

Next Steps

OBRM has established interim guidelines and will set and keep under review standards necessary to regulate mitigation activities in line with risk management criteria.

5. Improved understanding of fire behaviour in coastal heathlands would support sound risk management through the southwest of WA.

Response

The Inter-agency Bushfire Management Committee (IBMC), consisting of representatives of FESA, **DEC**, the Western Australian Local Government Association (WALGA) and the Bushfire Consultative Committee has established a working group to develop fire behaviour prediction capability State-wide.

Next Steps

DEC is developing a four year research plan for investigation of fire behaviour in coastal heathlands for commencement in 2012/13.

6. Maps prepared for prescribed burns should address the fuel type and burn history of the burn area as well as surrounding areas. Predicted rates of spread under prescribed and other conditions should recognise the complexity of coastal heathlands.

Response

The proposals contained in this lesson are expected to be consequential outcomes of the actions related to lessons 2 - 5 above.

Next Steps

OBRM will set, and keep under review, the standards necessary to regulate mitigation activities in line with risk management criteria.

7. Fuel loads on private property need to be identified and included in understanding fire behaviour in determine the contribution they make to the burn risk assessment.

Response

This is supported in principle. However significant issues exist around the collection of information concerning fuel loads on privately held land. **DEC** requires this information for the purposes of its burn prescriptions. While undertaking risk assessment of areas subject to a prescribed burn, mitigation officers endeavour to consult owners of adjacent private property to secure access, in order to assess fuel loading. However, there is no requirement for owners to permit access.

Some local governments use satellite imagery where available but in addition to high cost and concerns regarding the availability of updates there is a need for the information obtained by remote sensing to be ground-truthed. The use of satellite imagery does not therefore replace the need for an on ground inspection and monitoring regime. WALGA notes the limited capacity of local government to undertake an inspection and monitoring role on the ground, which is consistently identified as an area that needs to be addressed through appropriate resourcing.

It is a goal of WESTPLAN bushfire that all Local Governments prepare cross tenure bushfire risk mitigation plans that are both standards driven and template supported. This goal is not currently being met, but has been identified as a priority. A new Bushfire Risk Management Process (BRMP) is currently under development. This process will consider assessed risk at both local and regional levels to ensure that resourcing decisions are made holistically across larger areas.

Next Steps

Technical limitations of remote sensing/GIS and other issues relating to the assessment of fuel loads on private lands are under investigation by Landgate and the Bushfire Risk Identification and Mitigation Project conducted by the Department of the Premier and Cabinet, which is addressing the recommendations of the 2011 Special Inquiry into the Perth Hills bushfires.

The Department of the Premier and Cabinet (DPC), FESA and OBRM are developing governance models and templates for bushfire risk management plans that local governments can complete for their local government areas.

8. Inter-agency cooperation to manage fire precincts in a tenure-blind fashion is necessary for effective fire suppression.

Response

An interagency agreement to enable a multi-agency, tenure-blind response is in place for the Perth Hills, which could be a model for other peri-urban areas.

Next Steps

Promotion of interagency cooperation, including the use of agreements such as that for the Perth Hills, is being considered by the Bushfire Risk Identification and Mitigation Project Group. Interagency cooperation is also being addressed in the context of work under way to develop a single emergency services act. FESA chairs a working group that includes representatives of **DEC**, RiskCover, WA Police, WALGA and volunteer group representatives to oversee the development of a single emergency services act.

9. All forms of fuel modification should be available to fire managers.

Response

DEC and FESA currently use a variety of fuel modification processes when managing mitigation works on **DEC**-managed land, Unallocated Crown Land and unmanaged reserves. Some of these processes (which include slashing, chaining, grading or the application of chemicals) are not supported by all stakeholders.

Next Steps

Fuel modification processes will be included in the review of standards and risk management criteria to be undertaken by OBRM and evaluated in **DEC'**s current review of prescribed burning practices (to ensure compliance with the International Standard for risk management (AS/NZS ISO 31000:2009)).

10. Greater investment in training on specific functions within the AIIMS structure will improve the support provided to the Incident Controller.

Response

The IBMC Training Sub-committee coordinates agency investment and collaboration in Australasian Interagency Incident Management System (AIIMS) training. **DEC** invests a significant proportion of its training and development capability for fire management in AIIMS roles training.

Next Steps

FESA is undertaking a project to design and implement professional pathways for career and volunteer fire-fighters. This includes the development of incident management training (including AIIMS) for staff and volunteers.

11. As presently implemented, the AIIMS planning role is under-developed and provides insufficient support to the Incident Controller.

Response

AIIMS comprehensively outlines the role and responsibilities of a Situation Unit within the overall planning role. Like other aspects of AIIMS, the planning role can be expanded or contracted to suit the circumstances. The issue to which this lesson alludes may be more closely related to the availability of suitably skilled people to meet incident demands, particularly where a number of incidents are running simultaneously.

Next Steps

The fourth edition of AIIMS is being developed nationally through the Australasian Fire and Emergency Services Authorities Council (AFAC). There is a role for input by State representatives.

12. Communications planning for geographic regions with recognised black spots and specific communications challenges should be prepared in advance of an emergency in order to support the IMT Communications Planning Officer.

Response

DEC and FESA operations staff informally developed network and channel information plans for most of Western Australia prior to the 2011/12 season. These form the basis for „default" communications plans. **DEC** and FESA agree there is a need for more detailed communications planning that analyses current gaps in coverage and makes recommendations for improvement in communications systems. **DEC** and FESA are working together on these issues to prepare for the 2012/13 season.

Next Steps

FESA has reviewed Communication Plans for the Hills region and reviews will be extended to rural regions in 2012/13. This planning will be undertaken in conjunction with **DEC** and local government.

13. Rolling risk assessment conducted during ignition of prescribed burns should identify whether an escape is likely to develop into a Level 3 incident. As soon as possible after it is identified that the escape cannot be contained, the incident should be declared a Level 3.

Response

The risk associated with the prescribed burn ignition process is addressed in the interim risk assessment process approved by OBRM. Declaration of Level 3 incidents is only supported where it is consistent with the approved procedures and criteria for incident Declarations that are specified in WESTPLAN Bushfire.

14. For incidents of this complexity, effective control in the critical phase (first 24-36 hours of the fire) requires an appropriately resourced IMT.

Response

DEC has relatively well-resourced, pre-formed IMTs with access to around 500 staff who fulfil part-time fire roles (operational and IMT). However, meeting the resource needs of a number of major fires at the same time is difficult, even with inter-agency assistance, due to the limited number of people with the required skills. In order to build IMT capacity, additional FESA personnel have received accreditation as level 2 and 3 incident managers and planning officers.

Next Steps

DEC will continue its efforts to build the number of staff available for incident management support roles in order to free more skilled fire management staff for core fire roles. A whole-of-government approach to this issue is required to fully service the demand during large, sustained and multi-fire situations.

15. The state should identify the number of fully trained, experienced and accredited Level 3 Incident Controllers required to be available at any time and establish a process for identification of suitable personnel, ongoing training and accreditation.

Response

The IBMC undertook a process of identifying Level 3 Incident Controllers prior to the 2011/12 season. FESA reports on the number of its Level 2 and Level 3 Incident Controllers in its annual reports. A list of accredited level 3 Incident Controllers is held by the State Hazard Operations Officer. FESA and **DEC** have documented a development pathway for Level 3 Incident Controllers based on a skills development and maintenance model.

Next Steps

The process of identifying Incident Controllers will be expanded to include Incident Controllers available for hazards other than fire.

16. Within the AIIMS IMT doctrine the roles of the Incident Controller and the Deputy Incident Controllers should be defined and well-practiced.

Response

The Incident Controller role is clearly defined in AIIMS, which also discusses the role of the Deputy Incident Controller. It is understood that the upcoming revision of AIIMS through the Australasian Fire and Emergency Services Authorities Council will address the role of the Deputy Incident Controller in more depth. There is an opportunity for input by State representatives.

17. An intensive exercise/training program should be developed and maintained across agencies to identify and establish a pool of current Incident Controllers who are capable of managing a Level 3 incident.

Response

The IBMC, through its Training Sub-committee, commenced this process prior to 2011/12 season when the pool of Level 3 Incident Controllers was identified. This process is ongoing.

18. Predetermined locations for Level 3 IMTs should be reviewed and adequately resourced with necessary communications and IT capacity.

Response

DEC has conducted an internal assessment, and has developed a fully functional mobile Incident Control Centre (ICC). Listing of Level 3 IMT locations will be included in inter-agency arrangements developed and agreed by **DEC**, FESA and local government ahead of the 2012/13 fire season. FESA has completed an incident control vehicle review; 17 appliances have been scheduled to be built and will be deployed to country and metropolitan regions.

Next Steps

A review of incident control centres State-wide is underway and scheduled for completion by December 2012.

19. Early contact with the LGA is critical.

Response

Agencies liaise with local government authorities as soon as possible after a fire commences.

Next Steps

DEC and FESA advise that opportunities to develop closer relationships between the IMT and LGAs will continue to be explored and acted upon. The State Emergency Management Committee (SEMC) will examine the issue of the engagement of local expertise in IMTs as part of its current review of State Emergency Management Policy 4.1 – Operational Management.

20. There would be value in progressively aligning the geographic boundaries of emergency management agencies and co-locating where possible within regions and districts.

Response

Hazard Management Agency response to emergencies is blind to geographical boundaries. When responding to emergencies, the Hazard Management Agency determines an "operational area." In the AIIMS context, this allows functional management to be geographically separated, as long as a communication link is maintained.

DEC is primarily a conservation and environmental management agency with substantial land management responsibilities. Its administrative boundaries and arrangements are suited to its core statutory functions. Co-location would have to be subject to a cost-benefit analysis and business case that takes account of **DEC's** core statutory functions.

21. Suitably experienced local representatives should be engaged to provide advice to the IMT in all Level 2 and Level 3 incidents at the earliest opportunity.

Response

DEC liaises with local government authorities as soon as possible after a fire commences. However, the need for greater local engagement will be incorporated in guidance for IMTs. FESA has established protocols to enable local government Volunteer Bushfire Brigade Liaison Officers to be embedded in Emergency Coordination Centres and FESA Taskforce deployments.

Local area engagement by agencies extends beyond local government authority representatives. **DEC** has a regionalised staff presence and those staff have good local knowledge.

22. Opportunities need to be sought to utilise local government representatives in other areas of the IMT particularly in public information or other community related functions. 

Response

See response to Lesson 21.

23. Procedures to relocate IMTs need to be established in doctrine and exercised to ensure continuity of control. 

Response

This lesson is supported as an inter-agency initiative between **DEC**, FESA and local government. Specific processes are yet to be established.

24. The expected scenario, with a view to the worst-case scenario should provide the basis for an IAP. 

Response

This is current practice as set out in the AIIMS toolbox for the preparation of an Incident Action Plan (IAP). Early assessment and recording of scenarios needs to be emphasised in pre-season training. The rapid deployment, and/or formation, of an effective IMT close to an incident often takes a number of hours to achieve and this can influence the timeliness of Incident Action Plan (IAP) production. Pre-formed IMTs, a mobile ICC and systems improvements are recent initiatives to improve performance in this area, however, the scale of geographical coverage required can limit rapid IMT effectiveness. **DEC** is currently developing possible models for improving this situation in the Leeuwin-Naturaliste Ridge area specifically.

25. Contingency planning is a critical function in the early stages of an escalating incident, and should provide the foundation of an IAP. 

Response

WESTPLAN Bushfire defines the requirements for operational personnel to submit initial IAPs within the 1st hour, progressing to a full IAP on subsequent shifts.

Next Steps

The timeframe identified for the production of an IAP will be reinforced in training.

26. Incident Controllers should be supported by a planning function that combines experienced weather forecasters, fire behaviour experts and local knowledge.

Response

This lesson is supported in principle but implementation is subject to availability and incident complexity. See response to Lesson 11.

27. IMTs need to establish early and effective liaison with Local Governments.

Response

See response to Lesson 19.

28. State-wide all agency reporting should be established to facilitate the interactions of emergency management agencies, support agencies and state level governments.

Response

Agencies advise that this is standard practice and will be addressed in State arrangements for 2012/13 (links to lesson 44).

Next Steps

The use of a software program such as WebEOC could enhance across agency reporting. FESA is trialling the use of WebEOC using the WA Police licence as an interim measure.

29. Section 13 arrangements need to be clarified across key agencies.

Response

This lesson refers to Section 13 of the Bush Fires Act 1954 which provides that FESA may delegate powers of bushfire control to an appropriate person. During the Blackwood Fire 8 incident, Section 13 appointments led to some confusion over responsibilities and lines of communication in **DEC** and FESA. This issue is currently being addressed by FESA in consultation with **DEC** and local government. FESA is currently leading a review of WESTPLAN Bushfire in which issues concerning Section 13 are being examined.

Next Steps

A revised WESTPLAN Bushfire will be submitted to SEMC and sub committees for approval during 2012/ 13.

30. Logistics and resource officers in IMTs need to collaborate and establish full awareness and control over the available resources.

Response

Agencies advise this is standard practice within IMTs. The underlying issue to which this lesson alludes may be the limited number of skilled staff available and the resulting limited capacity to track incident resources. This issue will be addressed in training and exercising for specific IMT roles. Greater use of information technology will be employed where possible.

31. A review of the manner in which resourcing is conducted across all agencies needs to occur with a review identifying the best manner to ensure all agencies adapt to the same process.

Response

This lesson relates to the systems used to track and record resources at an incident. **DEC** supports a review of available approaches as this is recognised as an issue affecting fire agencies nationally. **DEC** is trialling the application of the Victorian Incident Resource Information System (IRIS). This system has potential multi-agency functionality and could present a longer-term resolution of incident resource management.

32. Contingency planning before the fire may have supported the IMT in recognising and seizing strategic opportunities earlier.

Response

DEC and FESA advise that targeted contingency planning before the event has been incorporated in the new risk assessment process for prescribed burning.

33. Strategic direction seeks to identify and resource those areas of tactical action that offer the greatest advantage.

Response

See responses to lessons 24 and 25.

34. Clear direction to divisional and sector commanders and a common communications platform enables maximum return to be gained from the application of tactical resources and this rests on good incident action planning, and good command and control.

Response

See responses to lessons 24, 25 and 42.

FESA's standard operations are aligned to the principles of AIIMS and include the early development of effective communication planning, sector and divisional plans with strategies and tactics that contribute to meeting the incident objectives and assigning experienced personnel as sector and divisional commanders.

35. In multi-agency responses the culture, training and equipment characteristics of each of the agencies should be considered in their employment.

Response

Agency practice is for personnel at any incident to be tasked based on their skill set, known capability, area of expertise, and having regard to their organisational mandate. This can be difficult in the early stages of a large multi-agency response, particularly where life and property are under threat. In these circumstances, tasking of resources is realigned to experience and skills when the opportunity allows.

36. Better maps are required for urban/rural interface fires.

Response

Emergency Services Directories (ESD) are a good resource and issued to all South West fire-fighting appliances.

Next Steps

A business case is being developed by FESA for the ongoing development and revision of the ESD publications. FESA is also enhancing its IMT mapping capacity through the development of a volunteer mapping capability.

37. A system of vehicle tracking should be fitted to all fire appliances and linked to the common operating picture. Good communications planning is essential for good command and control.

Response

DEC has tracking capability on all of its fire trucks, heavy machinery and aircraft and on most light fire vehicles. Its Spatial Support System provides a capable viewer interface. This technology is built on open-source software and is available to other agencies free of licensing costs.

FESA is currently gathering the high level business requirements for an IMT information framework. The project includes the investigation all options available for a live vehicle tracking system, including the system currently used by **DEC**.

38. There would be benefit in progressively aligning the geographic boundaries of each of the agencies and seeking to co-locate their headquarters within those boundaries.

Response

DEC is primarily a conservation and environmental management agency with substantial land management responsibilities. Its administrative boundaries and arrangements are suited to its core statutory functions. Co-location would have to subject to a cost-benefit analysis and business case that takes account of **DEC**'s core statutory functions. FESA continually monitors and adjusts regional boundaries that offer a best fit solution for its service delivery model.

39. Legislative change may be needed to enable FESA to better manage fire-fighting resources across the state.

Response

FESA chairs an inter-agency working group set up to oversee the development of a single emergency services act. It is however anticipated that the legislative change process will be lengthy due to the complexity of the issues involved.

40. The role of district and local emergency management committees should be reviewed to ensure they are appropriately engaged in the active management of emergencies across the PPRR continuum.

Response

The engagement of district and local emergency management committees across the PPRR spectrum would run counter to the current emergency management structure and framework prescribed in the Emergency Management Act 2005. However, alternative roles could be considered in the context of the development of a single emergency services act.

WALGA supports a review of the district and local emergency management committees to ensure appropriate governance and communication frameworks are in place.

Next Steps

A review of the district and local emergency management committee arrangements will form part of the SEMC's 2012/13 work program.

41. Increased acceptance of mutual obligations will be fundamental to the management of fire risk across the state.

Response

Mutual aid arrangements are formalised in some parts of the state.

Next Steps

FESA is developing policy to support a tenure blind, precinct approach to bushland fuel management and this will consider mutual obligations.

42. The state should progressively align on a shared platform, such as WebEOC, to establish a COP.

Response

FESA is currently operational on WebEOC using interim arrangements linked to the WA Police licence. **DEC** is currently reviewing WebEOC as the primary option for a Common Operating Platform (COP), having regard to **DEC'**s core functions as a conservation, land management and environmental agency. **DEC'**s current assessment of the system suggests that operation of WebEOC in **DEC** would require substantial additional resources.

43. The state should converge on a single communications platform for all emergency management and support agencies.

Response

The WA Emergency Radio Network (WAERN) provides the basis for a common communications platform for emergency services. Use of the network will enhance interoperability. However there are constraints related to individual agency requirements, for example, WA Police require confidentiality across their network. There are also technical issues around channel congestion and bandwidth availability. The Department of Commerce, which has expertise in this area could assist in examining these issues and further efforts will be undertaken to identify a solution to these challenges and the likely cost.

44. Reporting and control should be through the incident chain of command and not through agency chains of command.

Response

Agencies advise that this is standard practice at an inter-agency level, although there will often be a period early in major incidents where the singular incident chain of command takes time to establish. Individual agency chains of command are the default until this occurs. See also lesson 28.

45. DEC"s fire management expertise should be augmented by multi-agency IMTs that incorporate the expertise of other agencies and in fast developing situations the appropriate decision will need to be made early.

Response

This occurs already with regional **DEC**/FESA 'short' IMTs that are established from existing rostered resources when forecast conditions are 'severe' and above, and to an extent in **DEC** pre-formed IMTs. However, there is opportunity to increase the involvement of other agencies. State level inter-agency arrangements under consideration in the review of WESTPLAN Bushfire will provide appropriate strategies.

46. At Level 3, the available fire management expertise should be applied overwhelmingly to the fire management aspects of emergency management, possibly in incident control, and certainly in situations planning and operations roles.

Response

This lesson is reflected in all responses associated with the function of an IMT.

Agency practice in FESA is that IMT personnel are tasked based on their skill set, validated capability and area of expertise. The filling of functional roles within an IMT is prioritised to ensure the critical incident management functions of Incident Controller, Operations, Planning, Logistics, Public Information and situation are resourced sufficiently, followed by other unit functional roles as personnel become available.

47. To be effective, multi-agency IMTs will need to be exercised regularly and supported by sound and comprehensive doctrine.

Response

This lesson is consistent with findings or recommendations from the 2010 Ferguson Report and the Special Inquiry into the Perth Hills bushfire. The value of regular exercising is acknowledged but is resource intensive. **DEC** participated in the State-wide exercise conducted by FESA prior to the 2011/12 season and has explored other means of exercising, such as the use of teams at lower level fires.

Next Steps

FESA, local government and **DEC** are developing IMT exercises prior to the 2012/13 season. **DEC** will continue to explore, with FESA, opportunities to undertake exercising of IMTs, however resourcing this work is a major constraint. Doctrine development is ongoing and forms an important component of work being undertaken towards the implementation of the Perth Hills Special Inquiry recommendations.

48. Timely alerts and updates to the community are essential.

Response

In response to Recommendation 33 of the Special Inquiry into the Perth Hills Bushfire, FESA has engaged with the ABC on matters relating to enhancing the structure, content, presentation and timeliness of emergency warning messages.

Next Steps

FESA will work with **DEC** to continually refine the processes for providing the community with information. **DEC** and FESA will continue efforts to engage Western Australian media outlets other than the ABC on the issues surrounding effective, timely alerts and updates.

49. The process for initiating and releasing StateAlert messages requires review.

Response

FESA and other Western Australian hazard management agencies will start using the national Emergency Alert phone messaging system during emergencies in late 2012.

50. Expand the exploitation of social media, including graphical content for state alerts and warnings. Consider increasing the graphical content of web-based warnings.

Response

FESA and **DEC** use social media. FESA has a Twitter site and sends out alerts and warnings via twitter feed and an RSS Feed. FESA has adopted national best practices approaches to the use of social media in emergency services.

Next Steps

FESA and **DEC** will continue to work together over the detail, content, quality and capabilities for alerts and warnings, including through social media. The inter-agency approach will be consistent with State-level guidance on the use of social media.

51. Radio bulletins need to be up to date and time stamped. Where social media is used the messages need to be up to date and accurate. Websites need to be up to date and accurate.

Response

DEC and FESA representatives have commenced discussions with the ABC on improved delivery of radio messages to the community. **DEC** and FESA time stamp all alerts and warnings and did so during the Margaret River and Nannup incidents. However, **DEC** and FESA do not control the broadcasting of alerts and warnings. The agencies work with the media to encourage them to be as accurate, clear and up to date as possible. FESA has met with major media outlets since the fires (in December 2011) to explicitly encourage them to support bushfire public information and encourage news websites to provide timely information as soon as possible. ABC Local Radio (which has an Memorandum of Understanding with FESA and **DEC**, through the SEMC Public Information Group) has committed to time stamping their broadcasts.

Next Steps

Radio and media outlets other than the ABC will continue to be approached to become emergency broadcasters and this process is ongoing through the SEMC Public Information Group. Pursuant to recommendation 33 of the Keelty Special Inquiry into the Perth Hills Bushfire (2011), FESA and the ABC are to undertake a thorough review of emergency warning messages. This review is to give consideration to the content, structure and presentation of emergency warning messages and media access to the Incident Management Team and State Operations Centre.

52. Decisions on evacuations need to be made early enough for people to be fully informed, prepared and to move to a place of greater safety. Failure to conduct good planning can create situations where loss of life can occur.

Response

SEMC will review State Emergency Management Policy 4.7 - Community Evacuation as part of the 2012/13 SEMC work program.

53. Good Local Government planning and management facilitates community resilience.

Response

FESA has provided local government with publications that will assist community members with planning for and preparing for bushfires. For example, Planning for Bushfire and the Bushfire Survival Manual.

Developing the capacity of local governments and local emergency management committees remains a focus of the SEMC. As the capacity of local government authorities varies across the state, Community Emergency Management Officers employed by SEMC Secretariat actively engage with a number of local governments to ensure planning and regular exercising of local emergency management arrangements.

54. Procedures to resolve issues surrounding financial assistance need to be reviewed to ensure they are as smooth, fast and transparent as possible.

Response

Where the need for specific changes have been identified, the Department for Child Protection (DCP) has revised policies and procedures as an result of the Margaret River bushfire.

Next Steps

This lesson applies to financial assistance that may be forthcoming from a variety of sources including, in the case of this specific incident, the Government's Margaret River Financial Assistance Scheme, the Lord Mayor's Distress Relief Fund and Western Australian Natural Disaster Relied and Recovery Arrangements (WANDRRA). SEMC will consider the lessons relating to the communication of financial and other assistance measures in its 2012/13 SEMC work program.

55. Shire experiences in managing these traumatic events should be captured and passed into emergency management procedures.

Response

The SEMC consults with WALGA in respect of all amendments to state emergency management policies, plans and procedures. This enables individual shire experiences to be captured in emergency management doctrine, where appropriate.

56. An early Decision on relief funding enables timely responses. DCP should review their communication of relief arrangements to ensure that they are clear.

Response

DCP provide immediate financial assistance when required, and in the Margaret River incident provision of assistance commenced quickly in response to need.

Assistance for replacement of household essentials and/or essential repairs relies upon the event being declared, which may take some time. Support under these categories is means and asset tested. An experienced financial assistance officer works with affected community members to ensure they have a clear understanding of the parameters of support and documentation that must be provided. Once full documents are provided, an assessment is completed within 15 working days. DCP is currently reviewing information on relief arrangements to ensure there is greater clarity for the community on what support may be available.

57. Given the prominent role played by the Shire in the management of welfare aspects in this emergency, there may be a need for state sponsored training for shire staff who are involved in implementing state emergency management policies and plans including how to deal with traumatised individuals.

Response

DCP was activated early in the Margaret River incident, were present at the evacuation centre and took on the coordinating role and worked closely with the Shire within one hour of being activated. DCP already provides a range of training which is inclusive of local government staff. DCP coordinates „local welfare committees which include local community services and local government representatives. As part of this DCP facilitate exercises and training which are open to all relevant key stakeholders. DCP has also been successful in obtaining Natural Disaster Resilience Program (NDRP) funding to develop a standardised training package which will be provided in four locations, will be available to all key stakeholders and members of the community and will subsequently be rolled out across the State.

Next Steps

DCP will explore additional options that may be available to deal with traumatised individuals, including the interagency opportunities for an appropriate response.

58. When communities are grieving there is a need to provide special forms of support to affected residents.

Response

DCP provides a wide range of support to affected residents. Financial support under WANDRRA is provided, and people affected by an incident can also access a range of longer term supports such as counselling. Within a week of the Margaret River fire, DCP employed a Senior Project Officer to work specifically with affected residents and the community generally to assist them through the recovery process.

Blackwood Fire 11 - Milyeannup - Sollya, 23 November 2011 - 5 December 2011 (Nannup)

1. There should be clearly established criteria for burns which are specially challenging, and these criteria need to extend beyond the intended boundaries of the prescribed burn. The criteria should be clarified and adopted as agency SOPs.

Response

The assessment and recognition of risk levels associated with prescribed burns, and the identification and implementation of appropriate controls, will be formally addressed as part of revised risk management procedures approved for implementation by OBRM. Interim guidelines have been prepared by OBRM.

Next Steps

OBRM will set, and keep under review, standards necessary to regulate mitigation activities in line with risk management criteria.

2. A risk management approach is needed which considers risks both inside the prescribed burn and the risks that will need to be managed if the fire escapes. The risk assessment should be organised and in line with the four and seven day weather forecast.

Response

In consultation with the OBRM, **DEC** has developed interim risk management procedures for prescribed burning which take greater account of values and risks outside burns.

Next Steps

DEC, through the Bushfire Cooperative Research Centre (Bushfire CRC), engaged consultants to work on the review and revision of its prescribed burning practices in order to ensure they are compliant with the International Standard for risk management (AS/NZS ISO 31000:2009).

3. Prescriptions should mandate consideration of measures to retire risk.

Response

See responses to lessons 1 and 2. Agencies believe that all burning should have appropriate risk management criteria in line with risk management principles.

4. Once a burn is ignited, it needs to be the subject of continuing risk assessment and appropriate mitigation.

Response

See responses to lessons 1 to 3. All prescribed burns once lit are monitored by the agency responsible until declared safe. A process of continuous risk assessment is undertaken with due consideration given to changing environmental conditions, emergency services response capacity and incident commitments.

5. Contingency plans for escaping burns should be prepared in advance.

Response

See responses to lessons 1 to 4. Revised risk management procedures approved for implementation by OBRM include all prescribed burns having to undergo risk management considerations including contingencies for burn escapes.

6. Prescriptions need to be interpreted by experienced and knowledgeable personnel to ensure risk is fully understood. It is important that the background and justification for these decisions are captured at each stage and are visible to all levels in WA fire management hierarchy.

Response

See responses to lessons 1 to 5. OBRM will oversee and manage prescribed burn approvals. The Director of OBRM is responsible for ensuring a rigorous risk management process is applied. decisions made by OBRM personnel will be recorded in accordance with public sector management standards and the directions of the State's Fire Commissioner. Documentation of decisions made during planning and implementation of its prescribed burns is a responsibility of **DEC**.

7. The burn prescription should capture the fuel characteristics and potential rate of spread for those areas outside the burn that will likely be critical during the initial attack on any escaping fire.

Response

See responses to lessons 1 to 6.

8. Core ignition, particularly of red flag burns, should be informed by the 4 and 7 day forecasts (including a longer term perspective over 3 to 4 months).

Response

All ignition decisions take account of available weather forecast information. BoM does not provide **DEC** with a 7-day or longer-term forecasts (as opposed to climate outlooks). 3-4 month perspectives are not relevant to ignition decisions.

9. DEC should investigate embedding an experienced forecaster in the state operations centre.

Response

DEC does not support embedding weather forecaster(s) for the following reasons:

- Forecaster(s) would be removed from their professional peer and support group, which adds value to their input, particularly in relation to complex weather situations.
- **DEC** does not have a high need for forecasting services for several months each year, outside the prescribed burning and bushfire seasons (September to May).
- During critical incidents **DEC** requires weather forecasting 24/7, which cannot be provided by a single „embedded" forecaster.

DEC has been well served by a strong relationship with BoM, and specifically between BoM duty forecasters and **DEC**"s fire operations weather specialists.

Technological solutions such as a shared portal for joint and simultaneous access to relevant information including burn maps and terrain models, possibly in conjunction with video-conferencing, could be used to enhance the forecaster/fire service relationship to provide the essential benefits of the „embedding" model.

10. A rolling risk assessment is required which captures the risks of the burn escaping and provides adequate resources.

Response

The concept of rolling risk assessment is supported as this is consistent with current practice and the new risk management process being implemented.

11. Decisions taken on the basis of this risk assessment need to be captured and distributed across district and state.

Response

DEC"s information management arrangements will be addressed in the new risk assessment procedures.

12. On a regional basis there would be value in closer working relationships between DEC crews and VBFBs to build mutual trust and confidence. This could be done by opportunity engagement of VBFBs in DEC fire management or through exercises.

Response

DEC currently has a process for inviting FESA staff and Volunteer Bushfire Brigades (VBFB) to assist in prescribed burns, and placed added emphasis on it during the 2011/12 burning season. **DEC** also supports joint training and exercising opportunities as providing important forums in which to establish closer working relationships.

FESA has established a Community Liaison Unit and protocols to enable local government Bushfire Brigade Liaison Officers to be embedded in Emergency Coordination Centres and FESA Taskforce deployments. Volunteers are provided opportunities to participate in state and regional exercises.

13. The State Duty Officer from DEC and the State Duty Director, FESA need to confer whenever a Level 2 or 3 incident is declared to satisfy themselves that they have appropriate incident management structures and resources across the state are at an appropriate level of preparedness.

Response

Existing protocols provide that FESA notifies **DEC** when level 2 and level 3 bushfires are declared. The protocols are under review. In addition and in line with the Government's policy statements, the development of the Fire and Emergency Services Commissioner's responsibility for level 3 bushfire incidents is being examined. Additional personnel have received accreditation as level 2 and 3 incident managers and planning officers.

14. There needs to be a better appreciation of the role of VCPs and how they are managed in bushfire emergencies by all key agencies and the community.

Response

Procedures for the implementation and conduct of Vehicle Control Points (VCPs) are in place. **DEC** will participate in any review of the effectiveness of current procedures and

assessment of the need for greater support to this function. FESA will review its publications and doctrine in partnership/consultation with WA Police.

VCPs are "owned" by the Incident Controller and WA Police acts under their direction during any incident. Any action to address issues relating to VCPs should be carried out in a multi-agency context, rather than unilaterally by any single agency.

15. VCPs are one of the instruments by which the Incident Controller manages the emergency. VCPs without communications cannot be fully effective in their role.

Response

See response to lesson 14. FESA will determine and implement an appropriate communications platform for emergency management in consultation with supporting agencies. WA Police are currently reviewing any issues in relation to communication „blackspots".

16. Local knowledge should be accessed to inform the placement and operation of VCPs.

Response

See responses to lesson 14.

Where FESA has taken responsibility for a fire from local government, senior representatives of the VBFBs will be retained within the IMT to ensure local knowledge capacity .

17. There is a need for community education on how road blocks and VCPs operate in the event of an emergency.

Response

FESA will consider the provision of public education regarding VCPs as well as ensuring this information is provided via the appointed position of public information officer within the IMT.

18. Suitably experienced personnel with local knowledge should be connected to the Operations and Planning section in all Level 3 incidents in the vicinity of substantial settlements.

Response

This is current practice where possible and this principle will be emphasised in pre-season briefings and training for the 2012/13 fire season. FESA has established protocols to enable Local Government Volunteer Bushfire Brigade Liaison Officers to be embedded in Emergency Coordination Centres and FESA Taskforce deployments.

19. Opportunities should be sought to embed other local government representatives in other areas of the IMT particularly in public information.

Response

This action will be incorporated in guidance for IMTs. FESA has established protocols to enable Local Government VBFB Liaison Officers to be embedded in Emergency Coordination Centres and FESA Taskforce deployments.

20. There would be benefit in progressively aligning the geographic boundaries of each of the agencies and seeking to co-locate their headquarters within those boundaries.

Response

DEC is primarily a conservation and environmental management agency with substantial land management responsibilities. Its administrative boundaries and arrangements are suited to its core statutory functions. Co-location would have to subject to a cost-benefit analysis and business case that takes account of **DEC**'s core statutory functions. FESA continually monitors and adjusts regional boundaries that offer a best fit solution for its service delivery model.

21. Legislative change may be needed to enable FESA to better manage fire-fighting resources across the state.

Response

FESA chairs the inter-agency working group set up to oversee the development of a single emergency services act. It is however anticipated that the legislative change process will take some time due to the complexity of the issues involved.

22. The role of district and local emergency management committees should be reviewed to ensure they are appropriately engaged in the active management of emergencies across the PPRR continuum.

Response

The engagement of district and local emergency management committees across the PPRR spectrum would run counter to the current emergency management structure and framework prescribed in the Emergency Management Act 2005. However, alternative roles could be considered in the context of the development of a single emergency services act.

WALGA supports a review of the district and local emergency management committees to ensure appropriate governance and communication frameworks are in place.

Next Steps

A review of the district and local emergency management committees arrangements will form part of the SEMC"s 2012/13 work program.

23. The state should progressively align on a shared platform, such as WebEOC , to establish a COP.

Response

FESA is currently operational on WebEOC using interim arrangements linked to the WA Police licence. **DEC** is currently reviewing WebEOC as the primary option for a Common Operating Platform (COP), having regard to **DEC'**s core functions as a conservation, land management and environmental agency. **DEC'**s current assessment of the system suggests that operation of WebEOC would require substantial additional resources.

24. The state should converge on a single communications platform for all emergency management and support agencies. 

Response

The WA Emergency Radio Network (WAERN) provides the basis for a common communications platform for emergency services. Use of the network will enhance interoperability. However there are constraints related to individual agency requirements, for example, WA Police require confidentiality across their network. There are also technical issues around channel congestion and bandwidth availability. The Department of Commerce, which has expertise in this area, has established a working group to examine these issues and further efforts will be undertaken to identify a solution to these challenges and the likely cost.

25. Reporting and control should be through the incident chain of command, and not through agency chain of command. 

Response

Agencies advise that this is standard practice at an inter-agency level, although there will often be a period early in major incidents where the singular incident chain of command takes time to establish. Individual agency chains of command are the default until this occurs.

26. Early in an incident, close and effective liaison needs to be established with local government agencies. 

Response

Agencies liaise with local government authorities as soon as possible after a fire commences.

Next Steps

Agencies advise that opportunities to develop closer relationships between the IMT and local government authorities will continue to be explored and acted upon.

27. Web sites need to be kept updated. 

Response

DEC and FESA time stamp all alerts and warnings appearing on their respective web sites and did so during the Margaret River and Nannup incidents. **DEC** and FESA do not control the presentation and updating of alerts and warnings on the web sites of other organisations.

However, the agencies work with the media to encourage them to be as accurate, clear and up to date as possible. FESA has met with major media outlets since the fires (in December 2011) to explicitly encourage them to support bushfire public information and encourage news websites to provide timely information as soon as possible. ABC Local Radio (which has an Memorandum of Understanding) with FESA and **DEC**, through the SEMC Public Information Group) has committed to time stamping their broadcasts.

28. A high level review of alerts, warnings and messaging is needed to match community expectations with what is practical and achievable.

Response

See response to lesson 27. FESA aligns its alerts, warnings and messaging to national standards. FESA uses alternative distribution systems including Tweeter and RSS feeds.

29. Further community education may be needed on how to interpret messages.

Response

See response to lesson 27

30. The agencies need to develop techniques to ensure accuracy of information across all media.

See response to lesson 27.

31. Local emergency management committees and planning should identify modes of community contact.

Response

Local Emergency Management Arrangements include contact information for local community members. There is scope for this to be clarified in respect of identifying networks to assist in the dissemination of public information during emergencies.

32. When people are being moved away from their homes it's important that they move to a place of greater safety and that their movement is relatively assured.

Response

This is current practice. However, **DEC** understands that, despite its best efforts, limited resources resulted in less than ideal arrangements in the early stages of the Milyeannup fire.

33. Early resolution and clear communication of the financial and other support measures that will be available to affected residents is an important contributor to community resilience.

Response

DCP is currently reviewing information on relief arrangements to ensure there is greater clarity for the community on what support may be available noting also that financial and other support measures are based on assessed eligibility and need and not a set entitlement.

Attachment 5: Parkerville Stoneville Mt Helena Bushfire (SEMC 2014)

Opportunities for Improvement from the Parkerville Stoneville Mt Helena Bushfire Review (SEMC 2014)

3.4.2 The Executive Teams of both DFES and DPaW should meet quarterly to review and agree joint improvements relating to issues of interoperability, complementarity and the alignment of firefighting doctrine. The establishment of a unified command in joint State Operations Centre, Regional Operations Centre and Incident Management Teams should be pursued as an overarching goal.

3.4.3 In addition to regular meetings of the DFES/DPaW Interagency Bushfire Management Committee, the two organisations should use joint exercises to identify agreed firefighting approaches for common or likely scenarios.

Recommendations from the O'Sullivan and Lower Hotham Bushfires Review

(SEMC 2015)

Use of pre-formed incident management teams (IMT)

PFT.1 While recognising that workforce management, resourcing and geographical constraints present significant challenges, DFES and Parks and Wildlife should consider alternative approaches to determine how they will establish flexible multi-agency pre-formed IMTs, at both Levels 2 and 3, to be prepared for forecast levels of bushfire risk.

PFT.2 The process developed by the IBMC for joint accreditation of Level 3 personnel should be further developed, including by extending the current arrangements to Level 2.

PFT.3 The Fire and Emergency Services Commissioner and Parks and Wildlife Director General should jointly review the list of accredited Level 2 and 3 Incident Controllers, on an annual basis, to ensure that those listed are competent and current in their skill and knowledge.

PFT.4 More use should be made of non-DFES and non-Parks and Wildlife personnel in IMTs where available, such as local government communications and mapping specialists.

PFT.5 The IBMC should consider the benefits of using a flexible AIIMS format for multi-agency training purposes during prescribed burning operations.

2.2.2 Incident management systems and incident support

IMS.1 A common understanding of the implementation of AIIMS should be agreed upon and followed by DFES and Parks and Wildlife. Inherently inefficient departures from AIIMS principles (such as to have more than one logistics unit) should be addressed immediately. Any residual differences in approach between the agencies should be made explicit.

IMS.2 As part of a shared understanding of the implementation of AIIMS, DFES and Parks and Wildlife should agree on the role and function of the Incident Controller. The agencies should reach agreement on the minimum duration that Incident Controllers will serve at future incidents.

IMS.3 SEMC should review supra-coordination arrangements between all emergency response and support organisations operating above the IMT level and clarify each organisation's legal, administrative and financial responsibilities.

2.2.3 Interoperability of systems and equipment

ISE.1 DFES and Parks and Wildlife should jointly undertake a review of available resource management systems which could be readily integrated into their current human resources, vehicle and equipment systems.

ISE.2 The IBMC should develop an agreed plan covering technologies and systems of work to achieve interoperability, with timelines that recognise operational and financial constraints of each participating agency.

ISE.3 Bushfire response and support organisations should investigate the type of radio system best suited to WA bushfire situations for multiagency operability.

ISE.4 Prescribed burning operations in a flexible AIIMS format could provide an opportunity to enhance interoperability through systems and processes training.

ISE.5 At multi-agency bushfires there should be agreement on the minimum shift length that all firefighters operate to during the emergency situation.

ISE.6 During incidents when heavy plant is involved in fire suppression activities, DFES and Parks and Wildlife should require the IMT to have a Plant Operations Manager to enhance the effectiveness and efficiency of plant management.

2.2.4 Recovery improvements

R.1 An assurance process should be developed to ensure that amended Westplans have been fully reticulated and absorbed.

R.2 A template style approach to impact assessment that meets the needs of interim Westplan – Recovery Coordination should be finalised.

R.3 A specific role definition for SEMC Secretariat Community Emergency Management Officers should be adopted in order to make clear that they can advise Incident and Operational Area Support Groups and act as advisor to local government at the commencement of incident recovery.

R.4 Standardised guidance on the management of common hazards to emerge in the wake of a bushfire, in particular asbestos exposed in 12 premises damaged or destroyed by fire, should be developed and made widely available.

R.5 Networked agreements between neighbouring local governments should be encouraged in order to provide better support for council officers affected by emergency incidents, including for the purposes of fatigue management.

2.2.5 Interstate deployment improvements

ID.1 DFES and Parks and Wildlife should confer on what amendments to the AIA may be necessary to address the gaps identified by AFAC in relation to the implementation of the AIA in its first year of operation; greater compatibility of administrative systems and processes should also be pursued between DFES and Parks and Wildlife.

ID.2 Common Use Agreements to facilitate the provision of air travel, ground transportation and accommodation should be developed to cover the specific circumstances of interstate deployments.

ID.3 Consideration could be given to the identification of a pre-formed Interstate Liaison Unit to enhance preparedness for future incoming deployments and to provide a basis for network building with counterpart groups in other jurisdictions.

ID.4 Briefings for incoming crews should be rationalised and opportunities taken to provide general briefings during the transportation phase with more detailed briefings conducted in the area of operations; use of charter flights for incoming crews could assist in the provision

of advance briefings. Consideration could be given to specific briefings for local personnel on interstate deployments arrangements.

Findings Relevant to the Department of Parks and Wildlife from the Western Australian State Emergency Management Committee Preparedness Report 2012

Hazard Mitigation Capability Definition:

Tangible steps that have been taken to prevent the occurrence of a hazard and/or reduce its impact should it occur. Hazard mitigation is a logical extension of the risk identification process.

It is the means by which hazards are treated to reduce the potential for their occurrence and should they occur, to reduce the significance of their impact. For instance the State Government has recognised this need in regard to bushfire and has increased funding to DEC and FESA in respect to fire management and bushfire risk mitigation. Hazard mitigation strategies also consist of broader policy initiatives such as land use planning and the declaration of bushfire prone areas to regulate building construction standards. As well, they include community based agreements and activities relating to hazard reduction. The adoption of such strategies has commenced in Western Australia. There are a number of hazard mitigation strategies occurring at agency and local levels.

Land Use Planning

Focus on land use planning and associated initiatives as a hazard mitigation strategy has been identified in a number of major incident reviews.

Appropriate land use planning can ensure that land is not used for purposes that will make it vulnerable to the effects of natural disasters. For example, not constructing homes in known flood or fire prone areas. The Department of Planning (DoP) and the Department of the Premier and Cabinet (DPC) are jointly coordinating the development of a Capability and Investment Plan for consideration by the SEMC, as part of the implementation of the National Strategy for Disaster Resilience16 in Western Australia. Senior officers from the DoP, DPC, FESA, the Department of Commerce, DEC, Landgate and the Western Australian Local Government Association (WALGA) will participate in a formalised working group to oversee the progression of those actions selected for development.

Resource Management Capability Definition:

Effective systems and controls for the mobilisation, deployment and coordination of resources during the course of an emergency event.

How efficiently and easily resources can be mobilised, coordinated and deployed contributes to the success of a response effort. The issue of managing resources in silos has been identified in the past. For example, the Community Development and Justice Standing Committee of the Legislative Assembly made a finding, with respect to fire-fighting equipment, that there was no whole-of-government equipment register held by FESA, DEC and local government, and that the response to a bushfire would be more effective if such a register was developed.

Public Education Capability Definition:

The process of educating the broader community of the nature of a hazard, the possible effects it may have, measures that are or should be in place to prevent/mitigate, respond to and recover from its effects and the role they can play in that process.

Public education is a vital aspect of effective emergency management. Community members not involved with emergency management on a regular basis have limited knowledge of the State's emergency management arrangements, the risks that may be presented by the range of natural and man-made hazards and the part they should be playing in dealing with those risks. Educating the public on these issues should serve to:

• increase awareness of the risks;

• engender cooperation, co-ownership and commitment; and

• assist in the prevention and mitigation of serious emergency by helping the public to know what can be expected and what part they can play.

FESA's Prepare, Act, Survive campaign is widely distributed particularly in relation to bushfire. School age programs concerning different aspects of fire management are presented by both DEC and FESA.

Hazard management and combat agency training

Hazard management and combat agencies in the State conduct and participate in various training activities integrated with their continual improvement processes. Many organisations conduct courses throughout the year to ensure operational personnel are ready for eventualities.

DEC

- 839 AIIMS
- 8 level 3 incident controllers
- Pathway for level 3 IC development

Interagency dependency and cooperation

Almost all agencies have reported interagency dependency as a critical issue. A number of interagency Memorandums of Understanding are in place to facilitate greater levels of cooperation in the event of major emergency, including one recently concluded between DEC and FESA.

Bushfire

It is highlighted in this initial Emergency Preparedness Report as an example of the management of one of Western Australia's most frequently encountered and socially significant hazards. Recent examples of the destructive impact of bushfire in Western Australia are provided in Appendix 3 (last section of this summary).

Responsibility for bushfire emergency management

The Bush Fires Act 1954 is the principal source of direction and authority for the prevention, preparedness and response phases of bushfire management in Western Australia. The recovery phase for bushfire is initiated by the appropriate response agency but, as with other hazards, the recovery phase is managed by local government. In addition to the agency responsibilities prescribed in legislation, all landholders in Western Australia have statutory obligations to prepare for, prevent or manage bushfires on their land. The Bush Fires Act 1954 interacts with other legislation, including the Fire Brigades Act 1942, Fire and Emergency Services Authority of Western Australia Act 1998, Emergency Management Act 2005 and Conservation and Land Management Act 1984 to allocate responsibility for the

different phases of an emergency management response depending on ownership of the land.

A significant issue for fire management in Western Australia is the extent of Crown Land, which accounts for 93 per cent of the State's land area. The Department of Regional Development and Lands (RDL) is responsible for the overall administration of Crown Land. However, Crown Land that is leased, vested in other agencies, or reserved and managed by other bodies is the management responsibility of such lessees, vestees or management bodies. RDL has direct responsibility for the remaining Crown Land. These lands are Unallocated Crown Land and unmanaged reserves and together account for approximately 38 per cent of the State. RDL has Memorandums of Understanding with FESA and DEC for fire management services on these lands.

In addition to its role as HMA, FESA is responsible for undertaking prevention activities on behalf of RDL on Unallocated Crown Land and unmanaged reserves within all town sites, regional centres and the Perth metropolitan area. FESA is also responsible for preparedness and response for all lands within Gazetted Fire Districts declared under the Fire Brigades Act 1942 or where a Fire Service brigade or Volunteer Emergency Service unit is established under the Fire and Emergency Services Authority of Western Australia Act 1998.

DEC is the agency primarily responsible for conserving Western Australia's native flora, fauna and natural ecosystems, and many of our unique landscapes. With this comes the responsibility for fire management, to conserve biodiversity and protect the community, on more than 26 million hectares of DEC-managed lands (10 per cent of the area of Western Australia). In addition, DEC undertakes fire prevention activities on 89 million hectares of Unallocated Crown Land and unmanaged reserves outside town sites, regional centres and the Perth metropolitan area, on behalf of RDL (35 per cent of the State's area).

Local Government Authorities (LGAs) are responsible for undertaking prevention activities in relevant local government districts. LGAs are responsible for bushfire preparedness and response on significant tracts of land within local government districts, including through the prescription and enforcement of bushfire prevention measures on all freehold and leasehold lands that fall within their boundaries.

Westplan Bushfire establishes a goal of ensuring '... each local government area develops an integrated bushfire risk management plan across all tenures which details the bushfire prevention and mitigation measures'. This goal has not been met by all LGAs, and preparation of these plans should be a priority. FESA and DEC frequently assist LGAs and volunteer bush fire brigades to suppress bushfires.

The Bush Fires Act 1954 was amended in 2009 to provide for a legislative regime whereby FESA, DEC and LGAs could transfer control of bushfires to each other. The Act was amended to provide that FESA could appoint a person to take control of a bushfire burning on local government or DEC land due to the nature and extent of the fire, or at the request of the LGA or DEC. The amendments also provide that DEC and LGAs could transfer control of bushfire to each other. These new powers have been used frequently since 2009 and have provided for greater flexibility in response to bushfires in the State.

Capacity to undertake initial response in regions outside the South West is limited because the areas concerned are often very large and sparsely inhabited. Under local mutual aid arrangements, initial attack is undertaken by the nearest fire suppression resource regardless of tenure (including by pastoral and mining lessees with responsibility for fire management on their lands). This does not usually involve a formal transfer of control.

Climate, fuel load and prescribed burning

Land managers use prescribed burning as a tool to achieve a range of objectives including bushfire risk mitigation. The use of prescribed burning for fuel hazard reduction has been proven to significantly reduce the impact of bushfires by reducing fire size and intensity. An inverse relationship exists between the area burnt by prescribed fire and the area burnt by bushfire in the following four years in the South West forest regions of Western Australia.

DEC has a 3-year/6-season prescribed burn program with an annual burn target for the South West forest regions of 200,000 ha. Local governments also have management/works plans for prescribed burn programs that are usually carried out by volunteer brigades. DEC has on average achieved 83 per cent of this target over the past 20 years. Failure to achieve annual burn targets (due to weather conditions or resource limitations) contributes to fuel build-up. In 2011/12, the total burn area achieved was only 103,000 ha or slightly more than half the target area. Fuel age is a significant factor in the management of bushfire. Fuels older than seven years are difficult to control under average summer conditions of moderate to high fire danger in open eucalypt forest. Fuel reduction programs better enable fire managers to control major fire events and prevent serious impact on lives, property and environmental values. Fuel age has been mapped for approximately 2.5 million hectares of DEC-managed lands in the South West of Western Australia.

In addition to the consequences for forest fire managers, the state of fuel loads has consequences for landholder risk mitigation strategies and household level decision making in the context of the Prepare, Act, Survive public safety message.

All landowners must be made aware of the importance of fuel reduction on their properties. In addition, a particular issue in recent years has been the appropriate balance between vegetation conservation on road reserves and ensuring that the fuel load on the reserves is managed. Climatic variability in Western Australia also has an impact on fuel loads. Reduced winter rainfall, late starts and late finishes to the ‘wet’ season and a longer ‘dry’ period are features of a warmer, drier climatic era. The annual average rainfall in some parts of the South West region has declined by up to 18 per cent since the 1970s. Warmer, drier weather reduces the time available for carrying out low intensity prescribed burns, which means more burning must be done in a narrower window of opportunity.

Following the release of the Report of the Special Inquiry into the November 2011 Margaret River Bushfire, the Premier announced his intention to establish and Office of Bushfire Risk Management (OBRM). In May the Minister for Emergency Services, the Hon. Troy Buswell MLA announced the establishment of OBRM which reports directly to the Chief Executive Officer of FESA. The OBRM will support the various agencies involved in bushfire risk management through working with agencies on:

• endorsement and oversight of risk management for ‘high-risk’ burns;

• development of performance standards for the planning and conduct of bushfire risk mitigation programs including prescribed burns;

• ensuring development of contingency arrangements within every prescribed burn plan to appropriately manage the community risks associated with prescribed burning; and

• monitoring and reporting to the CEO on performance of bushfire risk mitigation programs, including prescribed burning

Preparedness for the 2012/13 Southern Bushfire Season

The two Special Inquiries conducted by Mr Mick Keelty AO in 2011, which concerned the Perth Hills and Margaret River bushfires of the same year, contained 65 recommendations for the improvement of bushfire preparedness, prevention and response. The wide scope of the recommendations included strategic policy and legislative enhancements,

intergovernmental and interagency coordination and cooperation, community engagement and awareness, research needs and operational response issues. Most recommendations are applicable to the management of bushfire throughout Western Australia and are not restricted to the areas that were the subject of the two Inquiries.

The Department of the Premier and Cabinet has established the Bushfire Review Implementation Group (BRIG) which is responsible for the implementation of the recommendations of the Perth Hills Special Inquiry. The BRIG advises that, of the 55 recommendations of the Perth Hills Special Inquiry, 43 have been signed off and a further 12 are still in progress. Agencies responsible for the remaining 12 recommendations include FESA, Department of Planning and SEMC. The BRIG also has oversight of a number of bushfire initiatives announced by the Premier including the establishment of the Office of Bushfire Risk Management, the moratorium on DEC prescribed burns within 5 kms of communities, the Capes Enhancement Project and the independent review of the Margaret River and Nannup bushfires. All of these initiatives have been completed.

DEC's progress on the implementation of the recommendations of the Margaret River Special Inquiry is being reported via SEMC. The Government has accepted all 10 recommendations of this report and they are being progressed. Implementation of the recommendations of the two Special Inquiries will enhance preparedness and response capabilities for the 2012/13 season. The 2012/13 budget increase for fire management, prevention and mitigation in DEC together with the establishment of the OBRM, places DEC in a better position to reduce the risk associated with prescribed burning and to respond to bushfires. It also provides the means to address a recommendation of the 2010 Ferguson Review which highlighted the need for succession planning for fire management staff, in order to minimise loss of skills and experience.

Interagency measures that will enhance preparedness for the 2012/13 season include the establishment of Integrated Level 2 and Level 3 incident management teams (IMT) across country regions with 'pre-identified' personnel from DEC, FESA and local government to ensure that suitably experienced and qualified personnel are available to fill IMT positions. FESA and DEC are also developing an agreed position which will have 'pre-identified' personnel from DEC, FESA and local government available to perform roles in metropolitan IMTs on days of 'extreme' or 'catastrophic' fire weather.

The second of the two Keelty reviews, the Special Inquiry into the November 2011 Margaret River Bushfire, made 10 recommendations for change and improvement, with particular reference to prescribed burning. Most of these recommendations related to DEC and significant work has been undertaken to implement these recommendations prior to the 2012/13 season. It is likely this work will have implications for other entities involved in prescribed burning as mitigation works extend more routinely to all tenures ('tenure-blind approach'). Recommendation 2 of the Special Inquiry, which provides that DEC 'urgently undertake a review of its risk management practices as they relate to prescribed burns,' has been a particular focus of DEC. Risk assessment and the selection of risk treatments will be undertaken as part of all decision-making associated with prescribed burning in a manner consistent with the risk management process specified in the standard: AS/NZS ISO 31000:2009 Risk management: Principles and guidelines

In response to Recommendation 8 of the Special Inquiry, DEC has prepared a communications strategy with the goal: 'To better inform the community about the complexities and decisions surrounding prescribed burns when they are undertaken in the rural-urban area.' This strategy aims to take a whole of government approach to encourage adoption and dissemination of information about prescribed burning functions and activities.

A review of Westplan Bushfire has been completed but a decision has been taken that an unacceptable level of risk is associated with the adoption of the changes at this late stage.

Training and exercising that has occurred for incident management staff is in accordance with the current Westplan Bushfire. Advice from fire management agencies is that while the current plan is adequate, the amendments proposed will provide improvements for future fire seasons. An increased emphasis on communications and public awareness in advance of the 2012/13 season includes the establishment of a Community Liaison Unit in FESA, the primary role of which is to enhance two-way communications between IMTs and affected communities during the 'response' phase of an incident. To support this role, FESA has developed a training resource kit and is undertaking recruitment and training of liaison staff and volunteers able to participate effectively in Level 3 incidents.

Other areas of community engagement focus in high risk locations will promote a shared responsibility with landholders for bushfire preparedness and response. Of particular importance will be engaging with absentee landowners. Issues affecting bushfire preparedness Agencies responsible for fire management operate under different systems, structures and workforce arrangements. This has several consequences for the structure and management of IMTs, including the maintenance of sustainable rosters and relief arrangements during operations. Notwithstanding the 'tenure blind' objective of bushfire response, the primary roles and responsibilities of the fire management agencies may require differences in appliances, personal protective clothing, communications and other equipment with the risk of incompatibility.

Advances have been made during 2012 in combined DEC, FESA and local government exercise and training activities. However, there remains a significant need for additional investment in this area. Because the agencies have different primary responsibilities in the management of fire, they employ different fire behaviour models for bushfire incident planning. The agencies continue to use different forms and incident response reporting tools in some areas. This is an area of further work as is the development of further mechanisms to improve communication. FESA has reported that resources do not currently exist for it to provide 24/7 information communications and technology technical support or GIS/spatial support to incident management teams. To improve all hazard preparedness, FESA is looking at alternatives such as expanding the ICT, technical and GIS/spatial support capability across all regions in the State or other ways of ensuring adequate preparedness.

Summary

The State faces a number of challenges over the 2012/13 fire season. These include:

• below average rainfall experienced in winter has resulted in a soil moisture deficit;

• high average fuel levels across the State. In the South West this is partly because the area of lands treated in DEC's prescribed burning program has, over the past 20 years, been on a generally declining trend as a result of a drying climate, the proliferation of rural subdivisions and smoke management issues (including the impact on vineyards). The management of the fuel load on other tenures in the South West of the State, including on private landholdings is also sub-optimal. In large parts of the interior fuel accumulation is due to increased annual growth resulting from good rains in recent years; and

• forecast wetter Spring weather that may hinder DEC's ability to undertake prescribed burning for risk mitigation.

Significant progress has however been made in terms of preparedness. This includes:

• considerable progress towards implementing recommendations from reviews and post-incident analyses from the 2011-12 bushfire season (with over two-thirds of the recommendations already implemented);

• increased interagency communication and cooperation as an outcome of the two Special Inquiries conducted into the Perth Hills and Margaret River fires of 2011 and systems in place to ensure that these relationships are ongoing and productive;

• enhanced mobilisation procedures through Cape Zone Response Arrangements between FESA, local governments and DEC; with a schedule developed to exercise arrangements by 17 December 2012;

• improvement in DEC's ability to efficiently undertake prescribed burning and bushfire control in the South West through an increased staffing capacity dedicated to fire management; and

• an improved ability to develop staff succession strategies as a result of the increased budget allocated to DEC for fire management, as well as improved risk management as assured by the establishment of OBRM.

In the short term however, these advances are not likely to substantially improve the State's capacity to manage more than two simultaneous, large and sustained fire incidents in the South West. Fires in more remote areas present even greater challenges as a result of logistical and infrastructural limitations. These long-observed capacity limitations were validated in 2011/12 during the November fires in Margaret River and Nannup and the major Carnarvon fire complex during January/February 2012. Mutual aid arrangements exist with other States to assist in this situation. The State is better prepared for 2012/13 relative to 2011/12, due to better training, resourcing and improved interagency arrangements. However, the State still faces a significant bushfire threat. In the medium term, issues such as the ageing demographic of experienced fire staff and volunteers, the availability of sufficient experienced accredited personnel to fill senior roles in IMTs, and the need for further scientific research to underpin the knowledge of fire behaviour in some fuel types in a drying climate, represent future challenges.

Appendix 3 : Recent History of Major Bushfires in Western Australia

Waroona January 2006

A bushfire in the Murray Valley burned through 11,500 ha of jarrah and wandoo forests. Suspected to have been deliberately lit, the fire threatened the town sites of Waroona and Yarloop as well as Alcoa's Wagerup refinery and infrastructure.

Dwellingup January – February 2007

A bushfire occurred between Dwellingup and Pinjarra and around North Waroona. This fire burnt 13,376 ha of which 7,625 ha were privately held. The fire destroyed 14 homes, 35 sheds and outbuildings and about 100 kms of fencing.

Boorabbin December 2007 – January 2008

The Boorabbin National Park fire, on the Great Eastern Highway about 200 kms west of Kalgoorlie, burned approximately 40,000 ha. On 30 December 2007, two trucks travelling along the highway were over-run by the fire and in consequence the three vehicle occupants died.

Bridgetown January 2009

A fire seriously threatened the town of Bridgetown and the nearby subdivision of Highland Estate. The fire burned out 5,877 ha, mostly privately held, and resulted in the loss of seven houses, nine sheds and 1,600 ha of mostly privately owned pine and blue gum plantations.

Two Rocks January 2009

A very large fire started near Two Rocks and rapidly spread through the northern sections of Yanchep National Park and pine plantations to the north and east. The fire area burnt 10,270 hectares of which 1,836 ha were in national park, 2,664 ha were privately held land and 5,760 ha were State forest, including about 4,000 ha of Forest Products Commission plantation.

Toodyay December 2009

This fire occurred on a severe fire danger day and burnt through nearly 3,000 ha of mainly private property, destroying 38 homes. The fire directly threatened the town of Toodyay but most damage occurred on farmland and small acreages to the South West and south east of the town.

Lake Clifton January 2011

Possibly related to a tyre blow-out on the Forrest Highway about 110 km south of Perth, this fire burnt through approximately 1000 ha of reserves and private property. Ten houses were destroyed and the Tuart Grove locality was evacuated.

Roleystone February 2011

Though relatively small at around 450 ha, this fire was the most destructive in WA since 1961, destroying 71 homes and damaging another 39 homes and structures. Caused by angle-grinding activity, the fire burnt predominantly on privately held land property. The subsequent special inquiry into the fire has led to significant changes in fire management in WA.

Margaret River November 2011

An escape from a DEC prescribed burn, this fire burnt fiercely through nearly 3,000 ha of long-unburnt coastal heath under unseasonably warm, windy conditions and destroyed or damaged 45 homes, chalets and sheds. DEC incident management teams, led by incident controllers with Section 13 (Bush Fires Act) authorisations from FESA, managed the response operation with assistance from FESA and local government bush fire brigades. The subsequent special inquiry has led to improvements to DEC's and the State's approach to risk management associated with prescribed burning.

Milyeannup November 2011

This fire escaped from a DEC prescribed burn on the same day and under the same conditions as the Margaret River fire. Though property damage was not as extensive, the Milyeannup fire was the largest in the South West in fifty years, burning through over 50,000 ha of forest and coastal heath.

Carnarvon Complex December 2011 – February 2012

These fires, which resulted from two separate series of lightning strikes, led to possibly the longest fire suppression campaign in WA since 1961, running for over five weeks. No homes were lost but there was significant damage to pastoral infrastructure and the North-West Coastal Highway was closed on several occasions.

Findings Relevant to the Department of Parks and Wildlife from the Western Australian State Emergency Management Committee Preparedness Report 2013

New prescribed burning risk management processes have been implemented by the Office of Bushfire Risk Management (OBRM) to reduce risks and interagency cooperation between Department of Fire and Emergency Services (DFES), Department of Parks and Wildlife (DPaW) and other pertinent agencies has been enhanced. An increased focus on recruitment and training of existing and new fire management personnel has also been a priority to improve safety as have been adopting increased safety measures for firefighters including fire blankets and a program to install additional fire protection measures in vehicles in high risk areas.

This year's report also recognises the role of the Forest Products Commission (FPC) in bushfire management. FPC operates under the Forest Products Act 2000 and employs approximately 160 staff to manage forestry activities in State-owned native forests and plantations. The majority of FPC's interests are located in the South West of the State on land held or managed by DPaW. In addition to the frequent incidence of bushfire in State-owned native forests, an average of more than 100 fires occur annually within FPC plantations. For the 2012–2013 southern fire season, more than 60 FPC staff were available for bushfire duties under a DPaW roster. Many of these staff perform frontline duties, develop bushfire management strategies and direct fire response equipment. FPC's role in bushfire preparedness is not recognised in current fire services or emergency management legislation.

One of OBRM's main achievements over the past 12 months has been the alignment of DPaW's prescribed burning processes and procedures with the international standard 'AS/NZS ISO 31000:2009 Risk Management – Principles and Guidelines'. New systems developed by DPaW have been approved by OBRM and an ongoing assurance program has been established to ensure compliance with the new processes and procedures. A number of audits have been carried out which indicate that DPaW's prescribed burning activities have been conducted in line with the new systems. This work has progressed to the establishment of a 'business as usual' program which will continue to be monitored through 2013–2014.

Regional Fire Management Plans have been prepared for six of DPaW's regions and are in preparation for the remaining three. These plans include objectives to be met for fire management in each region's fire management areas. There will be biannual progress reporting for prescribed burning in accordance with these plans.

In Western Australia the responsibility for fire prevention activities is shared by a number of agencies. The Department of Lands has responsibility for the overall administration of Crown Lands. DFES and DPaW provide fire management services on Unallocated Crown Land and unmanaged reserves on its behalf. Particularly, DFES manages this land within all town sites, regional centres and the Perth metropolitan area, while DPaW is responsible for the land outside town sites, regional centres and the Perth metropolitan area. In addition, DPaW carries out fire prevention on the lands that they manage while DFES has legislative responsibilities for lands within Gazetted Fire Districts and where some brigades or units are established.

DPaW has continued to roll out a communications and engagement strategy with the goal: 'To better inform the community about the complexities and decisions surrounding prescribed burns when they are undertaken in the rural–urban area'. Related to this strategy,

DPaW has rewritten and refocused the fire information on their new website, including that regarding prescribed burning, so that it is more concise, clear and consistent. It also contains case studies, diagrams and facts about fire.

Interagency Cooperation

The 2012 report noted the importance of arrangements under which the vast Crown land estate in Western Australia is managed for fire. Both DFES and DPaW have Memoranda of Understanding (MoU) with the Department of Lands for fire management of Unallocated Crown Land and unmanaged reserves. DPaW has commenced development of a new management order, which is the legislative instrument underpinning of its MoU with the Department of Lands and a review of the MoU is expected to follow. DFES has maintained its MoU arrangements with the Department of Lands and the Department of Education to manage bushlands on a cost recovery basis. The aim of both MoUs is to manage bushlands for all high bushfire risk schools and Unallocated Crown Land in the metropolitan area and town sites in Western Australia.

Complementing the formal arrangements a number of other initiatives are operating including joint exercising, group training and interagency working groups and committees. Enhanced Response Capability The opening of the DFES SOC in October 2012 has provided the agency with a modern Control and Command Centre, which was tested during the 2012 southern bushfire season. The systems and processes within the centre are being reviewed to ensure DFES is capable of managing all hazards for which it has HMA responsibility, including fire. Concurrent with the development of the SOC, the seven DFES Regional Operations Centres across regional Western Australia have also been reviewed for operational preparedness. It is important they are configured for operational effectiveness particularly when one of the regional operations centres is operating and its staffing is augmented by another region. DFES has committed significant resources to a Command, Control, Coordination and Information Systems project which will also fine tune the human processes and systems of the state and regional operations centres.

In relation to a significant capability issue identified in the 2012 report, that of succession planning for fire management practitioners, DPaW has committed 16 of 52 positions funded by a 2012–2013 budget increase to a Fire Management Development Program aimed at accelerating the development of dedicated fire management professionals.

A Major Incident Review (MIR) for the Black Cat Creek Fire, which occurred on 12 October 2012 in the local government district of the City of Albany, was initiated by DFES in partnership with the City and DPaW. During this incident, a number of persons were injured, including an employee of the former DEC, who tragically passed away from her injuries. The MIR was undertaken by Leading Emergency Services (Leading Emergency Services 2013), an emergency management consultant, and resulted in 10 recommendations. DFES, the City of Albany and DPaW subsequently took a number of actions in response to recommendations concerning:

- the use of ‘red flag’ warnings (whereby operational crews can be advised of critical hazards on the fire ground);
- the training of volunteer and local government fire managers in the Bureau of Meteorology’s Next Generation Forecast and Warning System and interpretation of spot weather forecasts;
- implementation of fire crew protection measures including additional individual fire blankets and the progressive equipping of appropriate fire appliances with additional protection measures;

- measures to enhance training and skills recognition for Level 1 Incident Controllers;
- enhancement of coordination, support and control facilities in Albany;
- enhancement of a culture of joint Incident Management Teams incorporating DFES, DPaW and local government personnel.

Since early 2012, DFES and DPaW have been implementing fire crew protection programs to improve safety for firefighters in bushfire burnover and entrapment situations. DPaW has committed to a $2.4 million program to retrofit new safety features to its firefighting vehicle fleet.

Preparedness for the 2013–2014 Southern Bushfire Season

The 2012–2013 budget increase for fire management, prevention and mitigation for DPaW places the department in a better position to reduce the risk associated with prescribed burning and to successfully combat bushfires. It also provides the means to address recommendation 16 of the 2010 Ferguson Review (Ferguson, 2010), which highlighted the need for succession planning for fire management staff, in order to minimise loss of skills and experience.

DFES, DPaW and local governments have successfully conducted annual exercises over the last two years in a pre-southern fire season context. The State Bushfire Exercise for 2013, held on 21 August, tested State Emergency Management Arrangements inclusive of policies and procedures; interoperability with other emergency management stakeholders; changes to incident management systems; reporting procedures and protocols as well as DFES' ability to coordinate a response to multi-agency bush fire events. The exercise was a scenario-based field exercise with limited deployment of firefighting resources. It provided regional and State level incident-based training and validation activities designed to exercise Incident Management Teams and their interaction with DFES Regional Operational Centres, the SOC and other incident supporting groups and agencies.

RESOURCES

Core Objective 3.1: People

Organisations have capable, well trained and supported workforces who are prepared to effectively perform a range of emergency management activities.

Key Finding

EMAs report that they are working towards having sufficient processes in place to ensure that people with the right skills are appointed and developed to perform EM roles safely. A number of organisations also reported having in place specific strategies to provide a culture which supports high performance. Incident management training at different levels is ongoing and opportunities exist to provide consistent and cost effective training. Detail State public sector agencies with EM functions and responsibilities work within the Western Australian public sector framework which provides appropriate job descriptions with articulated competencies, and recruitment practices to ensure the most suitable person is selected for the job. The sector is also encouraged to plan for its future workforce, including volunteers, through workforce planning strategies including attraction and retention, equity and diversity, leadership development and succession planning. Some EMAs which are not a part of the Western Australian public sector (for example, local government) also indicated that incident management functions are formally recognised and that the competencies required are integrated into recruitment and development processes.

The application of formal competency based training and assessment to critical response roles, such as Incident Controllers, has been demonstrated recently by the Interagency Bushfire Management Committee. It has developed a 'pathways' model for the development, accreditation and maintenance of currency of all Level 3 Incident Controllers who operate on bushfires in the State. The process is currently being implemented by DFES and DPaW.
To enhance the coordination of their incidents, DPaW has 11 mobile office sea containers fitted out with desks and cupboards to suit the requirements of the incident. They are used as a logistics office, operations office or incident control office to support the Incident Management Team (IMT), Incident Support Group or Operational Area Support Group. Additionally, DPaW have a mobile communications facility that provides a number of levels of communication and Information Technology capacity dependent on the network services provided at the incident site.

SLIP – EM

A spatial information initiative under the Western Australian Government's Shared Land SLIP project to establish infrastructure for the sharing of and access to the Government's spatial information. It provides access to consistent and authoritative base mapping and imagery for all agencies, a service to enable real time sharing of operational incident mapping (currently used by DFES and DPaW to provide external access to their operational mapping data) and the establishment of common mapping standards (symbology and map templates) for a range of hazards including bushfires.

FESMAPS

To augment its situational awareness, DFES has FESMaps. This web based map viewer is used by DFES as its Common Operational Map View and is configured for DFES' multi hazard responsibilities. FESMaps accesses the authoritative base mapping and imagery via SLIP and real time incident data and environmental data from DPaW, BOM and other information providers.

SPATIAL SUPPORT SYSTEM (SSS)

DPaW has their Spatial Support System (SSS) which provides a Common Operation Map View configured for their specific business requirements. Other agencies have their own specific business driven operational map views.

FESMaps provides information to graphically assess fires and share maps between DEC and DFES ensuring interoperability.

Core Objective 10.2: Knowledge Management

DPaW and DER report having sophisticated corporate data record keeping toallow rapid reporting on incidents. Throughout the fire season, suitably trained staff are maintained on standby to facilitate access to corporate information. Information such as the age of fuels, location of resources and

FUTURE ACTIONS

In response to the bushfire risk, work is underway in dealing with the complexities of multiple legislation covering fire prevention and suppression and also to reduce the risk of undertaking prescribed burning. In this regard, the OBRM has completed its first full year and aligned the prescribed burning risk management processes of DFES and DPaW to international best practice. Over the year there has been continued and enhanced

interagency cooperation between DFES, DPaW and other pertinent agencies in regards to fire prevention and suppression.

Findings Relevant to the Department of Parks and Wildlife from the Western Australian State Emergency Management Committee Preparedness Report 2014

A SEMC-led review of the Parkerville Stoneville Mt Helena Bushfire of January 2014 was able to identify many effective bushfire preparedness measures that were already in place in a representative section of the Perth Hills district as well as to identify further opportunities for improvement. These included clarifying the criteria for declaring emergency incident levels; improvements to public warnings and alerts and opportunities to enhance leadership expertise in rural – urban interface fire-fighting. The importance of Command, Control and Coordination (C3) within and between agencies engaged in bushfire response was also reinforced by the review, including a recommendation to pursue unified command, between Department of Fire and Emergency Services (DFES) and the Department of Parks and Wildlife (DPaW) in joint State Operations Centre, Regional Operations Centre and Incident Management Teams.

Problems with radio and mobile telephone communication related to the topography of the district also led to recommendations to review the radio infrastructure of the Perth Hills to achieve better coverage.

DPaW's management of large parts of the State's conservation estate and its role as a fire combat agency has particular relevance to bushfire preparedness. This year's Emergency Preparedness Report notes that DPaW has fully implemented four of the eight recommendations for which it has responsibility from the Keelty inquiry into the 2011 Margaret River bushfire and is well advanced on the remaining four. DPaW also reported that the improvement notices issued by WorkSafe in connection with the 2012 Black Cat Creek incident will be completely or significantly implemented within the agreed timeframes. Previous preparedness reports have noted the very important role that the DPaW prescribed burning program performs in relation to reducing fuel loads on lands in the conservation and forestry estate. In managing significant tracts of land in the State, DPaW have a 3-year/6-season prescribed burn program with an annual burn target for the South West forest regions of 200,000 hectares. However, the conditions for the safe and effective implementation of prescribed burns are not consistently available as they depend on a critical balance between weather conditions and factors such as soil and vegetation dryness.

As at 31 October 2014, DPaW reported that it had commenced or completed 57 burns in the South West of the State covering a total of 63,206 hectares. This represents a significantly better result in terms of meeting the broad target than an equivalent stage in the preceding season.

The development of a policy framework for risk management was introduced in the 2013 Emergency Preparedness Report. At the time of publication, SEMP 2.9–Management of Emergency Risks was undergoing a consultation process, and was subsequently approved by the SEMC in March 2014. This approval set a standard for a consistent approach for emergency risk assessments in the State, namely AS/NZS ISO 31000:2009. In addition to this standard, SEMP 2.9 outlines the roles and responsibilities of agencies and lists benchmark guidelines and risk criteria for the ERM process which will enable a comprehensive approach. These responsibilities include the requirement that all HMAs and

DPaW contribute to the development, implementation and maintenance of an ERM plan for all the hazards for which they are responsible at the State and district level. The collective risk assessment and plan development will be done on a prioritised basis as led and administered by the SEMC and DEMCs, respectively for State and district level.

The PIRG (Public Information reference group) is providing oversight to the combined DFES/DPaW 'Single Source, Critical Messaging' project. This project aims to streamline and synchronise simultaneous emergency messages from DFES and DPaW during bushfires.

CAPABILITY AREA 7 A MOBILE, CAPABLE AND COORDINATED RESPONSE
Achievement Objective 7.1: Command, Control and Coordination Pre-established and well-understood protocols and structures exist that define the inter-relationships between stakeholders during an event and facilitate the orderly giving of directions, undertaking of key tasks and reporting arrangements.

Key Finding Command, Control and Coordination (C3) continues to be highlighted as an area pivotal to response activities during a large-scale emergency. EMAs report that their C3 procedures are consistent with SEMP 4.1– Incident Management and facilitate orderly tasking and command arrangements. Two incident management systems are used in Western Australia, namely AIIMS and ICCS. Although interoperable, the differences between the systems should be considered when developing State EM policy.

The importance of C3 within and between agencies in response activities was recognised in the 2013 Emergency Preparedness Report. This was reinforced during the review of the Parkerville Stoneville Mt Helena Bushfire of January 2014, in which a recommendation was made to pursue unified command (between DFES and DPaW) with a joint State Operations Centre, Regional Operations Centre and Incident Management Teams as an overarching goal.

Agencies report a good level of communications preparedness and most EMAs report interoperable communications. DPaW operates on VHF high band that is compatible with WA Emergency Radio Network and has common channelling across DFES, SES and the volunteer bushfire brigades, and can communicate on selected channels with WA Police.

Case Study

DPaW is responsible for managing over 83 million hectares of unallocated Crown land and unmanaged reserves as well as mitigation and suppression responsibility for a further 23 million hectares of national parks and reserves across Western Australia. To effectively support their responsibilities, DPaW has invested in interoperable communications infrastructure. It can service remote areas across the State and is consistent with the State Communications Strategy.

This equipment is available for 2-way radio communications use in emergency situations and includes:

• approximately 1,550 mobile radios fitted to vehicles, boats, aircraft and offices

• approximately 500 portable radios and 100 repeater sites across the State.

DPaW owns, maintains and manages a satellite-based communications network that is integrated State-wide to transmit information between offices and the field; and provides reliable and flexible communications for fire and other emergency operations as well as day-to-day business activities. Over 350 vehicles, appliances (including machines and marine vessels) and aircraft are tracked via satellite-based GPS systems, allowing near real-time online spatial web-based reporting. For radio communications interoperability, DPaW operates on VHF high-band that is compatible with WA Emergency Radio Network. It has common channelling across DFES, SES and the volunteer bushfire brigades and can communicate on select channels with WA Police. DPaW has established mobile communications facilities and portable technology caches to provide operational redundancy for radio communications, ICT and GIS. These include 2-way radios, portable repeaters and mobile communication facilities that can support a full incident management team. In high risk forest areas, redundancy is created through the use of multiple channels and overlapping network coverage. All these facilities are supported by a team of rostered multi-skilled technical and operational staff who provide installation, maintenance and repair of

DPaW maintains GIS datasets that detail the location of fire sensitive infrastructure and engages infrastructure managers to provide for its protection from fire. An example is a biannual meeting with Telstra to update information pertaining to telecommunications infrastructure within DPaW-managed lands. Fire threat analyses include critical infrastructure as an input when determining the level of threat and appropriate mitigation strategies.

As an EMA, DPaW reports engagement at State, District or local level and nationally through entities such as the AFAC and the Bushfire and Natural Hazards CRC.

Some EMAs work especially with organisations that have closely aligned interests. For example, the Forests Products Commission works closely with DPaW in relation to fire preparedness and management.

Findings Relevant to the Department of Parks and Wildlife from the Western Australian State Emergency Management Committee Preparedness Report 2015

DPaW reports that it has the capacity to establish a fully operational mobile incident control centre on a suitably sized and located 'greenfields' site anywhere in the south-west of the state within 12 hours (and elsewhere in the state in a longer timeframe). Dependence on fixed incident control centres is therefore reduced as the mobile facility may be more functional than fixed centres whose primary purpose is not usually incident management.

All applicable EMAs and service providers report that, in accordance with SEMP 4.2 – Funding for Emergencies, they have procedures to capture and report on expenditures related to the management of large-scale emergencies. DPaW has developed financial guidelines for bushfires that ensure financial governance and accountability for all expenditure incurred at an incident.

DPaW has formal arrangements with the Forest Products Commission (FPC) for personnel participation in the department's fire management program. This is in addition to formal agreements covering heavy machinery and logistics for bushfire response operations. Further, informal arrangements are in place with some commercial tree-growing companies to protect plantation assets.

An area of ongoing focus is upon addressing communication disconnects between DFES and DPaW. Lack of visibility of DFES' information management systems has been reported by DPaW as a matter that may limit effective interagency operations.

The mechanism for DFES and DPaW to share WebEOC® is available, as evidenced by the WebEOC® partnerships between MainRoads WA and PTA, and WA Health and St John Ambulance. However, technological interoperability between these agencies is yet to be fully achieved. Additionally, VHF radio communications can be problematic in some instances as high-band VHF is not available in a number of local government and private vehicles (which are still equipped with mid-band VHF), and some support agencies are not VHF-equipped at all. While it is acknowledged that it is critical for DFES, DPaW and local government to communicate seamlessly during bushfire response, interoperability of communications remains a body of work being addressed.

DFES and DPaW report they have established predetermined incident management teams (IMT). During peak activity periods, and following a risk assessment, it is intended that these IMTs would be deployed to high risk or strategic locations

DPaW reports it has formal contracts for the provision of heavy machinery and logistical arrangements and a formal arrangement with the Forest Products Commission for their participation in the department's fire management program.

DPaW – provides access to registered wildlife carers to assist with the welfare of native animals affected by an incident

DPaW reports it contributes to national and international research programs, and maintains long-term involvement in fire management, fire behaviour and ecology research and practice. The department also participates in study tours between Australasia and North America through the Australia–New Zealand Forest Fire Management Group.

A noteworthy example was the improvement notices issued to DPaW by the workplace occupational health and safety regulator WorkSafe after the 2012 Black Cat Creek bushfire. DPaW reports it has fully implemented all 10 improvement notices issued after the 'burnover' incident in which a volunteer firefighter died and three of her colleagues were injured. The final improvement notice was completed in November 2014 when water deluge systems were installed across the department's entire fleet of fire trucks.

Since the initial Keelty-led inquiries into the Perth Hills and Margaret River bushfires, significant work has been done to address the management of bushfire risk:

- Statutory planning policy is rapidly changing.
- Bushfire prone areas are being defined.
- DFES and DPaW fire-related resourcing has been enhanced.
- A system of developing local government Bushfire Risk Management Plans (BRMPs) has been developed.

An extensive 'Are You Bushfire Ready?' risk awareness campaign has been invoked.

Bushfires

The following are proposed future actions in relation to bushfire risk:

- newly developed bushfire risk management plan guidelines to be delivered across identified local governments;
- Western Australian Bushfire-Prone Area Map to be developed; and

prescribed burning to be regulated through oversight of the DFES and DPaW prescribed burning activities and aligned to an AS/NZS ISO31000 Risk Management Framework