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# Fire prevention and preparedness

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MELBOURNE

Under the provisions of section 16 of the *Audit Act* 1994, I transmit my performance audit report on *Fire prevention and preparedness.*

Yours faithfully

J.W. CAMERON
*Auditor-General*

8 May 2003

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# Foreword

This audit began before the recent outbreak of wildfires across the State. It has concentrated on prevention and preparedness issues. An inquiry into this summer's fires is currently being conducted by the Emergency Services Commissioner. I expect this report to provide valuable information for the inquiry.

Fire is part of Victoria's landscape – it cannot be eliminated, but there is much that can be done to prepare for fire and to limit its damage. While interest in the suppression effort is understandable, the responsible agencies must keep a strong focus on the tasks of planning, co-ordination and preparation. A swift, safe and effective response to wildfire is only possible with the best preparation, and good quality groundwork - such as early fire prevention, clear policies and controls, staff training and equipment maintenance - is critical to safeguarding the community in a wildfire emergency.

A wildfire does not respect boundaries, and one of the most important elements in fire management is for the various agencies to co-ordinate their activities. The Country Fire Authority and the Department of Sustainability and Environment have put considerable effort into ensuring that they can provide a swift and seamless response to wildfire. But an important prerequisite is effective arrangements for co-ordinating fire prevention activities and co-ordination with key players such as local government, rail authorities, electricity distribution companies, and various land owners and tenants.

Individual members of our community have some of the most important responsibilities for wildfire prevention and preparedness. Victoria's professional and volunteer firefighters deliver outstanding service, but ultimately the responsibility for protecting our own lives and property from wildfire lies with each of us as individuals. Municipal councils need to support and facilitate fire prevention and preparedness activities on private land, ensuring residents have clear understandings of risk, and that municipal fire prevention planning is given the emphasis it clearly deserves.

This report recognises progress made to date and identifies the challenges ahead in fire prevention and preparedness.

J.W. CAMERON
*Auditor-General*

8 May 2003

# Part 1

# Executive summary

## INTRODUCTION

Southern Australia is one of the most wildfire-prone regions in the world. The wildfires that occurred throughout Victoria, NSW and the ACT in the summer of 2002-03 are a stark reminder that, despite advances in technology and increased understanding of wildfire, wildfire remains a significant threat to life and property in rural Victoria.

Preventing wildfire and preparing firefighting resources to ensure that suppression can be undertaken swiftly and safely is the responsibility of 2 key firefighting agencies. The Country Fire Authority (CFA) is responsible for fire prevention and response on private land outside the Melbourne metropolitan area. The Department of Sustainability and Environment (DSE) is responsible for fire prevention and suppression on Victoria's 7.7 million hectares of public land.

This audit commenced prior to the fires of summer 2002-03, and did not examine suppression operations. The audit focused on the planning, prevention and preparedness measures that can prevent or reduce the severity of Victoria's seasonal wildfires, and on whether those essential planning and prevention measures are being effectively implemented.

## OVERALL CONCLUSION

Improvements in fire prevention and preparedness have been made since our audit of fire prevention on public lands in 1992, and the tragedy of the Linton fire in 1998.

We concluded that the CFA and the DSE have made significant advances in the areas of:

- co-ordinated strategic planning for joint operations between the CFA and the DSE;
- implementation of common incident control systems, allowing clear understandings of fire suppression roles between the CFA, the DSE and interstate and overseas firefighters;
- the DSE's risk-based approach to resource allocation under its model of fire cover;
- community education programs developed by the CFA;
- provision of minimum skills training to CFA volunteers; and
- the DSE and the CFA's co-operative approach to implementing nationally accredited competency standards within a joint training framework.

However, further work is needed in a number of critical areas:

- development of a State wildfire safety strategy by the Office of the Emergency Services Commissioner (OESC);
- increased focus on strategic management of hazard reduction on public land, to ensure that appropriate targets are set, resources are provided for their achievement and performance is monitored;

- improved fire prevention planning and hazard management on private land through the municipal fire prevention framework;
- implementation of whole-of-life cycle management for critical firefighting assets; and
- systematic identification of fire access needs on public land and planning to maintain the road and bridge network accordingly.

## KEY FINDINGS

### Policy and planning

#### *Legislation and policy*

***Paras 3.9 to 3.20***

A complex array of legislation, inter-agency agreements, risk assessments, operational policies, plans and strategies, all dealing with fire prevention and suppression, are in place to ensure effective fire management by fire agencies and to add clarity, co-ordination and knowledge to their operations.

Integration of planning at a strategic and operational level between the CFA and the DSE remains a key theme in effective wildfire management. The multi-agency agreement that defines the respective roles and co-operative arrangements between the CFA and the DSE is clear and supports the effective conduct of wildfire prevention, preparedness and suppression. This agreement could be enhanced by extension to a greater range of areas and by more regular joint exercises to assist operational readiness.

We recommend that:

1. The DSE and the CFA make further improvements in inter-agency co-operation, such as:
   - extending the co-operative agreement to more fully encompass fire prevention and preparedness activities;
   - finalising agreements with interstate and other fire agencies; and
   - giving priority to establishing integrated fire management information systems.

#### *Co-ordinated planning*

***Paras 3.22 to 3.58***

The OESC is currently developing a Statewide fire strategy based on risk profiles for different types of fires (structure fires, wildfire etc.). This strategy is intended to provide fire services with better information on the level of risk in particular areas of the State, which will assist them to make decisions on the appropriate prevention and suppression measures. The wildfire part of this strategy will not be developed until the work on structure fires is completed.

At the moment, the DSE allocates its resources across the State according to the DSE Model of Fire Cover, which analyses levels of risk in various locations under various conditions and prescribes the level of resources that should be available. The CFA does not have a risk-based resource allocation model, and its resources are generally located around the State as a result of the historic development of brigades in regions.

As a volunteer organisation, the CFA has less flexibility to allocate resources purely according to risk than the DSE, but currently its needs in terms of the numbers and operational competencies of volunteers required are not clearly defined. Effective training, management and utilisation the CFA's 62 000 volunteers can only be achieved when a clear picture is developed of which areas of the State have the greatest need.

Municipal councils also have responsibilities for fire prevention planning, co-ordinating regional or municipal fire prevention committees, and through their application of planning provisions on new development. This area of fire prevention planning works less well than other areas so private landowners may not be sufficiently apprised of:

- their responsibilities for fire management on their own land; and
- the benefits of improved prevention and preparedness over fire suppression after a fire occurs.

A single, shared incident control system is essential for firefighter safety and successful fire suppression. Firefighters need to know how the fire ground will be managed, and to understand clearly their own role and the role of every other person at the fire ground.

The implementation of the incident control system, ICS, adopted by the CFA and the DSE in the early 1990s, has been an important initiative allowing firefighters from different organisations (or even different States or countries) to work together in a fire as a single team. The system is well entrenched in the DSE and both organisations have shown strong organisational commitment to implementing ICS. However, in some areas of the CFA, ICS has not fully replaced the brigade command structure, which may be still used at small fires. As a volunteer organisation, the CFA sometimes faces challenges in implementing change, but the failure to fully implement ICS has the potential to put firefighters at risk.

We recommend that:

2. Key stakeholders in fire prevention, including the DSE, the CFA, local government and the OESC work to develop mechanisms that support broader co-operation in fire prevention and preparedness;
3. The OESC expedite a wildfire component of the State fire safety strategy, continue CFA involvement, and involve the DSE more actively in the preparation of the strategy, particularly in the development of the wildfire component of the project;
4. The CFA commence allocating resources according to risk as soon as the OESC model is available. Such an approach will need to take into account volunteer availability and brigade-owned resources. However, once this analysis is completed, a more focused application of training and fire-fighting resources can be made;
5. The DSE and the CFA conduct regular joint exercises to assess preparation in areas where operational readiness is not tested through call-out;
6. The CFA fully integrate ICS into its operations across the State; and
7. The CFA and the DSE use common ICS terminology.

## Fire hazard management

### *Hazard management on public land*

***Paras 4.13 to 4.35***

There are strong prescriptions in place to ensure that hazard reduction burning on public land is conducted safely and without incident by the DSE, and there are systematic planning processes in place to establish targets for optimum levels of fuel reduction burning. However, there has been a consistent failure to achieve hazard reduction targets. The significance of this under achievement cannot be easily assessed, because the DSE reports in terms of hectares burned, and does not report on the level of residual risk resulting from failure to achieve hectare targets.

The necessarily strict conditions governing fuel reduction burning mean that considerable advance planning must be conducted for these burns. They can no longer be conducted on an opportunistic basis. The opportunity to conduct fuel reduction burning can be limited by competition for physical resources and limited availability of accredited supervisors as well as meteorological factors.

Fuel reduction burning conducted by the DSE is not fully costed internally, and staff conducting burns are “borrowed” from other business units. This means that the DSE’s budgetary commitment to the activity lacks transparency and operational managers setting targets for fuel reduction each year do not have certainty that the resources will be available to achieve targets.

Some improvements in performance can be achieved by changing current arrangements. Currently, the DSE employs greater numbers of Project Fire-fighters (PFFs) in seasons of high fire risk. Generally, those staff cease employment early in autumn when the risk declines. If PFFs were retained to assist with fuel reduction burning, then improvements in target levels may be achieved. Increased burning may also be achieved if involvement of CFA volunteers was increased along with the numbers of accredited supervisors. This would have the added benefit of increasing the experience gained by volunteers in wildfire.

However, any consideration of ways to improve fuel reduction burning levels needs to be accompanied by rigorous risk and cost-benefit analysis. The existing prescriptions, which are essential for the safe conduct of fuel reduction burning, mean that the activity will remain costly, and fully meeting current targets would require a significantly increased outlay. The DSE's understanding of the relationship between the level of fuel reduction burning and overall wildfire risk is currently limited. Analysing different outlay options, in order to see which gives the best overall reduction in risk, is a complex modelling task. Considerable work needs to be done in this area.

We recommend that the DSE:

8. supplements the current area targets for fuel reduction burning with measures that more accurately reflect the level of risk reduction being sought and achieved, and reports results;
9. fully costs fuel reduction burning activities within its internal budgeting process, allocates appropriate funding levels and allocates the cost of staff employed from other business units;
10. in consultation with the Department of Treasury and Finance, considers revised funding arrangements that introduce greater flexibility to allow for differing levels of funding to reflect factors such as seasonal variations;
11. introduce strategies to increase the availability of accredited field supervisors and the associated work force (e.g. through greater use of weekend work and the opportunity for CFA volunteers to participate); and
12. provides increased public information regarding the fuel reduction burning program and the measures taken to protect the environment.

## *Hazard management on private land*

***Paras 4.37 to 4.46***

Hazard management on private land requires that:

- new developments in wildfire areas should only proceed with safeguards in place to make sure that the location, design and landscaping are appropriate; and
- existing developments need to be monitored to make sure that they do not increase the fire risks to neighbours and the community.

The voluntary planning framework enabling guidance and control on new development in wildfire areas, through wildfire management overlays (WMOs), is in place in only 22 out of 63 municipalities covered by the CFA. While not all municipalities need to implement WMOs, the failure to implement them where there is a risk of wildfire increases the likelihood that inappropriate developments will proceed in wildfire-prone areas.

The ways that municipalities identify and address existing fire hazards on private land are variable in their quality. The Municipal Fire Prevention Plans required under the *Country Fire Authority Act* 1958 are audited by the CFA, whose representatives also sit on the Municipal Fire Prevention Committees. However, the CFA is unable to audit the implementation of the plans, and there are no sanctions for municipalities who fail to prepare or implement a plan.

We recommend that:

13. the DSE and the CFA ensure that municipalities give high priority to meeting the fire protection requirements of the State Planning Policy Framework and continue to work to improve the standard of municipal fire prevention planning;
14. the CFA promptly implement the recommendations of its Best Practice Review of Municipal Fire Prevention. Particular priority should be given to reintroducing amendments to the *Country Fire Authority Act* 1958 to provide the CFA with the power to audit the implementation of municipal fire prevention plans;
15. municipal and regional fire prevention committees be reorganised to provide a clearer focus on the planning and management of fire prevention; and
16. the CFA commence the process of re-aligning brigade and group boundaries with municipal boundaries.

## Community preparedness

### *Education programs*

***Paras 5.8 to 5.30***

Community education programs conducted by the CFA are effective in giving participants accurate knowledge of how wildfires behave and how to prepare for a fire. People who have participated in these community-based programs are also more likely to translate their knowledge into tangible steps to prepare for a fire.

However, ensuring that the community is adequately prepared for a fire is an ongoing challenge, and education programs are not reaching all households at risk.

While the CFA has sound processes for central program development, planning and evaluation, regional implementation is not consistent, with uneven levels of activity across regions and no consistent process for determining priority areas based on risk.

The DSE has traditionally regarded community preparedness education as falling outside its brief to manage the fire threat on public land. However, in recent decades the growth of homes and weekenders in areas adjoining land managed by the DSE has made the distinction between public and private land fires less clear-cut.

We recommend that:

17. the CFA develop and implement comprehensive and consistent local needs analysis tools and undertake local planning based on risk profiling to determine the number and location of community education sessions; and
18. the DSE work with the CFA to develop a co-ordinated and agreed position on responsibilities and actions for community education.

## Community preparedness and misconceptions

***Paras 5.32 to 5.72***

Many residents that we surveyed in wildfire-prone areas were aware that their home was at risk of fire, but had not undertaken essential preparedness steps. Some people had potentially dangerous knowledge gaps about fire behaviour, or were planning inappropriate survival strategies. These gaps were in areas that could place people at risk in the event of fire. Gaps included people's understanding of: the role of the emergency services; when to go if they plan to leave their home in a fire; where to go if they leave; and how to obtain reliable information on what is happening during a local fire emergency.

We recommend that:

19. The CFA reconsider its official advice that all residents planning to leave should do so by 10 a.m. on all days of high fire danger. Advice about when to go, if you go, should be based on local risk assessment and incorporated into community education programs;
20. The CFA continue work to identify common misconceptions, community information needs and effective channels of information during a fire;
21. The CFA formally define the role of community education staff in managing information flows and content, including any media liaison roles that may be involved; and
22. The OESC, in consultation with the CFA, the DSE and local government, urgently progress work on a consistent Statewide position on fire refuges which incorporates a risk assessment process, standards for fire refuges and aligns with the policy position on evacuation.

## Key stakeholders and wildfire prevention

### *Powerlines and wildfire mitigation*

***Paras 6.7 to 6.14***

Two of the most serious bushfire events in recent Victorian history (the 1977 and the 1983 bushfires) involved a number of fires initiated from powerlines during hot, dry winds. Since then, significant progress has been made in preventing fires started by powerlines. Preventing fires started by powerlines is the responsibility of the electricity distribution companies, overseen by the Office of the Chief Electrical Inspector (OCEI).

Fire prevention from powerlines is generally effectively managed through this framework, although many of the arrangements in place have not been formalised.

We recommend that the OCEI:

23. document its wildfire mitigation process;
24. develop standards for the preparation of Bushfire Mitigation Plans and the Bushfire Mitigation Index;
25. improve data collection and performance reporting on wildfire mitigation outcomes; and
26. sponsor national research into best practice for cables, poles and pole-top installations with a view to minimising wildfire risks.

### *Railways and wildfire mitigation*

***Paras 6.16 to 6.35***

In recent decades, the risk of wildfires being started by railways has declined with changes to locomotives and to rail lines. However, planning and managing wildfire prevention in the rail system remains important, not least because rail corridors can be difficult areas in which to manage wildfires that may start outside the rail reserve and burn into it.

The regulatory regime for fire prevention on railways is less clearly defined than for electricity companies. Although in recent years outcomes have been good, this may well be due to technological change to locomotives and rail lines, which have reduced the risk of sparks, as much as to improved management of other risks. Clearer definition of accountability and responsibility needs to be achieved through enhancements to lease and franchise arrangements.

Governance arrangements for rail corridors are complex, with land and infrastructure owned by the Victorian Rail Track Corporation (VicTrack), leased to the Public Transport Division (PTD) within the Department of Infrastructure, and then on-leased to private rail and track companies, which may, in turn, reach agreement with other private rail operators to use the tracks they lease.

Operational responsibility for the conduct of fire mitigation and prevention work is specified in some leases and franchising arrangements, but not in all, and there is no clearly defined chain of responsibility. The *Country Fire Act* 1958 allows municipal fire prevention officers to serve hazard reduction notices on rail and track companies leasing rail corridors. However in many cases municipal fire prevention officers are not clear on which body is responsible for fire prevention concerns on leased rail lines.

We recommend that:

27. the PTD review internal documentation and commence negotiations to revise and strengthen leasing arrangements to ensure that:
    - fire mitigation responsibilities/accountabilities of government agencies and rail companies are clearly documented; and
    - each company leasing or accessing rail corridors is required to have appropriate policies and plans for fire mitigation;
28. the PTD extend its current safety audit process for rail companies to include an audit of wildfire mitigation activities conducted by companies and by contractors on the company's behalf;
29. the PTD, the CFA and local government work to establish closer liaison between rail companies and municipal fire prevention committees; and
30. the Office of the Emergency Services Commissioner, in consultation with the CFA, the PTD, and the OCEI, establish systems to improve performance reporting on wildfire trends and outcomes for industry sectors.

## Plantations and wildfire mitigation

***Paras 6.37 to 6.51***

The effect of the growth of private plantations over former farmland on wildfire risk is unclear, even among experts. Plantation owners with more than 500 hectares of plantation in a 25 kilometre radius must establish, equip and staff their own CFA brigade. Generally, this condition is being met, with most companies taking the initiative. There is also provision for the formation of joint industry brigades where the holding requirement is not met by a single company, but this is not currently occurring.

Currently, the level of guidance available for councils to make appropriate decisions on plantation fire prevention is poor. Draft *Fire Prevention Guidelines for Plantations* were prepared by a CFA regional office in 2002, however, these have not yet been endorsed formally by the CFA and are currently only in use in the south-west of the State. The CFA is currently developing State Fire Prevention Design Guidelines in conjunction with the plantation industry.

As with hazard management on non-commercial private land, it appears that the municipal fire prevention framework for identifying and managing hazards on plantations is weak and inconsistent.

We recommend that:

31. the DSE, the CFA and the plantation industry initiate work with the Bushfire Co-operative Research Centre to develop fire behaviour models and standards to minimise the wildfire risk in commercial forest plantations;
32. the CFA adopt a firm line in encouraging companies at risk to form industry brigades as provided for under legislation;
33. the CFA formally endorse State Fire Prevention Design Guidelines for Plantations to provide guidance to key stakeholders; and
34. State and local government and the CFA improve the standard of municipal fire prevention planning and ensure its consistent implementation in forest plantations.

## Firefighting personnel

### *Recruitment*

***Paras 7.8 to 7.22***

The firefighting work forces of the DSE and the CFA, professional, volunteer and seasonal workers, continue to be the most important resources for preventing and suppressing fires. Aircraft assist in containing fires, but fires can still only be extinguished by well-trained and well-prepared people on the fire ground and in command centres.

Each year the DSE recruits between 600 and 800 Project Fire-fighters (PFFs) to assist with firefighting operations during the fire season. Although primarily employed for fire suppression, a large part of a PFF's time is spent on fire prevention activities. There is no management framework that designates key prevention priorities and reports on their achievement. The PFF program focus has not been reviewed in recent years.

The CFA has recently conducted a review of career firefighter recruitment and is currently implementing the recommendations. Volunteer recruitment is managed within brigades under broad guidelines specified in the Country Fire Authority Regulations 1992 requiring only that volunteers be "of good moral character and habits" and "capable of performing his or her duties … without endangering his or her safety, or the safety of others"[1]. Brigade officer positions are currently filled by election, with no requirement to meet specified competency standards.

[1] Regulation 47, Country Fire Authority Regulations 1992.

We recommend that:

35. the DSE review the focus and priorities of the Project Fire-fighter program in order to ensure that it is aligned with changing strategies in fire prevention and suppression; and
36. the CFA introduce requirements that must be met (such as the completion of Incident Control System accreditation) before a brigade member can stand for election for key command and control roles.

### Succession planning

***Paras 7.24 to 7.41***

Effective work force planning for firefighting personnel is necessary because of the limited external recruitment market and because of the long lead times before officers have gained qualifications and experience through actual exposure to wildfire. The DSE estimates that it takes from 8 to 15 years experience before officers have gained the proficiency to perform in key fire management roles.

While the CFA has a relatively young career firefighting work force, the DSE has an ageing work force. This is a significant issue because much of the State's forest fire expertise and experience is located in the DSE, which is a full-time forest management force. Age profiles of employees at key command and control levels show that the DSE is likely to lose significant expertise in the next decade. If not addressed, this issue has the potential to jeopardise the State's capacity to respond to wildfire emergencies.

Much has been done to improve the training and accreditation of CFA volunteers. Since the Linton tragedy in 1998, 20 400 volunteers have undergone the Minimum Skills Training Program. However, systematically identifying training needs, delivering training to 62 000 volunteers, and keeping these skills up-to-date, is a significant challenge for the CFA.

We recommend that:

37. the DSE and the CFA implement effective workforce planning and management policies and procedures, including needs analysis, reporting and succession planning in order to ensure that future resourcing needs will be met.

### Training and development

***Paras 7.43 to 7.69***

In contrast to the formal co-operative arrangements they have developed in many areas, the CFA and the DSE do not have a formal joint committee to consider emerging training priorities, approve standards and modules or to facilitate sharing of resources and infrastructure for training.

Both organisations structure their training for firefighters around Incident Control System (ICS) roles and have agreed to the minimum national content required to meet the needs of each ICS wildfire role. There are no defined standards within the CFA to guide senior staff in certifying that trainees have had appropriate experience for endorsement of accreditation in ICS roles. The DSE's accreditation for many ICS roles must be renewed after 5 years, whereas the CFA has no formal requirements to ensure skills are maintained.

Training needs within the DSE are based on regional assessments of the numbers of personnel trained in ICS roles determined under the model of fire cover. Local management identifies the CFA's regional training needs but there are no standard criteria for determining needs and no structured performance review process for lower level career firefighters or volunteers. The CFA faces particular challenges in delivering training to its large numbers of volunteers.

We recommend that:

38. the DSE and the CFA establish a joint high-level training committee to:
    - approve training priorities, standards and modules;
    - facilitate sharing of resources and infrastructure; and
    - identify emerging training needs;
39. the CFA implement a more structured and systematic approach to training, incorporating: regional needs analysis based on risk; defined standards to ensure that the accreditation process meets operational standards; and minimum skills maintenance requirements for continued accreditation; and
40. the DSE and the CFA introduce a requirement for pre-season, hands-on refresher training in radio use for on-the-ground communications training.

## Infrastructure management

### *Fire-fighting equipment*

***Paras 8.6 to 8.59***

Neither the CFA nor the DSE has a strategic framework for the management of high-value firefighting assets. The DSE manages these assets under broad asset management policies, and the CFA has only recently commenced development of a formal asset management strategy. The CFA faced emerging challenges replacing pumpers and tankers, and has now addressed them by reviewing vehicle replacement criteria.

Firefighters depend on equipment being in sound "fit-for-service" condition at all times. Both the DSE and the CFA have programs for regular inspection and maintenance of equipment. However, these inspection and maintenance programs are not always clearly defined, processes are not always followed and issues identified during inspection processes are not always followed-up.

Some fire operations require that the DSE or the CFA use private contractors to provide additional heavy plant. Contract arrangements are made in advance of the fire season. In these circumstances, it is essential that documentation on licences, workplace safety, maintenance and risk management systems is sighted at the time of engagement. Without this safeguard there is a risk that a rapid deployment will occur without necessary documentation being in place.

Brigade-owned vehicles represent 23 per cent of the CFA vehicle fleet, and 220 of these brigade-owned vehicles are tankers and pumpers. The CFA approves a brigade's purchase of a vehicle and provides subsidies for running costs, although the cost of maintaining a tanker is generally in excess of the subsidy provided. Some workshop records show several vehicles with mechanical problems and there is no process in place to ensure that brigades rectify reported defects. Although brigades are allowed to retain firefighting vehicles until 25 years from the date of manufacture, there is no process in place for inspection of vehicles after they reach 20 years from the date of manufacture.

We recommend that:

41. the CFA and the DSE further develop existing asset management practices and implement a whole-of-life asset management strategy for specialised, firefighting assets that establishes a clear replacement funding model;
42. the CFA and the DSE review the processes for inspection of fire equipment and work centres so that:
    - the scope, conduct, accountabilities and issues resolution for inspection programs are clearly defined; and
    - information resulting from inspections is collected Statewide to enable consistent analysis of the condition of fire equipment and to facilitate its management;
43. the DSE and the CFA revise plant contract management policies to ensure that documentation on contractor licences, equipment maintenance, risk management and workplace safety systems is sighted at the time of appointment and prior to deployment of hired equipment; and
44. the CFA review its policy on inspection and maintenance of brigade-owned vehicles to ensure that all emergency response vehicles, including vehicles over 20 years old, are inspected and appropriately maintained.

## Fire access roads

***Paras 8.62 to 8.80***

The extensive nature of the fire access network, the remoteness of many tracks and the sometimes limited options for alternative routes means that it is essential for accurate information to be available on the location, condition and accessibility of roads and bridges used for fire access. To date, the DSE has been restricted in the management of this information by the limitations of its road and track database. However, a system redevelopment is currently being undertaken that will address many of the shortcomings of the previous system. As information on access within the DSE improves, it is vital that the information needs of the CFA are considered and provided for.

The fire access road network is extensive and costly to maintain. The planning and management of the network of fire access roads and bridges needs to be conducted within a clearly defined strategic policy framework based on service delivery needs. This strategic policy framework for the fire access network has not been clearly defined and, until this occurs, maintenance cannot be based on a clear understanding of costs and benefits.

We recommend that:

45. the DSE and the CFA extend the current co-operative agreement to include formal arrangements for providing regular, appropriate information on changes to, and the condition of, the fire access network on public land;

46. the DSE enhance the proposed upgrade of existing systems by:
    - clarifying system management responsibilities between business entities;
    - identifying and addressing external stakeholder information needs;
    - introducing systematic inspection processes to verify system accuracy; and
    - implementing regular safety audit processes to highlight areas of concern; and

47. the DSE develop a consolidated fire access infrastructure policy, based on service delivery needs and this be agreed to by all relevant parties.

***RESPONSE** provided by Secretary, Department of Sustainability and Environment*

*The Department of Sustainability and Environment generally supports the findings of audit and considers the reporting of issues was balanced and the majority of recommendations suggested practical approaches to resolving matters raised.*

*The performance audit was a timely examination of fire prevention and preparedness and will provide a valuable component in our approach to continuously improving all facets of the Department's fire management program and in particular our partnership arrangements with the CFA.*

***RESPONSE** provided by Chief Executive Officer, Country Fire Authority*

*The audit report acknowledges the many improvements in fire prevention and preparedness over the past decade, yet also offers a focus for further improvements.*

*It has been a difficult summer and the subsequent review of the fires will no doubt place this audit under considerable scrutiny.*

*We at the CFA appreciate the professional and thoughtful conduct of your audit team over this trying period.*

***RESPONSE** provided by Secretary, Department of Justice*

*I note the comments concerning the importance of strengthening relationships between the Office of the Emergency Services Commissioner (OESC) and the Department of Sustainability and Environment (DSE) in the development of the wildfire component of the risk analysis methodology. DSE is aware of the OESC's position concerning these issues and the need for the OESC to finalise this part of the project.*

*The inquiry into the north-east bushfires will provide valuable input into the development of the wildfire risk profiles. I also note comments referring to the status of fire refuges and the need to resolve this as a policy position.*

*These matters are already priorities within the OESC and will be finalised as soon as practicable.*

***RESPONSE** provided by Chief Electrical Inspector, Office of the Chief Electrical Inspector*

*The OCEI supports the recommendations 23 to 26 of the report. It is acknowledged that while the OCEI process for determining the extent of compliance to legislation is well known by the participating industry, this process is not as transparent to others and some supportive documentation of OCEI processes would be beneficial.*

*In regard to legislation underpinning the above process, the audit report makes adequate mention of the requirements under the Electricity Safety Act 1998 and the Electricity Safety (Electric Line Clearance) Regulations 1999.*

*However, it is implied in paragraph 6.11 of the report, that the OCEI guidelines established in conjunction with the power companies is the major underpinning document.*

*While this is generally the case, it is important to note that section 83A of the Electricity Safety Act, established since the year 2000, relates specifically to Bushfire Mitigation Plans and calls for an electricity supplier to have plans in relation to bushfire mitigation. An Electricity Supplier, therefore picks up everybody and not just the power companies as mentioned in the report. This process is most important, as there are many other electrical assets in rural areas that could start a fire and are not owned by the power companies.*

*Also, this part of the legislation under section 83A(2) calls up "prescribed particulars". These prescribed particulars will be the OCEI Electricity Safety (Bushfire Mitigation) Regulations 2003. The regulations set out in detail the OCEI requirements for information to be incorporated in the plans required under section 83A (1) of the Electricity Safety Act.*

*Following the making of these regulations by the Victorian Government, the OCEI normal procedure is to establish guidelines under the regulations for ensuring that all matters in the regulations are addressed appropriately. These guidelines will be established in co-operation with the industry and the OCEI process under this legislation will be determined at the same time. This action will also address Recommendation 24 (Develop standards for the preparation of Bushfire Mitigation Plans and the Bushfire Mitigation Index).*

*The Electricity Safety (Bushfire Mitigation) Regulations are with the Victorian Government for approval. The OCEI will, therefore, ensure that the recommended documented processes of the OCEI for Bushfire Mitigation will be in place prior to the 2003-04 summer period.*

*In regard to Recommendation 25 (Improve data collection and performance reporting on wildfire mitigation outcomes), the OCEI issued the guidelines to Electricity Safety (Network Assets) Regulations 1999 in March 2001.*

*These guidelines which have been adopted by the industry have a specific reporting requirement for all fires started by electrical assets. Information has been received from electricity companies and fire authorities since that time and is recorded on the OCEI database. This information will allow the OCEI to assess trends and prescribe standards accordingly.*

*The OCEI believes this will adequately address the recommendation and specifically, "Areas for Improvement", dot point, "enhancing data collection and reporting" in paragraph 6.14 of the report.*

*In regard to Recommendation 26 (Sponsor national research into best practice for cables, poles and pole-top installations with a view to minimising wildfire risks), the OCEI has supported the establishment of the Federal Government-approved Bushfire Co-operative Research Centre (CRC). Through this process, new initiatives can receive funding support to address the matters in Recommendation 26.*

*The OCEI has written to the Australia Fire Authorities Council advising of its support and offer to co-ordinate activities for the supply industry across Victoria. The OCEI has also written to the national Electrical Regulatory Authorities Council (ERAC) with a further offer to co-ordinate on a national basis.*

*Overall the OCEI is satisfied with the report and suggestions for improvement.*

# Part 2

# Introduction

# INTRODUCTION

**2.1** On Ash Wednesday in February 1983, over 100 fires swept across Victoria and South Australia, killing 75 people and destroying more than 2 900 buildings. In recent years, Victoria has been fortunate in not having suffered wildfires[1] as devastating in terms of loss of life and destruction of property, as the Ash Wednesday fires. However, as the experience of the fires during the summer of 2002-03 demonstrated, extreme fire weather recurs at regular intervals and the combination of geography, vegetation and climate makes Victoria one of the most wildfire-susceptible regions of the world.

**2.2** Wildfire prevention and preparedness are ongoing imperatives that rank among the most important responsibilities of government. Because wildfires never go away, and because they pay no respect to human life, structures, government arrangements or land divisions, continued vigilance and strategic management will always be needed. At stake is the protection of human lives and homes, State forests, national parks and other public lands.

**2.3** Given that wildfire is part of the Victorian landscape, the most vital part of fire management is to minimise risks by ensuring Victoria's communities, land, industry and firefighting infrastructure are prepared. This audit reviews those prevention and preparedness efforts[2].

## About wildfire

**2.4** The conditions under which wildfires occur in Australian summers are dry land, dry air, high temperatures and high winds. Australian geography also contributes to the extent and severity of wildfire with most of our vegetation types being prone to fire.

**2.5** The fire season in different regions of Australia changes with latitude. In northern Australia, the main fire season is winter and spring; in southern Australia, summer and autumn. The most severe fire weather occurs in the south-eastern and south-western corners of Australia, where the meteorological systems produce very strong, dry and hot winds. These areas also produce comparatively tall forests with associated heavy fuel loads. These wet forests occasionally dry out and, under extreme fire weather, their heavy fuel loads contribute to wildfire intensity.

**2.6** Fire seasons have been described by the Department of Sustainability and Environment (DSE) as *mild*, *below average*, *average*, *significant* or *severe*, based on the frequency of wildfire occurrence on public land. A *mild* fire season has up to 250 wildfires; an *average* season from 501 to 750. A *severe* season has more than 1 001 wildfires.

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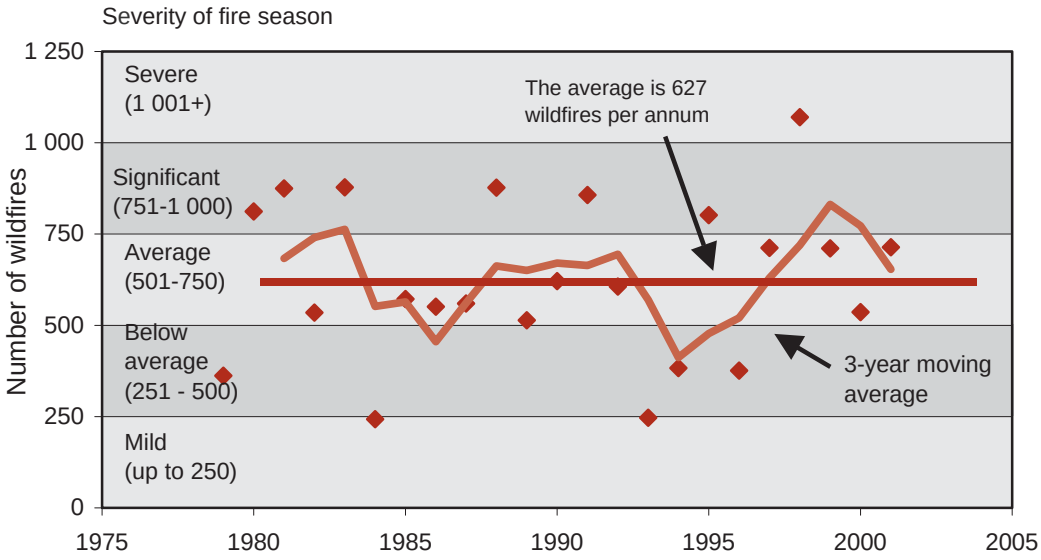
[1] We use the term *wildfire* in preference to the more familiar *bushfire* in recognition that wildfire occurs in grassland as well as forest and scrub. Wildfire is also the preferred international term.

[2] Appendix A of this report outlines the conduct of this audit and Appendix C provides a glossary of terms.

**2.7** Since 1979, an annual average of 627 wildfires has occurred in public land managed by the DSE. Chart 2A shows the number of wildfires and fire season severity since 1979, along with a 3-year moving average that clearly demonstrates the cyclic nature of fire season severity.

**CHART 2A**
**ANNUAL NUMBER OF WILDFIRES IN THE FIRE PROTECTED AREA**[3]




*Source*: Department of Treasury and Finance, *The cyclical nature of fire season severity and its impact on the price of fire management services on Victoria's public land*. NRE and DTF Working group report, March 2002.

**2.8** In total, taking into account both public and private land, around 3 500[4] wildfires occur each season. Key characteristics of severe fire seasons are:

- a larger number of fires in the peak summer months, and significant wildfire over a longer period;
- increased numbers of fires in all classes, with the number of wildfires reaching over 400 hectares increasing exponentially; and
- a higher percentage of lightning-caused fires[5].

[3] The "Fire Protected Area" is defined under the *Forests Act* 1958 as any land within a State forest or a national park, any protected public land or (unless excised under the Act) any land within 1.5 kilometres of a reserved forest, national park or protected public land.

[4] Information provided by the CFA. Average annual number of fires on all private, State, Commonwealth, local government, forest, reserve, public lands from 1992 to 2002.

[5] Department of Natural Resources and Environment 1998. Contribution to Department of Treasury and Finance *1998 Review of Budgetary Arrangement for Fire Management*.

**2.9** Between 20 and 30 per cent of all wildfires on public land are started by lightning. The remaining start as a result of human activity, including deliberately lit fires, campfires, cigarettes and matches, prescribed burn escapes and machinery, exhausts and failure of electrical assets.

## WILDFIRE MANAGEMENT IN VICTORIA

**2.10** Wildfire management involves 4 broad activities:

- **prevention** – reducing the risk of a wildfire starting;
- **preparedness** – ensuring that firefighting agencies and wildfire-prone communities are ready to respond appropriately to wildfire and can minimise damage;
- **response** – ensuring that firefighting is co-ordinated, efficient and appropriate; and
- **recovery** – strategies and services supporting affected areas in their reconstruction of infrastructure and restoration of social, environmental and economic well being.

**2.11** The DSE wildfire management strategy in Victoria's public land is to:

- reduce the number of human-caused wildfires by:
  - introducing fire restrictions during the summer period;
  - enforcing relevant fire regulations; and
  - running public education and awareness programs;
- control as many wildfires as possible before they exceed 5 hectares in order to minimise loss of life, damage to private and public land and public sector cost; and
- reduce the intensity and spread of wildfire by reducing fuel in strategic corridors and areas around urban and rural centres (hazard management).

**2.12** The CFA's wildfire prevention and preparedness activities include:

- reducing the number of human-caused wildfires through the introduction of the fire danger period and the declaration of total fire bans;
- enforcing relevant fire regulations;
- running public education and awareness programs;
- overseeing and acting as a referral authority for some land-use planning controls;
- overseeing municipal fire prevention planning; and
- suppressing fires on private land and supporting the DSE in suppressing wildfire on public land.

**2.13** Wildfire mitigation on private land is a complex issue requiring both enforcement and encouragement. Effective planning controls, for example, can ensure residents are aware of the risks when buying or building in a wildfire-prone area. Planning controls can also encourage or require residents to design and landscape their properties in ways that reduce those risks. Council fire prevention officers can require property owners to reduce fire hazards to minimise the risk to neighbouring properties.

**2.14** In other words, fire prevention and preparedness is not just the responsibility of fire management agencies; it is the responsibility of the whole community. Those who live and work in fire-prone environments need to recognise that they have responsibilities and there is much they can do to protect themselves and their property from wildfire. In Part 5 of this report, we examine some of the ways that fire authorities are working to ensure individuals are well-informed on ways to reduce their fire risk.

**2.15** Essentially, this is a risk-based approach to fire management which places a strong focus on fire prevention and preparedness while still acknowledging the importance of fire control and suppression. This strategy requires a diverse, well-equipped, trained and available fire management work force, including seasonal and casual employees, and volunteer fire brigade members.

## Responsibilities

**2.16** In Victoria, the DSE and the CFA are the major organisations responsible for wildfire management. Municipal councils also play a major role in the regulation of planning and through municipal fire prevention plans.

**2.17** The DSE has responsibility for fire management in State forests, national parks and other Crown land – around 7.7 million hectares, or approximately one-third of the State. The DSE is responsible for fire management policy, central planning, and co-ordination. Approximately 100 staff are employed on fire-management activities including planning, prevention and staff co-ordination. Staff from the Department of Primary Industry (DPI) deliver regional fire management services around the State. Each year, the DSE engages 600 to 800 seasonal firefighters. In addition, up to 2 000 trained and accredited staff across both the DSE and DPI can be called upon in the event of a major fire.

**2.18** In 2001-02, a base budget of $48.3 million was allocated for the DSE's fire prevention and preparedness activities. Because the level of demand, and hence the cost, of fire suppression activities can vary so widely according to the severity of the season, additional funds are available in severe fire seasons through the Treasurer's Advance. In 2001-02 an additional $10 million was provided under these arrangements.

**2.19** The CFA was established in 1945 as a volunteer-based emergency service. The CFA is responsible for controlling fires on all private land in Victoria outside the Metropolitan Fire District. The area covered is around 15 million hectares, including around 980 000 homes and 2.5 million people. The CFA has approximately 400 career firefighters and 62 000 volunteers, supported by 700 management and administrative staff.

**2.20** The CFA is principally funded by moneys received through insurance premiums and from the Victorian Government. During 2001-02, these contributions totalled $160.4 million comprising $35 million from the State Government, $120 million from insurance companies and $4 million contributed from companies who are insured off-shore. During the same year, the CFA received supplementary funding totalling $1.4 million from the State Government for a variety of purposes including the building of new fire stations.

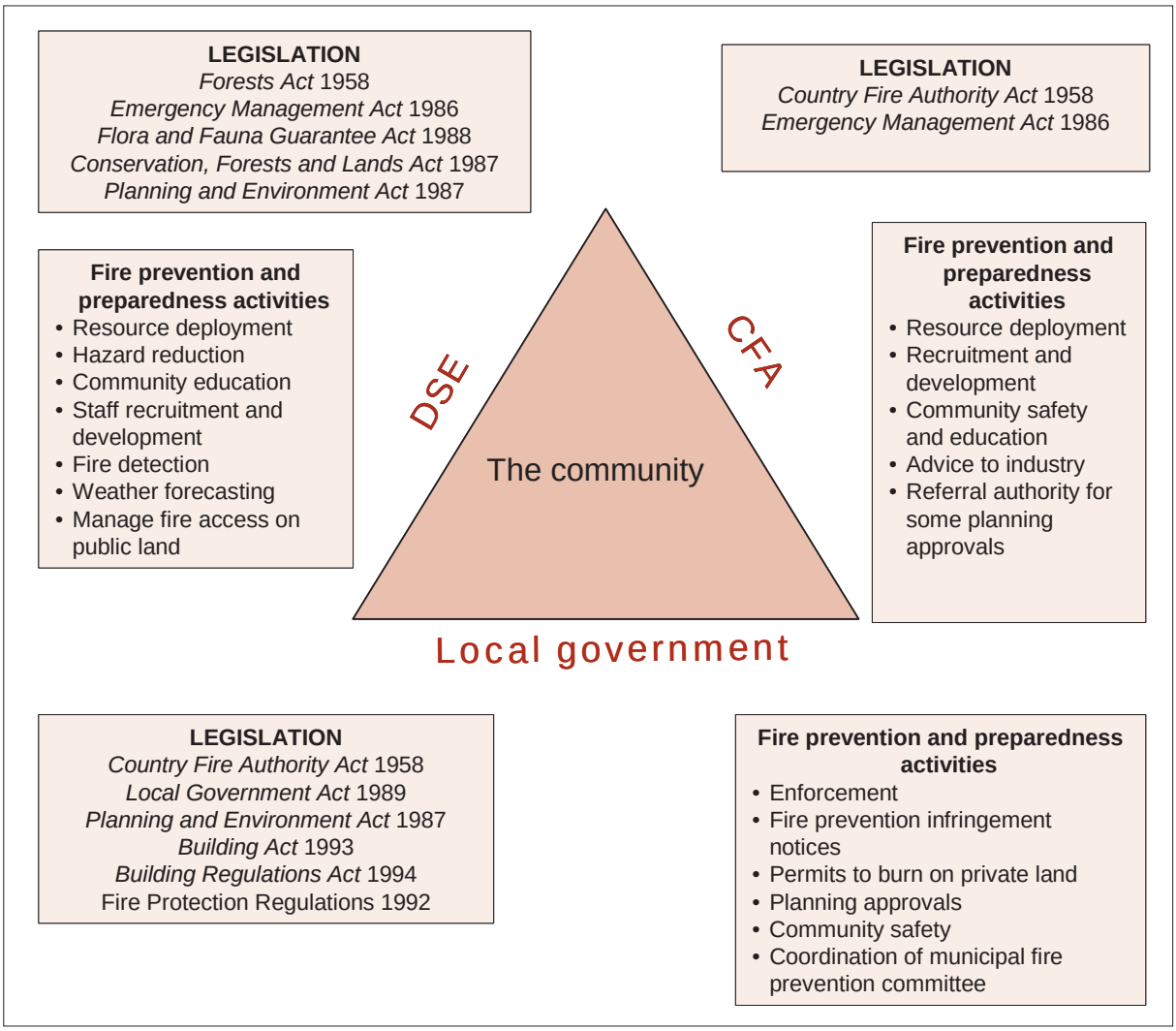
**2.21** Municipal councils operating in areas under CFA jurisdiction also have a number of statutory responsibilities under the *Country Fire Authority Act* 1958. These are to:

- employ a municipal fire prevention officer;
- prepare a municipal fire prevention plan; and
- establish municipal fire prevention committees.

**2.22** Councils are also responsible for local planning schemes and their enforcement. The State Planning Policy Framework (administered by the Department of Infrastructure) requires all municipal planning schemes to identify wildfire management and wildfire-prone areas as planning overlays.

**2.23** Chart 2B shows the relationship and responsibilities of the DSE, the CFA and municipal councils in fire prevention and preparedness.

**CHART 2B**
**FIRE PREVENTION AND PREPAREDNESS RESPONSIBILITIES OF THE DSE, THE CFA AND LOCAL GOVERNMENT**




*Source:* Victorian Auditor-General's Office.

**2.24** Many other organisations play important roles in fire prevention and preparedness. They include:

- electrical power companies, with responsibility for wildfire mitigation[6] around powerlines;
- the Office of the Chief Electrical Inspector, with responsibility for overseeing the fire prevention activities of electricity distribution companies;
- railway authorities and private rail companies, with responsibility for minimising the risks of wildfires starting from railway operations and managing the levels of fuel in rail corridors;
- private plantation companies, with responsibility for wildfire mitigation on their plantations; and

[6] We use the term "mitigation" to include both wildfire prevention and risk minimisation.

- the Emergency Services Commissioner, responsible for:
  - establishing and monitoring performance standards for emergency management agencies;
  - advising the Minister on emergency management;
  - encouraging co-operation between all agencies to achieve the effective utilisation of resources; and
  - preparing and reviewing standards which are necessary for the prevention and management of emergencies and which all emergency services agencies must adopt.

***RESPONSE*** *provided by Secretary, Department of Sustainability and Environment*

*An important feature of successful fire management on all public land including national parks, in Victoria is the seamless partnership approach by the DSE ,the Department of Primary Industry and Parks Victoria. Staff from the DPI and Parks Victoria will continue to deliver a large proportion of overall firefighting capacity.*

## PREVIOUS REVIEWS

### Fire protection – Auditor-General's Special Report No. 16

**2.25** In 1992, my Office examined the management of fire prevention and fire suppression in Victoria's State forests, national parks and other protected public lands. The audit was limited to the then Department of Conservation and Environment (DCE), which at that time included the fire management and prevention functions now managed by the DSE.

**2.26** The broad conclusion of that audit was that the DCE's fire management personnel recognised the importance of fire management and pursued their responsibility in a conscientious and dedicated manner. However, the report also identified a number of areas where fire management on public land could be improved, including:

- **Strategic planning**. DCE was not in a position to determine, with any confidence, the overall risk of fire to human life and State assets. Strategic planning was not underpinned by any central analysis of information;
- **Preventative measures**. Many fire access tracks were in poor condition, and fuel reduction burnings had not been adequately implemented;
- **Equipment**. Some 30 per cent of the DCE's firefighting equipment was judged as obsolete; and
- **Funding.** The funding arrangements for fire management were ad hoc, and were not based on risk or needs assessment.

## Linton report

**2.27** On 2 December 1998, a wildfire started in forest north of the small Victorian town of Linton. An Incident Management Team of DSE (then DNRE) and CFA personnel managed the fire. During suppression of the fire, one CFA tanker was destroyed by fire and its crew of 5 men died.

**2.28** The DNRE and the CFA made a joint investigation into the Linton tragedy and evaluated the matters covered in the Coroner's Inquest Hearings. The result was a more detailed formal agreement between the agencies, signed in December 2001. The current Co-operative Agreement between the DSE and the CFA governs joint operational and related matters and is examined in detail in Part 3 of this report. Prior to the Coroner's report, the 2 agencies had also implemented joint training exercises and improvements to communication systems.

**2.29** In January 2002, the Victorian State Coroner delivered an 800 page report into the deaths of the Linton firefighters. The findings and the 55 recommendations made in the report related mainly to the following areas:

- hazard reduction;
- co-ordination and co-operation between the firefighting agencies;
- communication systems;
- training and experience of firefighters;
- research and development;
- community fire safety awareness and support;
- fire access tracks and adequacy of maps; and
- equipment.

**2.30** Since the Linton inquiry, the Department and the CFA have made significant progress in relation to:

- increased use of common incident control procedures to enhance the management of incidents and the co-ordination of resources (the Incident Control System is reviewed in Part 3 of this report);
- strengthened co-operative arrangements between the DSE and the CFA on fire management and operational issues;
- increased training of firefighters based on national competency standards; and
- improved internal and external radio communication protocols.

**2.31** The DSE and the CFA are regarded by other Australian fire agencies and internationally as industry leaders in a number of areas. Interstate agencies visit or attend training in Victoria to gain more detailed knowledge of our local programs, practices and procedures for use in their own agencies. Both organisations regularly deploy expert staff internationally and interstate.

**2.32** More specifically, the DSE is regarded as demonstrating industry best practice through:

- the *Code of Practice for Fire Management on Public Land*, a comprehensive document setting clear expectations for internal and external stakeholders in fire protection, prevention, preparedness, suppression and recovery;
- the fire management software, *Fire Web* (developed in 1999) which effectively links a range of data sources for fire management, such as that of the Bureau of Meteorology; and
- operational forest fire management, where the DSE's national and international reputation results in regular requests for firefighters to assist with fires in the USA.

**2.33** The CFA is regarded as demonstrating industry best practice in:

- community education publications, including information and promotional materials that are used by interstate agencies as a basis for their own communications;
- community education programs which target communities at risk, several of which have been taken up in Tasmania, South Australia, and Western Australia;
- the adoption of prescribed skills for volunteers in accordance with nationally accredited competency standards under its Minimum Skills Training Program; and
- the support and promotion of volunteers, the model and approach for which has, in part, been adopted in many States. The breadth and depth of programs emphasises the value that Victoria's CFA places on its volunteers.

**2.34** The DSE and the CFA are well regarded for:

- adopting a changed emphasis from fire suppression to fire prevention and preparedness, demonstrated by:
    - the DSE's risk-based approach to hazard management and resource allocation; and
    - the CFA's targeting of particular communities for prevention programs;
- taking up and utilising technology in a manner that is more widespread than in many other rural fire agencies, e.g. through use of the Geographic Information System (GIS) together with various field applications of technology-based solutions;
- the implementation of consistent Statewide planning requirements and the Wildfire Management Overlay self-assessment kit;
- adopting a co-operative approach to integration of nationally accredited competency standards within a joint training framework; and
- providing co-ordinated air attack across Victoria through the State Aircraft Unit, whose scale of operation, joint planning and expertise is noteworthy.

## AUDIT APPROACH

**2.35** This audit focused principally on wildfire prevention and preparedness activities across private and public land. While the main operational agencies involved are the CFA and the DSE, the audit also examined the adequacy of fire prevention activities conducted by local government, and key industry stakeholders such as electricity distribution companies, rail authorities and private plantation owners.

**2.36** The audit did not examine fire suppression activities.

# Part 3

# Policy and planning

## INTRODUCTION

**3.1** Wildfire is one of the most dangerous and unpredictable situations our community can face, in spite of advances in technology and emergency management. Even though our firefighters may be well-trained and well-equipped, fighting a wildfire is a complex, high-risk situation. In a volatile and changeable environment, everyone involved in the suppression effort needs to be clear on the lines of control and their own responsibilities.

**3.2** In measuring the risks of wildfire, in planning their response, and in working to prevent wildfires, the Department of Sustainability and Environment (DSE) and the Country Fire Authority (CFA), have to be clear about their respective roles, responsibilities and how they will work together during a wildfire situation. There is no room for confusion, argument or poor knowledge as to how the operation should be conducted.

**3.3** A complex array of legislation, inter-agency agreements, risk assessments, operational policies, plans and strategies, all dealing with fire prevention and suppression, aim to maximise that clarity, co-ordination and knowledge.

**3.4** In this Part of the report, we consider the various legislative responsibilities and policy frameworks for fire prevention and suppression, and the inter-agency agreements including the co-operative agreement between the DSE and the CFA. We consider:

- the work, currently underway, to develop a Statewide fire strategy;
- the resource deployment models used by the DSE and the CFA;
- fire prevention and response planning, including the role of municipal councils in fire prevention;
- the Incident Control System – a command structure set up to manage emergency incidents that is endorsed by both DSE and the CFA; and
- how the agencies measure and report on success.

**3.5** A review by the Office of the Emergency Services Commissioner into the performance of the fire agencies during the fires of January-February 2003 will examine the way in which fire prevention and preparedness is implemented on the fire ground.

**3.6** As with all aspects of this audit, our analysis concentrated on the extent to which planning and preparedness processes were clearly understood, and did not assess the operations of Victoria's fire agencies in a fire situation.

### Audit approach

**3.7** The audit examined whether:

- agency roles and responsibilities are able to be discharged efficiently and without confusion;
- DSE and CFA operational policy documents link to relevant corporate policy and legislation and provide clear direction for undertaking fire management responsibilities; and
- DSE and CFA planning processes are robust in:
  - supporting resource deployment and incident management; and
  - reporting performance information to promote continuous improvement.

## LEGISLATIVE AND POLICY CONTEXT

### Legislation

**3.8** The legislative framework for fire management is complex, with 2 key Acts, the *Country Fire Authority Act* 1958 and the *Forests Act* 1958, detailing the responsibilities of the CFA, municipalities and the DSE with regard to fire prevention and suppression. A range of other Acts and Regulations detail responsibilities with regard to emergency management, preservation of the environment, and planning and building regulation. A full list of the Acts is set out in Appendix B of this report.

### Co-operative agreement between the DSE and the CFA

**3.9** The Coroner's report on the tragic death of 5 firefighters at Linton in 1998 highlighted the vital importance of seamless co-ordination between the CFA and the DSE. Co-operation between key agencies is designed to lead to improved performance through the sharing of skills, equipment and knowledge, and is a cost-effective approach. Failure to co-operate, on the other hand, can lead to disaster on the ground, with loss of property, equipment or life.

**3.10** Above all, this co-operation requires continuous communication to ensure that each agency's policies, planning activities and practices (whether they be training, hazard management or firefighting) are clear, consistent and strategically aligned.

**3.11** The co-operative agreement between the DSE and the CFA identifies principles and protocols that form the basis for joint fire management operations. It is divided into 3 parts:

- operational;
- strategic framework; and
- aircraft operations.

**3.12** The audit found that the agreement is an evolving document on which both agencies place proper emphasis. The agreement is in place for up to 3 years although amendments and adjustments occur more regularly in practice. The agreement was most recently reviewed in September 2002 and re-issued in October 2002. Changes occurred in the areas of:

- increased inter-agency co-ordination;
- improved information sharing; and
- implementation of the Australian Inter-agency Incident Management System (AIIMS), discussed later in this Part of the report.

**3.13** Inter-agency co-ordination has improved significantly since the Linton tragedy of 1998, especially in the areas of incident control and strengthened co-operative arrangements. Other important improvements include:

- **Establishing jointly-staffed incident control centres**. The co-operative agreement between the DSE and the CFA directs that, during a fire, a single Incident Control Centre be established with an additional operations point and staging areas (where appropriate). This fosters co-operation around media liaison, incident communications, logistics, incident analysis and investigation of fire cause;
- **Establishing a joint State aircraft unit.** The DSE and the CFA jointly manage and co-ordinate the use of aircraft to support fire management activities across the State. While the operation of the unit was not examined as part of this audit, the DSE and the CFA agree that the joint unit is operating effectively;
- **Conducting joint-agency annual conferences**. The DSE and the CFA run annual joint conferences over 2 days, rotating their location across the State. Senior DSE and CFA staff (both career and volunteer) are invited to attend. The agencies support this initiative and the conferences are well attended; and
- **Establishing international agreements with the USA.** These agreements are for the deployment of firefighters from various firefighting agencies across Australia, based on the existing DSE international agreement.

**3.14** While we acknowledge these advances, agency co-ordination would benefit from improvement in the following areas:

- **Finalising CFA agreements with New South Wales and South Australia**. These agreements are well advanced but need to be finalised and formalised to ensure clear requirements and expectations;
- **Developing co-operative arrangements in key areas**. These areas include Incident Control System (ICS) training, hazard management, community education and information technology development; and

- **Continuing integration of fire management information systems.** The CFA has made progress on its information management system (comprising an on-line fire incident reporting system, information management system and resource management system) over a number of years and elements of this system have been adopted interstate in Western Australia and Tasmania. The system is, however, nearing the end of its life. The DSE information system, Fire Web, has potential as an integrated information system. A co-operative approach to system redevelopment is encouraged.

**3.15** During the conduct of this audit, further challenges to inter-agency co-ordination emerged, with the division of the former Department of Natural Resources and Environment into the Department of Sustainability and Environment and the Department of Primary Industry. Responsibilities are shared, as follows:

- the Chief Fire Officer is located in DSE, and that Department has responsibility for the *Forests Act* 1958 and the development of fire and forest policy; and
- regional staff – who perform the bulk of service delivery for fire prevention and suppression, including fuel reduction burning and firefighting – are located in DPI.

**3.16** Effective co-ordination and information sharing will be important in these changed arrangements with a need to develop appropriate agreements between the DSE and the DPI, and establish clear lines of communication to the CFA, local government and the community.

***RESPONSE*** *provided by Secretary, Department of Sustainability and Environment*

*The 2 Departments [Department of Primary Industry and Department of Sustainability and Environment] agreed that from early May, 2003 all regional staff who deliver programs funded by one Department, will be employed by that Department. Consequently, staff delivering fire management services in regions will be in the Department of Sustainability and Environment.*

## Operational policy

**3.17** The DSE *Code of Practice for Fire Management on Public Land* provides guidance on its role in relation to fire prevention, preparedness and suppression, and outlines this role in an integrated management framework.

**3.18** Although the Code contains more detail than is generally the case for a high level document, it communicates policy effectively and establishes realistic expectations for both the DSE and the community. In 2001, the DSE engaged external consultants to examine its compliance with the Code. The consultants' report offers a high degree of assurance that the Code of Practice provides an effective framework.

**3.19** The CFA does not have an overarching Code of Practice for fire prevention and suppression. However, several CFA operational documents outline principles and policy for fire prevention and suppression.

**3.20** We concluded that DSE and CFA corporate policies are aligned to existing legislation and government policy. These policies also incorporate the Government's triple bottom line view of balancing economic, social and environmental goals and actions.

### Recommendation

**3.21** We recommend that the DSE and the CFA make further improvements in inter-agency co-operation, such as:

- extending the co-operative agreement to more fully encompass fire prevention and preparedness activities;
- finalising agreements with interstate and other fire agencies; and
- giving priority to establishing integrated fire management information systems.

## CO-ORDINATED PLANNING

### Statewide fire strategy

#### *Office of the Emergency Services Commissioner*

**3.22** The Office of the Emergency Services Commissioner (OESC) within the Department of Justice, is currently working towards a Statewide fire safety strategy to ensure that Victorians are better prepared for, and protected from, the effects of fire. The strategy is developing risk profiles for different types of fires (structure fires, wildfire etc.) that will provide consistent information to enable comparison of fire risk across the State. This is intended to place fire services in a better position to make informed decisions about the best combination of prevention and suppression measures to apply in particular areas of the State.

**3.23** We examined the OESC's approach to developing such a model of fire cover and we found the approach to be robust. It is a comprehensive risk management model that seeks to ensure that appropriate prevention and suppression treatments are applied to areas of similar risk regardless of which agency is delivering the service or where in the State it is being delivered.

**3.24** The OESC expects that the initial work on the fire safety strategy will be launched by mid-2003. The first release is to include a risk analysis methodology, a profile of structure fire risks across Victoria and a performance measurement framework. However, the development of wildfire risk profiles will commence only when this initial work is completed.

**3.25** The CFA has played a key role in the development of the State fire safety strategy and the audit found the project is important in supporting the CFA to adopt a more risk-based approach to its business.

**3.26** Given the complexity of developing wildfire risk profiles, the project would benefit from the DSE's continued engagement as DSE staff have acknowledged experience and expertise in operational planning in the forest environment.

**3.27** The project would also benefit from enhanced collaboration with the new Bushfire Co-operative Research Centre so that collected information can be leveraged and shared.

### DSE resource deployment

**3.28** The DSE also uses a risk management approach in their operational planning and resource allocation model, the DSE Model of Fire Cover. Under this model they identify risks, dependent on the location and the season, and develop specific resource prescriptions for each region across the State. Where prescribed resources are unavailable, the DSE adjusts operational planning to lessen the risk and to compensate for lack of resources.

**3.29** We found the DSE Model of Fire Cover to be an effective and precise risk-based resource allocation tool for forest firefighting. The Department is identifying appropriate resource allocations based on seasonal risk. While the DSE does not always meet the requirements listed in regional model of fire cover allocations (which are prepared annually), it adjusts operational planning to reflect these shortfalls.

### CFA resource deployment

**3.30** As a volunteer organisation, the CFA must necessarily take a different approach to resource deployment. The CFA has less flexibility than a fully paid work force to allocate preparedness and prevention resources across the State to meet specific risks; its largely volunteer work force is drawn from local communities. CFA resource allocation is often a result of historical circumstance as communities and brigades have developed independently, and identified their resource requirements in response to the perceived needs of their local communities. Their resourcing requirements are also more complex because the CFA has responsibilities for structure fires as well as wildfire.

**3.31** While CFA members readily travel throughout the State (and interstate) to meet emergencies, it is important to note that their primary deployment is not based on any Statewide analyses of risk or operational requirement. Currently, the CFA has no suitable methodology for determining levels of risk in particular regions and assessing whether local resources are appropriate to that level. Rather, their performance is measured by determining response time to events, and this is used as an input to the resource allocation process.

**3.32** We found that there is uncertainty within the CFA over the number of volunteer firefighters with appropriate operational competencies. In data provided to us on total volunteer numbers, there was a variation of between 58 000 and 64 000 at a given time. However, the number of volunteers being trained through the Minimum Skills Training Program, which qualifies volunteers to attend fires, has been cited at approximately 28 000. The CFA is introducing a Brigade Planning Tool to assist in identifying local resource needs. This tool is currently being trialed.

**3.33** We strongly encourage the CFA to systematically determine the required and available number of firefighters and non-operational volunteers, and to allocate resources accordingly. A "bottom-up," volunteer availability approach, as well as a "top-down", risk approach, is needed to take into account local circumstances within overall Statewide resourcing parameters.

## Other fire prevention and response planning

### *Operational planning*

**3.34** Other operational planning is an important factor in preparing for wildfire. Agencies rarely manage wildfires in isolation and planning must identify anticipated interaction with other agencies at all levels. The effectiveness of this planning needs to be tested through training and working together.

**3.35** Both the DSE and the CFA have extensive plans that set out response arrangements, operational procedures and co-operative agreements. DSE operational planning occurs at State, regional and district level and parallels CFA operational planning at State, regional, group and brigade level. CFA groups and brigades establish specific local response plans for areas where there is a history of fire incidents or high risk of wildfire.

**3.36** Planning is regularly reviewed and there are systematic updates of planning documents. These generally occur in the months prior to a fire season, although some work is ongoing throughout the year. The CFA is currently redrafting its State Operations Management Plan as a more principle-based document and the Chief Officer's Standing Orders also are being revised as part of a broad review of operational documentation.

**3.37** CFA pre-incident planning was well conducted at the 5 brigades we visited. Pre-incident planning is reviewed annually at brigade level by regional operations officers as part of the section 29 inspection required under the Country Fire Authority Act. On the basis of our selective review of section 29 reports across 2 CFA regions, we are satisfied that pre-incident planning is conducted by most brigades and those plans are regularly reviewed and updated.

### *Joint planning*

**3.38** Readiness and response plans for joint operations between the DSE and the CFA detail:

- preparedness levels;
- activation of joint incident management teams;
- communication plans; and
- command centres.

**3.39** Aside from the routine State-sponsored activity to exercise DISPLAN (the Victorian State Disaster Plan authorised under the *Emergency Management Act* 1986), the CFA and the DSE undertake few joint operational training exercises.

**3.40** We found that there was little joint exercise activity with other stakeholders such as the Metropolitan Fire Brigade, Victoria Police and the State Emergency Service. This lack of exercise activity can be justified only as long as there is sufficient ongoing operational activity each year to thoroughly test agency planning at all levels.

**3.41** Further, if specific locations fail to gain operational experience at least annually, some form of exercise activity should be employed to apply written plans in a real-life scenario in order to test readiness and maintain skills.

### *Planning with municipal councils*

**3.42** Operational planning also impacts on municipal planning in respect to residential planning permits and fire hazard management activities on private land.

**3.43** Municipal councils operating in areas under CFA jurisdiction are also required to undertake joint fire prevention planning with the CFA through regional or municipal fire prevention committees. The legislation under which this occurs requires the CFA to audit the plans prepared by these committees.

**3.44** We found that this area of prevention planning does not work well. Its success is limited by:

- the heavy focus on works level plans without strategic emphasis, which limits the interest of stakeholders;
- the low priority given by some councils to regional and municipal fire prevention committees; and
- the CFA's lack of powers to audit the implementation of municipal fire prevention plans.

**3.45** Until stronger arrangements are made between municipal councils and the CFA that encourage and, where necessary, enforce better prevention and preparedness activities, private landowners may not be sufficiently apprised of:

- their responsibilities for fire management on their own land; and
- the benefits of improved prevention and preparedness over reliance on fire suppression after a fire occurs.

## Incident Control System (ICS)

**3.46** A single, shared incident control system (ICS) is essential for firefighter safety and successful fire suppression. Firefighters need to know how the fire ground will be managed, and to understand clearly their own role and the role of every other person at the fire ground. This shared knowledge and understanding is regardless of whether they are all from their own brigade or, as in the case of a large fire emergency, from a number of fire agencies, from other States or from overseas.

**3.47** The Australian Inter-agency Incident Management System (AIIMS) is adapted from an American model[1]. It was developed by Australian rural fire agencies in the 1980s and is endorsed by the Australasian Fire Authorities Council (AFAC). The purpose of AIIMS is to establish a consistent and recognised ICS that can be utilised by all agencies at every incident. The AFAC is currently sponsoring a review of AIIMS, its application across Australia and its consistency of application within agencies.

**3.48** The ICS is a command structure that systematically and logically manages any level of emergency incident including multiple situations. The ICS identifies trained operators for control, planning, operations and logistic functions. These operators work together to identify a suppression strategy and then to implement it. Each function expands as required in line with the fire size and complexity.

**3.49** ICS has many advantages. In particular, it promotes consistency across all fire agencies because it is endorsed nationally. This is essential in the case of joint and interstate firefighting efforts. In addition, ICS strengthens:

- effective planning and control of incidents;
- clear delineation of roles in managing incidents;
- expansion of incident management arrangements without restructuring reporting relationships; and
- the capacity to manage internal communication, incident safety and community information.

**3.50** Both the DSE and the CFA adopted ICS during the early 1990s.

**3.51** We found that ICS was well entrenched in the DSE and underpinned all key aspects of its fire management activities such as operational planning and fire line operations. There is a strong commitment to ICS training and implementation.

**3.52** However, we found that within the CFA the situation is more problematic. There is clear organisational commitment to ICS at a central and regional level and the ICS structure is adopted for larger fires. However, the ICS has not been fully adopted at group level and may not be adopted during the rapid deployment stages of smaller fires where significant risks to personal safety may exist.

### *CFA's group operational structure*

**3.53** Independent of ICS, adjacent brigades are organised into groups (under section 23 of the *Country Fire Authority Act* 1958) and a group officer is appointed. While some functions are specified, other roles of the group have evolved over the last 40 years to include administrative, communication and representative functions. The group operational structure also provides a command structure.

[1] The National Inter-service Incident Management System.

**3.54** Under the ICS, command and operational roles for incident management are allocated according to competencies and training. ICS roles and group officer positions operate independently of each other. Hence group officers without the required competencies are not appointed to ICS roles.

**3.55** The transition from CFA group structure to ICS operational structure has been slow in some parts of Victoria and, after 10 years, is not fully completed. This can result in both systems operating concurrently within different parts of the CFA and during the one incident.

**3.56** The Coronial Report into the firefighter deaths at Linton highlighted significant weaknesses in the group operational structure, including:

- difficulty controlling resources at larger incidents;
- difficulty responding in a timely way to large and evolving fires;
- a lack of forward planning; and
- an inability to co-ordinate resources from 2 or more agencies.

**3.57** The CFA acknowledges that the group operation structure can be an impediment to adopting the ICS methodology and recently conducted a formal review, re-defining the group role to operational planning and administrative functions. A working paper has been put to the Board, identifying group roles in prevention and preparedness as well as response and recovery, clearly reinforced the CFA's intention that incidents be managed under the ICS structure. It is intended that consultation regarding the recommendations of this paper will be conducted during the first 6 months of 2003.

**3.58** We recognise that change must be managed carefully in a large, dispersed and volunteer organisation in order to maintain morale and commitment, and we encourage the CFA in this effort. However, until this change has taken place, the uneven rate of transition from the group structure to the ICS command structure is a major risk to effective fire suppression and to the personal safety of firefighters.

## Recommendation

**3.59** We recommend that:

- Key stakeholders in fire prevention including the DSE, the CFA, local government and the OESC work to develop mechanisms that support broader co-operation in fire prevention and preparedness;
- The OESC expedite a wildfire component of the State fire safety strategy, continue CFA involvement and involve the DSE more actively in the preparation of the strategy, particularly in the development of the wildfire component of the project;
- The CFA commence allocating resources according to risk as soon as the OESC model is available. Such an approach will need to take into account volunteer availability and brigade-owned resources. However, once this analysis is completed, a more focused application of training and firefighting resources can be made;

- The DSE and the CFA conduct joint exercises on a regular basis to assess preparation in areas where operational readiness is not tested through call-out;
- The CFA fully integrate ICS into its operations across the State; and
- The CFA and the DSE use common ICS terminology.

## MEASURING SUCCESS

### Performance management and reporting

**3.60** Measuring success in fire management is not clear cut. As a community, we have a long and public history of fire suppression by courageous professional and volunteer firefighters, where success is measured by fire containment and saving lives and property.

**3.61** More recent managerial approaches to measuring success are focused on risk assessments, fire prevention and seasonal preparedness for what the community now understands are inevitable fire "events". In such a changed environment, containing a small fire in a heavily populated area such as the Dandenong Ranges can represent a greater success than containing a larger fire in a remote area in the State.

**3.62** Measuring and reporting on prevention and preparedness is a relatively new requirement within fire agencies. There are longstanding records and trend analyses in regard to the number of fires attended and the speed of response. However, data on the effectiveness of prevention programs and the readiness of brigades to respond to a fire event is limited.

**3.63** The AFAC has initiated a project reviewing agency performance and is developing performance reports and measures. The ongoing AFAC project aims to establish economic and operational performance measures that can be applied consistently across Australia. These will include prevention and preparedness activities.

**3.64** In regard to prevention and preparedness, the DSE currently reports on:

- fuel reduction burning completed;
- readiness and response plans completed;
- incident channels sites maintained as part of their communications network;
- the number of personnel with accreditation in a fire role;
- assessments of Standards of Cover[2] completed prior to fire season; and
- fire infrastructure and equipment replacement.

**3.65** The DSE reports quarterly against these performance measures to the Department of Treasury and Finance.

[2] "Standards of Cover" refers to the DSE's process of determining levels of personnel, vehicle and infrastructure preparedness prior to each fire season

**3.66** The CFA's regular performance reporting at agency level is less detailed. The audit found that the CFA's monthly performance report to its Board, generated at brigade level as part of their required business planning and reporting, is a detailed activity-reporting document, as opposed to a performance report. It includes a number of prevention and preparedness categories such as the number of operational plans prepared and community education programs conducted, as well as a focus on response times to hazard classes. This performance is subsequently reported to Department of Treasury and Finance through the Office of the Emergency Services Commissioner.

**3.67** Both agencies also provide a level of performance reporting in their Annual Reports in regard to prevention and preparedness. We consider this reporting to be more descriptive than evaluative.

### *Developing better performance information*

**3.68** We consider response time, on its own, inadequate for measuring rural fire performance. For example, an early concentration of firefighting resources is likely to have a far greater impact in putting out rural fire than the speed of response of a single firefighting appliance. For forest firefighting, success depends on the accurate choice of a suppression strategy and then on appropriate deployment of a range of resources.

**3.69** We identified several sets of data in both the DSE and the CFA that reflect comprehensive data collection. However, particularly in the case of the CFA, we considered there were many opportunities for the data sets to be better utilised to provide trend analysis and to assist in Statewide strategic planning.

**3.70** The annual performance level that should be expected of fire preparedness and fire response activities is difficult to determine. Seasonal variations mean that annual comparisons are problematic and longer-term trend analyses are needed to provide a more accurate view of ongoing performance. A range of additional measures should, therefore, be considered including:

- analysis of wildfire causes, captured in a structured database;
- assessment of preparedness to commit weight of attack[3];
- the results of auditing the implementation of municipal fire protection plans;
- risk reductions achieved through hazard reduction burning; and
- trend analysis of total budget apportioned to preparedness activities.

**3.71** Outcomes that could be identified are:

- community survival, i.e. the ability of a local community to resume normal business and living after the fire event;

[3] "Weight of attack" means the quantity of suppression resources including tankers and air support committed to the initial attack and the rate of the subsequent build up of support resources.

- reductions in total costs of fire incidents – not just the dollar value of property lost but such things as the total economic loss (including production potential), lost employment and impact on the community; and
- environmental impact measured by indicators such as area burnt and impact on biodiversity.

## CONCLUSION

**3.72** Wildfires are a permanent feature of Victoria's environment and, as a natural phenomenon, they are seasonally and climate driven. Wildfire needs to be managed through an organised, co-ordinated and safe set of government and community arrangements.

**3.73** In the 10 years since our previous audit, the DSE has improved its understanding of roles and responsibilities and developed a co-ordinated response to wildfire management in conjunction with the CFA. Clear understandings on roles and responsibilities now lay the groundwork for seamless and co-ordinated firefighting operations. Formal agreements are in place and being reviewed and extended; this is also happening nationally and internationally. Where co-ordinated planning or operations remain deficient, for example in implementing the ICS in some parts of the CFA, there is a determined commitment to remedy this.

**3.74** The challenge of co-ordination is not simply restricted to the DSE and the CFA. Other key stakeholders in fire prevention such as local government and private industry, including electricity distributors, rail operators and plantation lease holders, need to become more pro-actively involved in fire prevention and preparedness. Local government commitment and co-ordination is crucial, and the municipal fire prevention committees can provide a forum for this co-ordination, provided they are resourced by council staff with appropriate training and skills.

**3.75** The legislative framework governing fire management in Victoria is adequate, if complex, but may be tested further as residential development expands on the margins of public bushland and the community becomes more aware of their rights and responsibilities around fire prevention and preparedness. In this respect, planning by municipal councils will need to be more integrated into the State's fire management strategies.

**3.76** The current challenge for the agencies is to extend this co-operation and co-ordination into other areas, and continue to align corporate policies to existing legislation and government policy. As the strategic focus shifts from fire suppression and response to include fire prevention and preparedness, co-operative arrangements between all our fire agencies need to be developed in a number of areas. These include:

- extending some collaborative arrangements and exercises to other fire and emergency services agencies;
- enhancing the focus of operational policy and planning in the areas of prevention and preparedness, including working collaboratively with the OESC project to develop a risk profile approach for wildfire in the State fire strategy;

- extending community education programs in all wildfire prone areas, so that local communities also shift their focus to early prevention and preparedness strategies; and
- developing a robust performance measurement and reporting regime that increases the knowledge of wildfire and efficient and effective means of dealing with its risks.

**3.77** Increasingly, this strategic shift should encourage both organisations to adopt a risk management approach to their work and to incorporate more future oriented planning, costing and analysis into decision making at central and regional levels.

# Part 4

# Fire hazard management

## INTRODUCTION

**4.1** The recent wildfires of 2002-03 brought the significance of hazard management, particularly fuel reduction burning, into public focus. The news media drew attention to the levels of highly combustible fuel in forests, on grasslands and near residential areas, and questions were asked of governments whether these fire "hazards" were managed properly.

**4.2** Fuel reduction burning is not a panacea, and is only one of a suite of measures fire authorities can employ to mitigate the effects of wildfire. Fire management authorities must make decisions on the appropriate mix of measures for particular locations, taking into account issues like the severity of the season, proximity to residences, topography and vegetation.

**4.3** In thinking about hazard management and wildfire, it is important to bear in mind 2 things. First, fuels are not the only fire hazards. A fire hazard can be a poorly sited residential area with an inadequate fire management plan. Second, fuel does not cause fire. Climatic conditions of high temperature, dry air, high winds and dry land, coupled with lightning or human activity (deliberate or accidental), are the basis for wildfire. However, an accumulation of dry ground fuel will increase the intensity of a fire and contribute to its spread and attendant damage.

**4.4** The build-up of fuel is an inevitable part of Australia's ecology. Unlike climate, it can, in some forest types, be controlled through appropriate land management practices. The only effective means of broad-scale fuel reduction is by "prescribed burning" (sometimes referred to as "controlled burning")[1].

**4.5** The purpose of fuel reduction burning (and hazard management more broadly) is to ensure that fires are:

- of less intensity;
- are less likely to "spot", where flaming leaves and bark fly ahead of the fire-front and ignite smaller fires;
- extend over a smaller geographic area; and
- are more economically and safely controlled.

**4.6** There has been debate about the ecological impact of fuel reduction burning but, as research and understanding increases, there is more general agreement that periodic fires are inevitable in most native Victorian vegetation and are essential for a number of plant species.

[1] "Prescribed burning" is a generic term that encompasses fuel reduction burning, back-burning, regeneration burning and ecological burning.

**4.7** The Department of Sustainability and Environment (DSE) conducts fuel reduction burns on public land as part of its responsibility to reduce hazards and suppress fires in national parks and State forests. Prescribed burning is conducted at safe times, generally in autumn when the weather is mild.

**4.8** However, there are risks associated with fuel reduction burns, not least because the climatic conditions under which a burn is effective are also the conditions under which fire can spread. Consequently, public land managers are cautious when undertaking burns, many of which take place in the vicinity of the very assets they aim to protect.

**4.9** There are also limitations to the effectiveness of hazard management through fuel reduction:

- the burning is necessarily low intensity and does not always achieve a complete reduction in fuel levels; and
- under extreme conditions, a wildfire may still burn across land which has recently been fuel reduced.

**4.10** Responsibility for fire hazard management on private land lies with property owners, and this is regulated largely by municipal planning through fire prevention plans. Because an obvious conflict exists between retaining bushland in a residential environment and removing all potential hazards, an agreed approach to managing these hazards has to be achieved between property owners, the community and local government.

## Audit approach

**4.11** In this Part of the report we address how Victoria's rural fire agencies, the DSE, the Country Fire Authority (CFA) and municipal councils, have identified fire hazards on both public and private land, and managed those risks.

**4.12** We examined reports, documents and processes, and carried out field inspections and interviews, to establish whether:

- there is clear responsibility assigned to relevant agencies for fire prevention activities, including hazard reduction;
- hazards are identified in a systematic way, and regularly reviewed;
- hazard management uses the most appropriate approach;
- the outcomes of hazard management programs are monitored; and
- prescribed burning conducted by the DSE on public land:
    - complies with legal and policy requirements and is integrated with other management processes;
    - meets ecological and environmental protection as well as hazard management requirements; and
    - meets targets set down in the annual prescribed burning program.

*Safe conduct of fuel reduction burning requires trained staff and expert supervision.*

## HAZARD REDUCTION ON PUBLIC LAND

**4.13** The DSE is responsible for hazard management and fire suppression on public land in Victoria; specifically in national parks and State forests. Together, the DSE and the CFA enforce regulations aimed to minimise wildfires from both deliberate and accidental human cause.

**4.14** The DSE also has discretionary power to direct removal of hazards on private property within 1.5 km of any national park or State forest, unless that power has been specifically transferred to the CFA for particular areas. This transfer has been progressively introduced in settled areas of rural Victoria but the physical boundaries delineating responsibilities are sometimes unclear.

**4.15** Victoria's 7.7 million hectares of parks and forest include approximately 60 000 kilometres of boundary area between public land and private property. It is not technically feasible to fuel-reduce the entire length of this boundary, and effective hazard management on both public and private land requires a strategic approach to fuel reduction burning for its success.

### Planning for hazard reduction

**4.16** The DSE has a systematic process to identify hazards and to manage risks, principally in safeguarding risk to life and properties.

**4.17** Planning for fuel reduction burning takes place on 3 levels:

- The desirable level of fuel reduction burning is determined and documented in regional Fire Protection Plans. These plans are based on detailed mapping and modelling of each region, and are prepared on a 10-year timeline, which may be reviewed after 5 years;
- Operational planning for fuel reduction is documented in Fire Operations Plans. These plans are prepared on a rolling 3 year schedule, and spell out in greater detail areas identified for fuel reduction burning; and
- Individual burning plans are prepared in detail before any fuel reduction burn commences.

**4.18** The DSE Code of Practice for Fire Management on Public Land defines a detailed process for preparation, maintenance and display of fuel reduction plans, and incorporates opportunity for public consultation as plans are developed.

**4.19** The planning process addresses areas of risk across all of DSE public land, whether national park or State forest. Fuel management zones are identified from 1 to 5, as outlined in Table 4A. These classifications take into account risk to life and to property, as well as identifying areas for ecological protection from fire. Only zones 1 to 3 have specific fuel hazard reduction objectives.

**TABLE 4A**
**DSE FUEL MANAGEMENT ZONES (FMZ)**

| *Zone* | *Description* |
|---|---|
| FMZ 1 | Very high risk to major assets from wildfire. |
| FMZ 2 | High risk to major assets from wildfire, area of strategic significance. |
| FMZ 3 | Broad area forest protection. |
| FMZ 4 | Use of fire for management of specific flora, either as individual species or communities that have fire regime requirements. |
| FMZ 5 | Protection Zone – exclusion of fire. |

*Source:* Department of Sustainability and Environment.

## *Determining Fire Protection Plan targets*

**4.20** The methodology for establishing Fire Protection Plan targets is based on a detailed assessment of fire hazards within each region:

- plans are prepared using a comprehensive land information database which takes into account key values in each region – townships, built infrastructure, private assets and areas of particular ecological importance;
- hazards are systematically identified and documented, and priorities are established for risk reduction;
- the risks generated by combinations of vegetation type, elevation, ground slope and aspect are evaluated and maps of hazard class are prepared;

- the location of hazards in relation to assets requiring protection is identified;
- records of the origin and causes of previous fires are examined;
- zones where fuel reduction burning may be an appropriate risk treatment are identified;
- limits are set for maximum desirable fuel loads in these zones;
- the necessary fire frequency and intensity to achieve fuel loads is estimated;
- the ecological consequences of the optimum fuel reduction regimes are evaluated and preferred prescriptions developed; and
- the resulting burn prescription is endorsed and included in Fire Protection Plans.

**4.21** Fire Protection Plan targets for fuel reduction represent the ideal, i.e. they are very ambitious, aiming to maintain ideal fuel loadings by implementing an environmentally acceptable burning regime for every identified hazard in each risk category. Target levels established in Fire Protection Plans do not take into account "achievability factors" such as seasonal variation (which can dramatically reduce the number of days available for safe burning), resources available or the cost-effectiveness of fuel reduction burning as a risk treatment for the areas identified. These "achievability" factors are addressed in Fire Operations Plans.

***RESPONSE*** *provided by Secretary, Department of Sustainability and Environment*

*Fuel reduction, at its most "idealistic" level, would occur in any one year on around 3.3 per cent of the public land estate. A number of forest types (particularly the extensive "wetter" forests) cannot, for technical and ecological reasons, be fuel reduced using prescribed fire. As paragraph 4.34 makes clear, the use of prescribed fire for fuel reduction is but one of a suite of actions the Department can take to reduce the impact of subsequent wildfires.*

## Operational planning for fuel reduction burning

**4.22** Fire Operations Plans establish projections for fuel reduction burning for each year, taking into account the suitability of conditions for safe conduct of burns and the seasonal resources available. These plans are prepared on a rolling 3-year cycle.

**4.23** Fire Operations Plans are also an important part of the community consultation process of fuel reduction burning, and are the basis for consultation with the community on areas identified for possible fuel reduction in the coming 3 years. Because of this role, the projections set in Fire Operations Plans generally identify more areas for fuel reduction burning than takes place, and areas not burned in one year are rolled forward into the next year's planning.

## Planning for individual fuel reduction burns

**4.24** The process for deciding how many, and where, prescribed burns will actually take place is complex. There is an exacting process for approval to conduct a prescribed burn. As well as the burn objectives and environmental values of the area, issues such as smoke management; advice of the planned burn to neighbours and other land users (such as beekeepers); roads and tracks which may need to be closed during the operation; water catchment issues; and assets requiring special protection, are all considered.

**4.25** The prescriptions around weather conditions and the need to liaise with other agencies and the community means that regional managers have reduced flexibility for opportunistic burning. At least four days lead time is generally required, and labour costs and increased visitor numbers on weekends mean that generally burns are only scheduled on weekdays. The prescriptions around weather suitability mean that it is not unusual for a weather change, making it too wet or too dangerous to burn, to mean that a burn is cancelled even when all resources are in place.

**4.26** Achieving fuel reduction burn targets can also be difficult because the DSE does not have a full-time, standby firefighting force. Fuel reduction burning is conducted by trained fire management staff who are normally employed full-time in forestry, national parks management, catchment management or other activities. Many of these staff are located in other business units and must be released from their ordinary duties in order to conduct fuel reduction burns.

## The cost of fuel reduction burning

**4.27** Because of the tight prescriptions, fuel reduction burning can be very costly. The estimated costs of prescribed burning vary significantly depending on the zone and the region. Fuel reduction burning in heavily populated Fuel Management Zone 1 (FMZ 1) areas such as the Dandenong Ranges is very labour intensive, whereas FMZ 1 burns in some country regions are less so. Burns in FMZ 3 can frequently be ignited from aircraft, and large areas can be fuel-reduced at low cost.

**TABLE 4B**
**DSE COST RANGE OF PRESCRIBED BURNING, BY FUEL MANAGEMENT ZONE[2]**

| *Fuel management zone (FMZ)* | *Cost range per hectare* |
|---|---|
| FMZ 1 | $50 - >$500 |
| FMZ 2 | $30 - $300 |
| FMZ 3 | <$10 - $50 |
| FMZ 4 | $30 - $300 |
| FMZ 5 | n.a. - exclusion zone |

*Source*: Department of Sustainability and Environment.

[2] Department of Natural Resources and Environment, *Fire Research Report: Fuel Reduction Burning in Victoria*, 2000.

**4.28** Each year a budget output target is established. In 2001-02 this target was 100 000 hectares. Around $2 million (approximately 4 per cent of the DSE's fire management budget) is allocated to this activity. However, the budget allocation does not reflect the full cost of resources committed to fuel reduction burning, because when DSE staff from other business units are engaged in firefighting or fuel reduction burning, their salaries are charged against their normal duties within that other business unit.

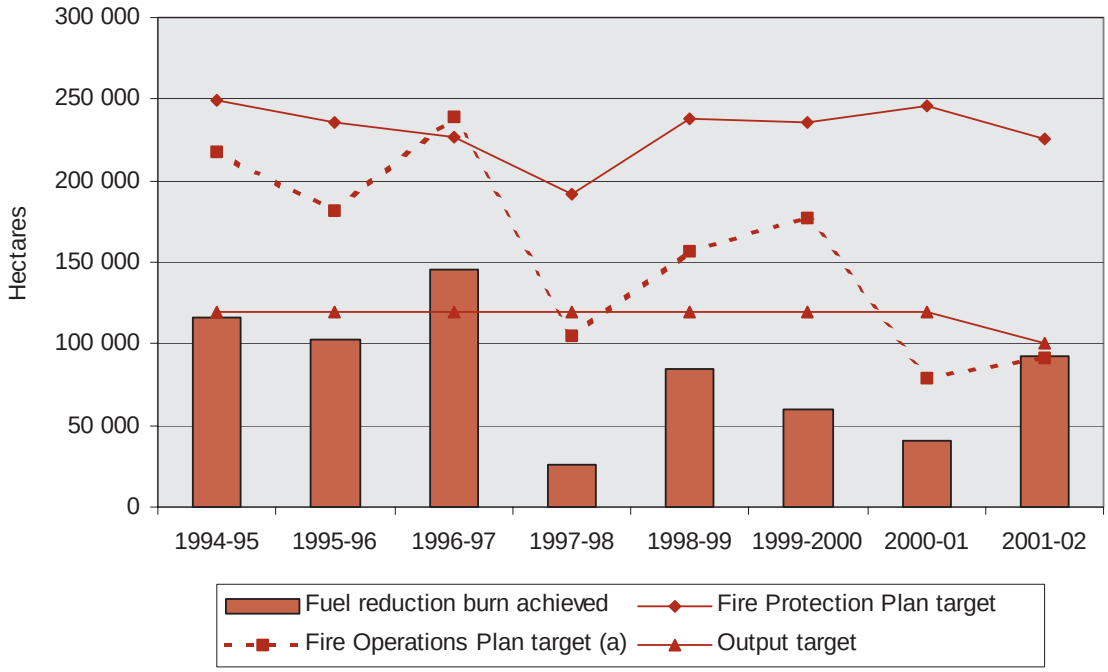
## Achieving fuel reduction targets

**4.29** We found that prescribed burning on public land is conducted and managed safely. Specifically, we found:

- There are detailed prescriptions and preparations and an exacting approval process for every operation;
- Worker safety and prescribed practices are routinely subject to independent audit and reported as satisfactory; and
- Zoning to exclude ecologically sensitive areas reduces potentially negative environmental impacts. The approval process for each operation includes an inspection by flora and fauna specialists to identify specific values and to develop specific prescriptions for their protection.

**4.30** Assessing achievement against fuel reduction targets is more problematic, not least because of the use of 3 fuel reduction "targets" and because of difficulties experienced by the DSE in producing data from central databases on targets and achievement. While the Department has a comprehensive and rigorous process for centrally monitoring approval of fuel reduction burns, less attention has been paid to centrally monitoring and reporting on performance.

**CHART 4C**
**FUEL REDUCTION BURNING, TARGETS AND ACHIEVEMENT**




*(a)* From 1999-2000, informal regional targets for fuel reduction burning were replaced by Fire Operations Plan targets, which represent the aggregate area available for burning in any year.

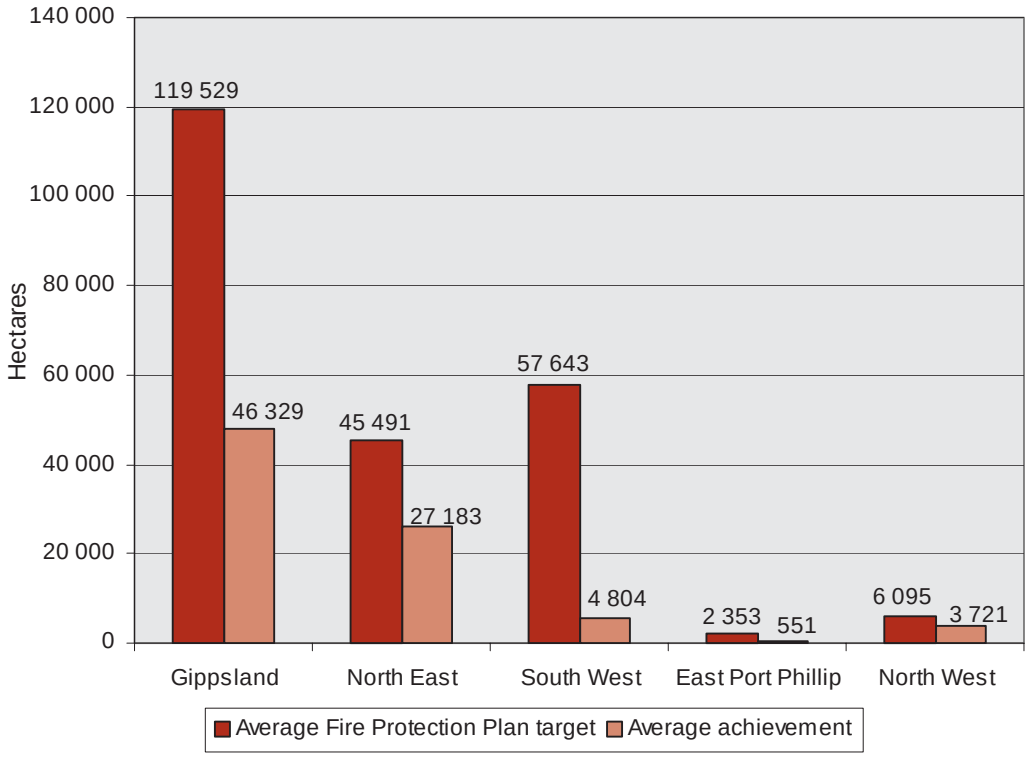
*Source:* Victorian Auditor-General's Office, from information provided by the Department of Sustainability and Environment.

**4.31** Chart 4C summarises the DSE's performance against its prescribed burning targets over the past eight years. In this period, the DSE has achieved:

- 36 per cent of the optimal prescribed burning targets set by the DSE in Fire Protection Plans;
- 54 per cent of the annual area identified and advised to stakeholders in the Fire Operations Plans; and
- 71 per cent of the output target.

**4.32** The impact of achievement or underachievement of fuel reduction targets needs to be considered with care. The actual risk reduction achieved through fuel reduction burning is not directly proportional to the area that has been fuel reduced. Successfully reducing fuel loads in 100 hectares in FMZ 1 (the highest risk zone) may achieve a significantly greater reduction in risk than fuel reducing 100 hectares in FMZ 2 or 3.

**CHART 4D**
**FUEL REDUCTION BURNING,**
**AVERAGE REGIONAL ACHIEVEMENT, 1994-95 TO 2001-02**




*Source:* Victorian Auditor-General's Office, information provided by the Department of Sustainability and Environment.

***4.33*** The above chart shows the average annual achievement of fuel reduction burning in regions compared with that region's Fire Protection Plan target for the period 1994-95 to 2001-02. The percentage achievement varies from 9 per cent to 60 per cent. The substantial variability in achievement against target partly relates to different approaches to establishing operational targets in each region. Operational factors also have a significant impact on whether prescribed burning targets can be met. These factors include:

- **Limited opportunities**. Factors such as the combination of forest type, fuel load, elevation and weather conditions means there are between 4 and 20 days in each year in any one area that are suitable for safe fuel reduction burning. In regions with a high proportion of interface areas, where fuel reduction burning must be conducted in close proximity to residences, there may be a very small number of opportunities to safely conduct fuel reduction burns;
- **Competition for physical resources**. DSE regional managers implement planned fuel reduction burning under service agreements with the Fire Management Branch. There are similar agreements to provide works and services to several other DSE branches. The mild weather conditions required for fuel reduction burning are also suitable for most of the activities undertaken by the DSE including regeneration burning and ecological burning. Fuel reduction burning is not always the highest priority among these competing priorities. This means some opportunities will inevitably be missed due to competition for physical resources;

- **Availability of experienced supervisors.** Approval to conduct an operation requires the presence of experienced and accredited supervisors (Level 2 and Level 3 firefighters). These officers are mainly forest officers who are required to manage fire suppression and fuel reduction works in addition to their other substantive duties. There is a limited number of trained staff available;
- **Risk aversion by DSE managers**. DSE staff are acutely aware that they will be heavily criticised, and that damages are likely to be sought from the DSE, if a fuel reduction burn escapes and causes damage. Even when burns are conducted without incident, many DSE staff are sensitive to community criticisms of the impact of prescribed burns on local amenity, particularly the associated smoke pollution, and this increases their caution in undertaking fuel reduction burns; and
- **No immediate impacts of failure to achieve targets.** When fuel reduction burning targets are not met, planned burns are transferred to the next year's schedule. There are usually no immediate impacts of failure to achieve planned burn targets, and managers in an operational environment often choose to resource alternative activities that have more immediate consequences.

***RESPONSE*** *provided by Secretary, Department of Sustainability and Environment*

*Chart 4D measures fuel reduction area achievement against Fire Protection Plan areas. Audit has explained in paragraph 4.21 that Fire Protection Plan areas do not take into account "achievability factors" such as seasonal conditions and financial resources. The output target, reported annually at State level, and mentioned in paragraph 4.31, does to an extent, take into account "achievability factors".*

## Improving strategic management of hazard reduction

***4.34*** At a strategic level, the audit identified the following issues associated with the DSE's current planning and management of fuel reduction burning:

- **Difficulty of determining the relative effectiveness of fuel reduction burning against other mitigation measures**. Fuel reduction burning is one of a number of countermeasures available to reduce the impact and severity of wildfires, and fire managers must make decisions on the most appropriate and cost-effective risk treatments. Achievement of the "ideal" level of burning set out in Fire Protection Plans would require a significant increase in the level of resources committed to this activity, and a consequent reduction in resources available for other activities. However, the DSE is not currently in a position to perform robust cost-benefit analysis of the value of transferring resources from other risk treatments, such as better detection, better access and more and better-prepared equipment and personnel, to increase the resources dedicated to fuel reduction burning. The DSE does not have a sound process for determining priority between the range of options and for evaluating options in terms of their impact on risk;

- **Failure to quantify residual risks.** While the DSE planning methodology identifies priority areas for treatment, and the Fire Operations Plans each year include shortfalls in achievement in the previous year, there are no risk-based measures to establish the level of residual risk if burning has been deferred. Because of the extreme seasonal variability and the high frequency with which fuel reduction burning is deferred, it is important that measures are established to quantify residual risks, and clear planning protocols are established to guide regional managers in decision-making as residual risk levels accrue;
- **Lack of clarity on purpose and definition of "targets" for fuel reduction burning**. Fuel reduction targets published by the DSE advise of what are in effect 3 fuel reduction "targets":
    - the "optimal" target advised in Fire Protection Plans;
    - the operational projection advised in Fire Operations Plans; and
    - the output target reported in the *Budget Papers* annually.

  The "target" of greatest importance to both the DSE and to the community, the *level of risk reduction* achieved each year through the conduct of prescribed burning, is not routinely reported; and
- **Failure to capitalise on opportunities in low fire risk years.** The Department advises that, unlike other areas of fire preparedness, fuel reduction burning costs should peak in years of lower than average fire risk, since these are generally the periods when greatest fuel reductions can be achieved. Currently, seasonal firefighter numbers tend to be reduced in these years as suppression needs are lower. Seasonal firefighting staff also generally cease in late February or early March, just as the most suitable period for fuel reduction burning commences. This reduces the DSE's capacity to conduct fuel reduction burns in the years that it has the greatest opportunity to reach target levels.

**4.35** Options for improving fuel reduction performance include:

- **Establishing sound processes for determining priorities**. Extensive modelling needs to be undertaken to determine the most appropriate risk treatments, and determine the relative priorities for fire prevention and other works. The DSE commenced a project of this nature in 1999 but they do not currently have the expert staff for such a task. Further work of this nature is critical in allocating appropriate levels of resourcing to all fire prevention and preparedness activities. The establishment of the Bushfire Co-operative Research Centre may assist with developing the necessary expertise;

- **Measuring and reporting on risk reduction.** The current process for planning fuel reduction activity and setting targets in Fire Protection Plans is based on a sound methodology, and needs to be retained. Regional Managers should not be discouraged from making a clear and rigorous assessment of the commitment required to achieve an optimal result in fuel reduction burning. However, performance against these targets should be measured in terms of the degree of risk reduction achieved, not just in hectares fuel reduced. Because of the cost differential and the increased difficulty and risk of undertaking fuel reduction burning in FMZ 1, a pre-occupation with achieving fuel reduction targets measured purely in hectares could lead to an emphasis on low cost rather than high risk areas. The relative risk in each burning zone needs to be established so that available resources and opportunities are allocated to achieve the maximum reduction in risk;
- **Clarifying internal funding arrangements.** Currently resources for fuel reduction burning are provided by agreement with other operational areas, and the level of resources provided in the DSE's budget reflects only part of the real cost. This has 3 consequences:
    - the DSE's level of corporate commitment to the achievement of fuel reduction targets lacks transparency;
    - operational managers setting targets each year lack certainty that resources will be available to achieve projected targets; and
    - the full cost of fuel reduction burning is not determined and, as a result, rigorous cost-benefit analysis of fuel reduction burning against other alternative risk treatments is difficult.

  Provision of additional dedicated funding for fuel reduction burning with the understanding that staff used from other areas may be charged to the activity would increase the level of certainty that operational managers will be able to obtain staff when they are needed and increase transparency around the level of commitment the DSE makes to the activity;
- **Introducing greater flexibility into annual funding arrangements.** Currently, the DSE is funded for fire management on a base budget that is sufficient for the needs of a "below average" fire season (approximately one year out of 5) and is able to access additional funds from the Treasurer's Advance for years when the fire risk is higher. However, this arrangement has the effect of reducing the numbers of seasonal staff in the years of low fire risk that are suitable for undertaking higher levels of fuel reduction burning;

- **Implementing enhanced central reporting of fuel reduction performance.** As well as extending the basis of reporting to encompass reporting on risk, closer central monitoring of regional performance against Fire Protection Plan and Fire Operations Plan targets needs to be undertaken. This could include measuring regional performance in terms of available opportunities. The difficulties of achieving fuel reduction targets in seasons where there are few windows of opportunity are recognised, however, there appears to be substantial regional variation in achievement against targets, and it would be useful if the DSE was to monitor the extent to which regional managers were able to capitalise on available opportunities;
- **Increasing the availability of accredited field supervisors**;
- **Extending the availability of Project Fire-fighters.** Extending the period of employment of seasonal Project Fire-fighters with priority directed to hazard reduction works;
- **Increasing opportunities to involve CFA volunteers.** Introducing arrangements that encourage additional weekend work to increase the available suitable days, would increase the opportunity for CFA volunteer involvement. To involve CFA volunteers in the fuel reduction burning program has the added advantage of providing them with invaluable experience that can be applied in a fire suppression situation as the techniques used are the same as in a back burning operation; and
- **Increasing public information on fuel reduction burning.** Fuel reduction burning is one of the more difficult public relations issues for the DSE and for regional staff. In the climate immediately following the fires of 2002-03, there is some criticism for burns not completed, whereas in seasons where the community has a lower level of risk perception, there is often significant criticism when burns conducted impact on local amenity. Public opinion will always vary in any issue as complex as fuel reduction burning, but increasing information on the necessity for tight prescriptions and on the measures taken to protect the environment may assist.

## Recommendations

**4.36** We recommend that the DSE:

- supplements the current area targets for fuel reduction burning with measures that more accurately reflect the level of risk reduction being sought and achieved, and reports results;
- fully costs fuel reduction burning activities within its internal budgeting process, allocates appropriate funding levels and allocates the cost of staff employed from other business units;
- in consultation with the Department of Treasury and Finance, considers revised funding arrangements to introduce greater flexibility to allow for differing levels of funding to reflect factors such as seasonal variations;

- introduce strategies to increase the availability of accredited field supervisors and the associated work force (e.g. through greater use of weekend work and the opportunity for CFA volunteers to participate); and
- provides increased public information regarding the fuel reduction burning program and the measures taken to protect the environment.

***RESPONSE*** *provided by Secretary, Department of Sustainability and Environment*

*Fire management on public land strives to achieve a balance between prevention and preparedness to respond while recognising that even high levels of hazard reduction will not guarantee the absence of wildfire. The Department welcomes audit's suggestions while noting that there is range of environmental variables involved that significantly complicate the measurement of risk mitigation achieved by fuel reduction burning. Such variables include: vegetation type, slope, aspect, soil type, longer-term and more immediate weather factors. A range of management factors are also relevant, including time to initial detection of a wildfire, the condition of the road and track network, the nearest fire crew, aircraft availability and firefighter fitness levels.*

## FIRE PREVENTION ON PRIVATE LAND

**4.37** Responsibility for fire hazard management on private land in Victoria rests with the land owner. The CFA and municipalities act together to ensure that hazards are managed by the owners or occupiers of private land. There are instances, however, where the responsibility for hazard management is less clear, or where shortcomings exist:

- In 2002, a CFA-commissioned best practice review of municipal fire prevention identified unclear ownership of plan preparation and implementation. While the CFA has the power to appoint municipal fire prevention committees under the *Country Fire Authority Act* 1958, the committees are chaired by fire prevention officers of the municipal council. We discuss this further later in this Part of the report; and
- Municipalities are required under section 55A of the *Country Fire Authority Act* 1958 to prepare and maintain a municipal fire prevention plan, but there is no sanction for failing to do so. Nor is there any sanction for failing to implement the plan. Although the CFA conducts 3-yearly audits of the quality of the plans, it has no power under the legislation to audit the plan's implementation.

*Effective planning controls can ensure that new homes in interface areas are designed and landscaped to minimise the wildfire risk.*

## Statutory planning controls

**4.38** We noted in Part 2 of this report that the State Planning Policy Framework administered by the DSE allows municipal planning schemes to identify wildfire prone areas as Wildfire Management Overlays (WMOs). Where WMOs are in place, the CFA is a referral authority under the *Planning and Environment Act* 1987. This requires the municipal council to take heed of any planning permit requirements set by the CFA. Requirements include the location, design and vegetation management and may refer to building construction requirements. If municipal councils have not identified WMOs, the CFA does not become involved as a referral authority.

**4.39** According to CFA records, only 22 of 63 CFA-covered municipalities have WMOs in place. While all these councils may not require a WMO, the failure to implement an overlay where there is a risk of wildfire points to potentially poor mitigation decisions in rural residential areas, and at the interface of private and public land.

**4.40** Under the *Subdivision Act* 1988 the CFA are a referral authority for subdivisions which create a road. The CFA must be asked for input prior to a subdivision proceeding. These provisions only apply for subdivisions after 1987.

## Municipal fire prevention

**4.41** The *Country Fire Authority Act* 1958 states that both regional and municipal fire planning committees *may* be appointed by the CFA. As listed in the Act, the functions of both committees are similar: identifying fire hazards, submitting recommendations to reduce fire risks and acting as a consultative forum.

**4.42** Prior to the amalgamation of councils over the period 1993 to 1995, co-ordination of fire prevention planning by regional fire prevention committees was generally necessary. However, since that time, some regions (for instance, all regions in CFA Gippsland and South-West areas) have suspended their operation. The new larger municipalities each now facilitate a municipal fire prevention committee that covers a similar area to the original regional fire prevention committee. We support the phasing out of the regional committees.

**4.43** The CFA conducts 3-yearly audits of municipal fire prevention plans prepared by the municipal fire prevention committees to ensure conformity with the requirements of the Country Fire Authority Act. The 2001 audit found that 47 of the 63 municipalities within CFA areas had a fully conforming plan. Eight of the 16 that did not meet all criteria were reported as undertaking remedial work on their plans. The remainder have been directed to provide a time frame for further review.

## Areas for improvement

**4.44** As noted earlier, the CFA's Municipal Fire Prevention - Best Practice Review revealed significant variation in council performance on fire prevention. We confirmed weaknesses in existing arrangements and support the following initiatives recommended as a result of the review:

- revising the CFA Municipal Fire Prevention Planning Guidelines (1997) to:
    - incorporate practical examples of better practice;
    - clarify outcomes that reflect legislative responsibilities; and
    - develop integration with other community safety processes;
- improving the status given to fire prevention activities within municipalities;
- improving the integration of planning and implementation to bring public, private, voluntary and stakeholder groups together;
- reviewing the current regional and municipal fire prevention committee structure to reduce duplication and better focus available resources; and
- introducing auditing powers under the *Country Fire Authority Act* 1958 so that the CFA can assess the implementation of municipal plans.

**4.45** In addition to these issues, we identified the following areas for further improvement:

- Effective fire prevention within the municipal environment requires technical skills in strategic planning, risk assessment and management skills, including negotiation, communication and relationship building. In some municipalities, the fire prevention function is primarily seen as a matter of enforcing by-laws without any profile at a management level;
- Given the increased number of CFA brigades within each municipality, the average number of delegates to a fire prevention committee is 19. Some committees have more than 40 members and are, at best, community consultative forums rather than effective advisory bodies. Forming smaller executive committees within the existing committee arrangements would assist them to become effective and to shift in status; and
- Existing arrangements would also work more efficiently and effectively if CFA group and brigade boundaries were re-aligned to municipal boundaries. With the amalgamation of municipalities, some geographically adjoining CFA groups and brigades are represented on different municipal fire prevention committees. This change needs to be sponsored by the CFA and will require careful negotiation with affected brigades. However, the benefits are improved fire prevention co-ordination and management.

**4.46** As well as changes to municipal fire prevention planning, we also support continued reporting by the CFA to meet the requirements of section 44 of the CFA Act. This section of the Act requires area managers to report twice yearly to the CFA on the degree of compliance with the Act within their area of responsibility. The format and process is being upgraded and is to be included in the CFA's internal audit procedures.

## Recommendations

**4.47** We recommend that:

- The DSE and the CFA ensure that municipalities give high priority to meeting the fire protection requirements of the State Planning Policy Framework and continue to work to improve the standard of municipal fire prevention planning;
- The CFA promptly implement the recommendations of its Municipal Fire Prevention - Best Practice Review. Particular priority should be given to reintroducing amendments to the *Country Fire Authority Act* 1958 to provide the CFA with the power to audit the implementation of municipal fire prevention plans;
- Municipal and regional fire prevention committees be reorganised to provide a clearer focus on the planning and management of fire prevention; and
- The CFA commence the process of re-aligning brigade and group boundaries with municipal boundaries.

## CONCLUSION

**4.48** Hazard reduction burning on public land has been conducted safely and generally without incident by the DSE in recent years. However there has been a consistent failure to achieve all of the DSE's hazard reduction "targets" over the past 8 years. The significance of this failure is difficult to determine. Hazard reduction burning is one of a number of strategies that can be employed to reduce the risk and severity of wildfire, and the understanding of the relative benefit and effectiveness of each of these strategies in reducing the risk is still imperfect. Increasing this understanding is one of the key challenges facing our wildfire managers.

**4.49** The DSE is to be commended for setting out clear statements of desirable objectives for fuel reduction burning in Fire Protection Plans and for establishing solid processes for community consultation as these plans are developed. However, the overall budget allocation for hazard reduction and internal arrangements for funding mean that the DSE is unable to achieve the "ideal" fuel reduction targets and its commitment to achieving these targets is not transparent.

**4.50** Hazard reduction on private land is managed through the municipal fire prevention planning process and significant changes are urgently required in order to increase its effectiveness. The potential of Wildfire Management Overlays to guide development in fire-prone areas, so that home owners locate, design and landscape their properties to give them the best chance of withstanding a fire, is not being fully utilised. The CFA's ability to oversee municipal fire protection planning is hampered by their inability to audit plans, and the absence of sanctions for municipalities that fail to prepare a plan.

**4.51** One of the important issues in managing wildfire hazards is integrating prevention activities on public and private land, and ensuring that complementary strategies are employed. Municipal fire prevention committees offer the ideal framework for this integration, and the commitment of the DSE, the CFA, local government and other stakeholders to these committees needs to be maintained.

# Part 5

# Community preparedness

## INTRODUCTION

**5.1** In the event of a large wildfire, the community cannot rely solely on emergency services to protect their lives and property. They need to understand wildfire behaviour, be able to carefully plan their response and prepare their households accordingly. These actions can make the difference between loss and preservation of buildings, and between life and death of occupants.

**5.2** The Ash Wednesday fires of 1983 spurred significant research into how and why civilian deaths occur during a wildfire. Fire authorities have now refined their understanding of the safest and most appropriate actions for residents in bushland areas to take during a wildfire:

- Mass evacuation, the traditional response to a natural disaster, has been identified as contributing significantly to loss of property during a wildfire. Houses are generally not destroyed during the passing of the fire front, but as a result of uncontrolled spot fires that occur later; and
- Unplanned and late evacuations are the most significant cause of loss of life during a fire, and authorities advise that late evacuation from a fire is the most dangerous strategy of all.

**5.3** The Australasian Fire Authorities Council (AFAC) position paper on community safety and evacuation during wildfires clearly states the case against large-scale evacuation, recommending that well-prepared and able-bodied residents should be encouraged to stay and protect their property – "houses protect people and people protect houses"[1]. If residents are to be encouraged to stay and protect their properties, it is essential that they are informed of the risks and are well prepared.

### Audit approach

**5.4** To assess community preparedness we examined the planning and delivery of community education programs and conducted a survey of community knowledge and preparedness in 800 households in high fire risk areas in Gippsland and the Dandenong Ranges.

**5.5** We examined the community education activities of the Department of Sustainability and Environment (DSE) and the Country Fire Authority (CFA) to determine whether:

- priorities are based on an assessment of needs and target audiences;
- education strategies maximise the potential to change community attitudes and behaviours;

[1] Australian Fire Authorities Council, *Position Paper on Community Safety and Evacuation During Bushfires* 2001.

- activities are conducted with a knowledge and understanding of other fire management agencies and their roles, and co-ordinated with those authorities where appropriate; and
- programs are subject to continuing review and evaluation as to their efficiency and effectiveness.

**5.6** The survey assessed the extent to which householders living in high-risk areas:

- are aware of the potential risk of wildfire;
- are implementing appropriate household preparedness measures for wildfire; and
- understand appropriate options for ensuring the safety of household members in the event of fire.

**5.7** Survey respondents were asked if they had attended a CFA or other community meeting about wildfires, providing the opportunity to compare the level of knowledge and preparedness of householders who had participated in community education programs to other respondents.

## EDUCATION PROGRAMS

### CFA summer programs

**5.8** Over the past decade, the CFA has conducted considerable research into community behaviour during a wildfire and has analysed the most effective way for households to turn knowledge into action. Media-based campaigns with generic safety messages, sent to a largely passive and undifferentiated audience, have been replaced by community-based programs that are interactive and participative.

**5.9** This community engagement framework is designed to provide specific information that is matched to local circumstances and to increase the likelihood of households actually undertaking necessary preparedness activities. The CFA preparedness model stresses that household planning and preparation should occur long before the outbreak of fire in the area.

**5.10** Each summer, between 11 000 and 16 000 Victorians participate in the CFA summer program, receiving information that is tailored to their local area and conditions, meeting local CFA and emergency services representatives, and forming local networks to ensure self-sufficiency in the event of fire. In 2002-03, the projected expenditure for program facilitation, media, training, research and resources was approximately $427 000[2].

[2] Country Fire Authority, *Summer Education and Awareness Program 2002-03 – Project Plan* 2002.

## Bushfire Blitz and Community Fireguard

### Bushfire Blitz

**5.11** Bushfire Blitz is a neighbourhood or street meeting program delivering key messages about fire preparedness and wildfire safety to residents in high-risk areas. During a 90 minute session, presenters describe important issues, outline the range of options available to residents to deal with risks, and encourage residents to develop a plan appropriate to their local environment. In rural areas, the format may be adapted to a larger community meeting in a local hall.

**5.12** The program was launched in 1997 as a special initiative and aims to be convenient, accessible and immediate.

### Community Fireguard

**5.13** Community Fireguard is a program encouraging community planning for fire prevention, and community self-reliance in the event of a fire. The core program philosophy is empowerment, based on the premise that strategies developed by householders themselves are most likely to be understood, trusted, and effectively implemented in the event of a wildfire. The program has been operating since 1993 and there are currently over 330 active Community Fireguard groups in Victoria.

**5.14** Groups are formed on the initiative of residents, usually following a Bushfire Blitz meeting or as an activity of groups such as Landcare. CFA facilitators help each group to become established then provide ongoing mentoring, support and technical information. While CFA evaluations show that facilitators attend approximately two-thirds of meetings, the focus of the groups' action strategies and local plans is community-centred.

**5.15** Community Fireguard aims to help members of the community:

- understand how houses ignite, why deaths occur in wildfires, how to increase building and personal safety, and why actively defending a property is important;
- know what to expect in the event of a major fire, including the role of fire and emergency services personnel and the possible impact of fire on reticulated water, power and telephone services;
- develop comprehensive wildfire action plans that require participants to:
    - plan well in advance whether to stay or go;
    - detail how they intend to defend their property if they stay; and
    - decide when and how to leave the area if they choose to leave; and
- develop effective information networks to ensure they are alert to the first signs of fire and are able to obtain information during a wildfire.

### Complementary programs and resources

**5.16** In addition to the Bushfire Blitz and Community Fireguard programs, CFA facilitators arrange community meetings, conduct sessions for special interest groups (such as pony clubs or Landcare), liaise with local stakeholders, and conduct and participate in special events.

**5.17** These summer program elements are supported by electronic and print media that aim to increase awareness of wildfire risk, promote program attendance and support CFA volunteer activity.

**5.18** The CFA also produces a number of publications including *Living in the bush*, a comprehensive wildfire survival plan workbook and *Bushfire: recognise the risks*, which includes a planning self-assessment checklist. During the 2001-02 fire season, approximately 138 000 information brochures were distributed to the community.


*CFA brochures provide information on living safely in wildfire-prone areas.*

## Department of Sustainability and Environment programs

**5.19** Traditionally, the DSE has regarded community preparedness education as falling outside its brief to manage the fire threat on public land. However, in recent decades the growth of homes and weekenders in areas adjoining land now managed by the DSE has made the distinction between public and private land fires less clear-cut. Prevention of fires on public land requires that residents in adjoining properties undertake prevention activities such as fuel reduction and the most effective way to achieve this is by mobilising well-informed and motivated residents' groups.

**5.20** A *Code of Practice for Fire Management on Public Land* was developed by the former Department of Natural Resources and Environment in 1995. This Code now applies to DSE and requires it to "… *conduct and participate in programs which maintain public awareness of the wildfire threat, promote the importance of self-protection, [and] encourage the responsible use of fire by the community*"[3].

**5.21** Dedicated resourcing for fire preparedness education activities within the Department is, however, limited (less than one full-time person). As a result, there is little opportunity for central planning or program development. Senior regional staff interviewed during our pilot study (outlined in Appendix A of this report, *Audit objectives and scope*) identified community education as a low priority. Generally, the DSE meets its community education responsibilities by participating in programs with the CFA or municipal fire prevention committees.

## Key findings and issues

### *CFA activity planning*

**5.22** Each year, CFA areas determine the level and type of education they will undertake and this is recorded in the Area Service Level Agreement.

**5.23** We examined the sessions delivered in each region over the last 5 years and found dramatic fluctuations in the number of sessions delivered in successive years. Regions report a range of reasons for fluctuating levels of activity, including:

- precedence given to operational priorities;
- perceptions that the community is over-familiar with the program's content; and
- challenges such as a decentralised population in some of the more remote regions.

**5.24** In the regions we examined, there appeared to be no consistent methodology for determining target locations and no consistent process for prioritising regional needs. One region used an informal assessment based on local knowledge; another used a comprehensive risk-profiling tool in each brigade area based on a physical risk assessment that took into account fire history, vegetation and issues such as access.

**5.25** Without consistent and comprehensive regional risk-profiling to assess priority areas, there is a danger that education activities will be focused on locations where the community is motivated and positive. Communities that are difficult to reach, but at greater risk from wildfire, may not be covered by community education programs. Without consistent risk assessment and target setting, there is also a risk that regional implementation of community education activities will decline in seasons when extreme fire risk increases demand on operational resources – the very seasons when community preparedness activities are most needed.

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[3] Department of Natural Resources and Environment, *Code of Practice for Fire Management on Public Land* 1995.

**5.26** Given the crucial role of community preparedness in preventing loss of life and property, it is important that meaningful targets based on needs assessment and local risk profiling are established and met by each region.

### CFA evaluation

**5.27** The CFA's approach to evaluation is in line with Australasian Fire Authorities Council (AFAC) guidelines for developing, managing and evaluating community education programs: a community-centred approach, clear program logic and a structured framework for research and evaluation. The CFA have strong central evaluation processes for community education programs, using quantitative and qualitative methodologies to assess community knowledge, measure behavioural change and revise and develop programs.

**5.28** At the local delivery level, processes for evaluating the delivery of individual programs are less clearly defined. While activity levels are reported, there are no standard quality control and presenter-evaluation tools such as audience feedback sheets or supervisor review. Such tools provide valuable feedback to regional community education staff on whether key messages are understood and whether local information needs are being met. This is particularly important given the widespread use of casual presenters in the program.

### DSE programs

**5.29** Because of limited resourcing for community fire education within the DSE, there is little opportunity for strategic needs analysis, program development and review, or evaluation. A 1995 strategic plan for community education remains in draft. There is little formal liaison on community education with other fire authorities – nor is there planned co-ordination of programs. Attempts by DSE staff to co-ordinate programs with the CFA occur on a regional basis, but partnership initiatives are significantly hampered by the DSE's resourcing limitations.

**5.30** Residents whose properties adjoin public land have the right to be well-informed on what will happen in their area in the event of a fire outbreak. Given the CFA's critical role in broader community education, the further development of a co-ordinated approach between the CFA and the DSE is paramount.

## Recommendations

**5.31** We recommend that:

- the CFA develop and implement comprehensive and consistent local needs analysis tools and undertake local planning based on risk profiling to determine the number and location of community education sessions; and
- the DSE work with the CFA to develop a co-ordinated and agreed position on responsibilities and actions for community education.

# COMMUNITY PREPAREDNESS

## Risk perception

**5.32** The degree to which households take even basic steps to plan for fire depends on whether they believe fire is likely in their area and the extent to which they perceive their property to be at risk.

**5.33** Our survey showed that around 80 per cent of respondents living in fire-prone areas believed it was likely or very likely that a fire would occur in their area in the next 5 years.

**TABLE 5A**
**RISK PERCEPTION**

| *How likely do you think it is that a bushfire may occur in the area where you live in the next 5 years?* | *Percentage* | | |
|---|---|---|---|
| | *Dandenongs* | *Gippsland* | ***Overall*** |
| Very likely | 58 | 43 | **51** |
| Likely | 25 | 31 | **28** |
| Unlikely | 10 | 16 | **13** |
| Very unlikely | 5 | 9 | **7** |
| Don't know | 2 | 1 | **1** |

**5.34** When probed further (If a bushfire did occur in your area, how likely is it that it would cause damage to your house and property?), 51 per cent overall felt it was "very likely" or "likely".

**5.35** Respondents who had attended a CFA Community Fireguard or other community meeting were significantly more likely to believe that a fire was likely than those who had not attended any meetings. This difference was particularly marked in Gippsland, where 91 per cent of respondents who had attended a Community Fireguard meeting felt that a wildfire was "very likely" or "likely" compared to 67 per cent of respondents who had not attended any meeting.

*Clearing guttering of leaves is a simple step that can reduce the risk of a fire being started by airborne sparks and debris.*

## Planning for wildfire

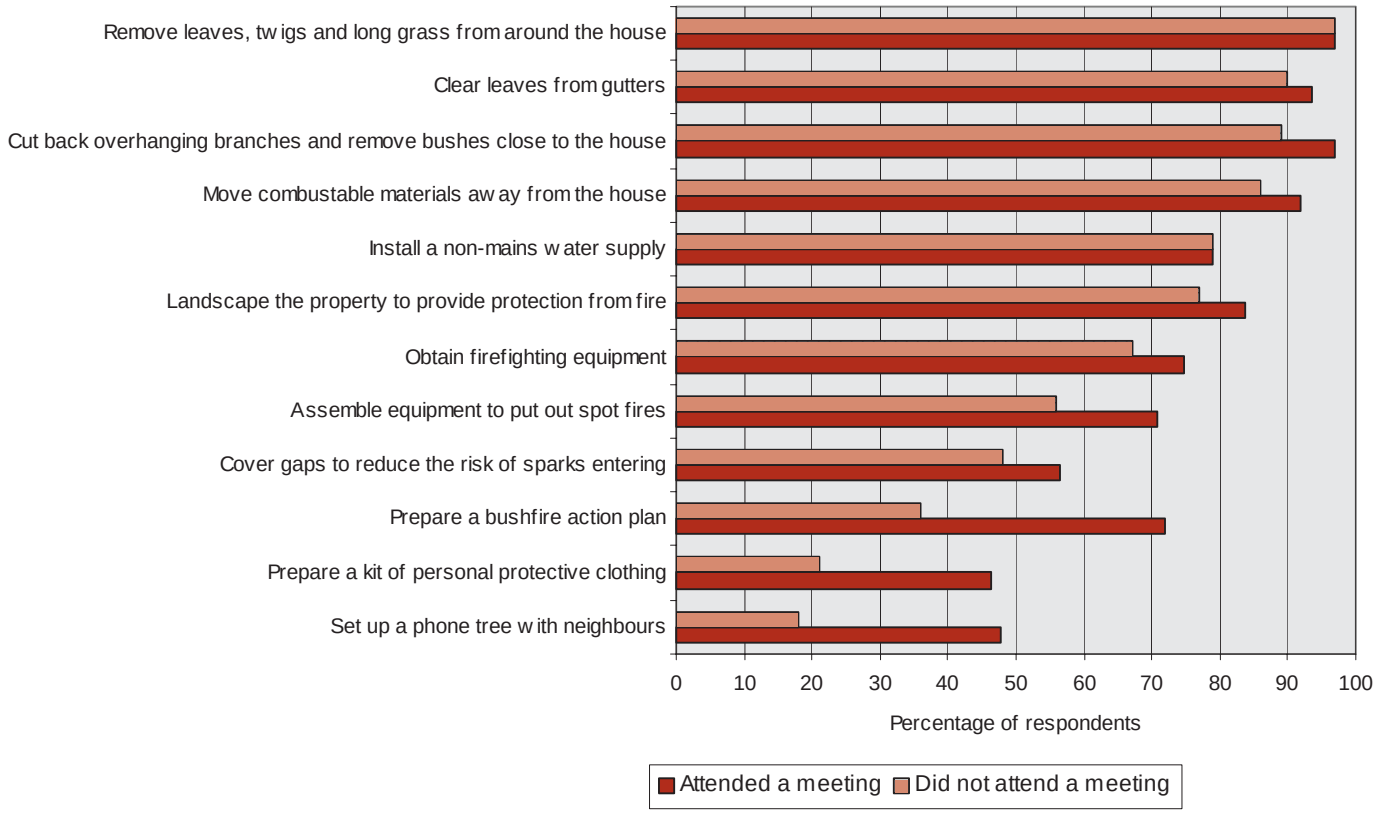
**5.36** Our survey results suggest that, generally, people understand that they should consider their options and plan well in advance of a wildfire. Around 61 per cent of respondents advised that they had prepared a wildfire action plan. Respondents in the Dandenong Ranges were significantly more likely to have a plan (74 per cent) than respondents in Gippsland (48 per cent).

**5.37** Overall, however, few plans were formalised and only:

- 15 per cent of all respondents said they written their plan down;
- 55 per cent said they had discussed the plan with all members of the household;
- 23 per cent said they had let their neighbours know their plan; and
- 24 per cent said they had practised their plan.

**5.38** Respondents' planning and preparation was not always comprehensive. A large number said they had undertaken simple tasks such as removing twigs and long grass from the property, clearing gutters of leaves and cutting back overhanging branches and bushes close to the house. However, fewer said they had undertaken essential fire-specific preparations such as preparing a kit of protective clothing for each member of the household, obtaining firefighting equipment such as hoses and pumps, assembling equipment such as ladders and buckets to put out spot fires, and ensuring that they had an effective information system, such as a neighbourhood phone tree. Chart 5B sets out the kinds of preparedness activities households reported having undertaken, and indicates the frequency of activities according to whether respondents had attended a community meeting on fire preparedness.

**CHART 5B**
**PREPAREDNESS ACTIVITIES UNDERTAKEN**




Responses to question "*Can you tell me what (if anything) your household has done to prepare for a bushfire in your area*?"

*Source:* Victorian Auditor-General's Office.

**5.39** In both Gippsland and the Dandenong Ranges, respondents who had not attended meetings such as Bushfire Blitz or Community Fireguard had made fewer preparations to deal with a wildfire. Respondents in the Dandenongs who had not attended any meetings were less likely than others to have undertaken even simple activities such as removing vegetation from around the house.

**5.40** Those who had attended a community meeting were more likely to have a plan, and the plan itself was more likely to be written down and to account for the needs of every household member. This group was more likely to have attempted to prepare their property to survive a wildfire and their preparations were more likely to be significant wildfire-specific preparations rather than incidental preparations such as reducing vegetation in the yard.

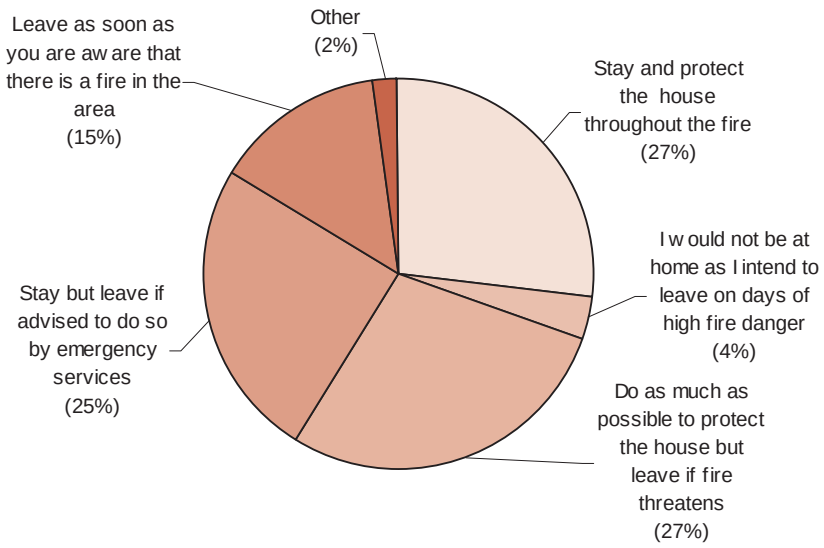
## Stay or go?

**5.41** Stay with the house and fight the fire, or leave and hope the house survives? This is the most important decision facing residents in wildfire areas. Residents who make adequate preparations and stay to actively defend their property, retreating into the residence for protection from radiant heat as the fire front passes and then extinguishing spot fires that break out in the fire's aftermath, have a good chance of saving their homes. Adequate preparation is fundamental to this strategy and is described in detail in CFA publications and programs.

**5.42** Residents who stay and actively defend their property also have a much better chance of survival than residents who leave at the last minute. Even in a vehicle, late evacuation is fraught with danger, exposing residents to extreme risk from radiant heat, a road crash in thick smoke, or hazards such as falling trees and powerlines.

**5.43** Because of the extreme risks posed by late evacuation, the CFA currently advises that residents planning to leave their home should do so *by 10 a.m. on all days of high fire danger*, whether there is a fire in the area or not.

**CHART 5C**
**STAY OR GO?**




Responses to question: *"Which one of the following actions best describes what <u>you</u> would do if all members of your household were at home when a bushfire occurred in the area?".*
*Source*: Victorian Auditor-General's Office.

**5.44** The survey showed around 27 per cent of respondents plan to stay and defend their homes throughout a fire, while fewer than 5 per cent of those who intend to leave are planning to do so on all days of high fire danger, (the action recommended by the CFA). This suggests that people are currently making a personal judgement that may not reflect the full extent of local risks.

**5.45** The CFA's formal advice to leave by 10.00 a.m. *on all days of high fire danger* (whether there is a fire in the area or not), while clear and unambiguous, may be too extreme to be accepted as practical by most in the general community.

**5.46** A more practical position may be that described by the 15 per cent of respondents who said that they plan to leave as soon as they are aware of fire in the area. Currently, this position is not formally advocated by the CFA. However, for households with good access to transport who live in areas with multiple escape routes, it probably presents a realistic and viable option. The meaning of "in the area" will vary from region to region. A community engagement framework like Community Fireguard is an ideal way for residents to define situations under which those who are not planning to stay should leave.

### Recommendations

**5.47** We recommend that the CFA reconsider its official advice that all residents planning to leave should do so by 10 a.m. on all days of high fire danger. Advice about when to go, if you go, should be based on local risk assessment and incorporated into community education programs.

## COMMUNITY INFORMATION SYSTEMS

**5.48** The most detailed planning may be ineffective if residents do not have access to information to:

- get the earliest possible warning of fire in their area; and
- monitor the path and intensity of any fires.

### Finding out about a fire

**5.49** The CFA regards radio announcements, warnings from neighbours or friends, and listening to a scanner or 2-way radio as 3 reliable ways to learn of wildfire in a given area. Very few respondents in Gippsland and the Dandenongs believed they would learn of a fire in this way.

**5.50** Respondents in Gippsland were most likely to be self-reliant, with 47 per cent anticipating that seeing or smelling smoke at a distance would be their first warning of a fire.

**5.51** This contrasted dramatically with the Dandenongs, where 47 per cent of residents believed they would find out about a fire by hearing a fire siren. Fire sirens are not advocated by the CFA as an early warning system for residents because:

- they are used to signal a call-out of CFA personnel for a range of reasons other than fire (such as a road crash);
- they convey no information regarding the scale, location and direction of the fire; and
- their audibility in all areas in varying weather conditions cannot be guaranteed.

**5.52** The high awareness of, and reliance on, fire sirens in the Dandenong Ranges is possibly related to local publicity about a trial of a stand-alone fire-alert siren in the Ferny Creek area during 1999 and 2000. Evaluation of the effectiveness of the siren as an alert system for residents was inconclusive. While residents participating in the trial were generally supportive of the initiative, a report by the Office of the Emergency Services Commissioner concluded that "*… the siren is currently limited in its contribution to promoting appropriate wildfire survival behaviour*"[4].

## Keeping informed during a fire

**5.53** People also seem confused about reliable sources of information during a fire, with 49 per cent of respondents in the Dandenong Ranges and 73 per cent of respondents in Gippsland agreeing with the incorrect statement *"… if a bushfire occurs, ring the fire brigade to find out where it is in relation to your house"*. In a fire emergency, a large number of residents simply seeking information could tie up phone lines and prevent genuine calls for assistance from getting through.

**5.54** As the message that able-bodied householders can prepare, stay and defend their homes becomes more widely accepted in the community, the need to develop and promote reliable sources of information during a fire event becomes more acute. Community Fireguard attempts to address this by recommending that group members establish phone trees, with one member monitoring emergency services transmissions on a listening set, and then ringing several designated contacts who each, in turn, ring several more.

**5.55** The CFA is also working to better understand the ways that communities interpret and use available information during a fire emergency, and to identify ways of improving information delivery. The intention is that information delivery systems will then be integrated with CFA incident management procedures. While the problems of keeping residents informed before and during a fire emergency are not easily solved, the work that the CFA has undertaken, and is doing, provides a solid start.

[4] Office of the Emergency Services Commissioner, *Ferny Creek Fire Alert Siren Evaluation Report* 2001.

## COMMUNITY MISCONCEPTIONS

### Fire behaviour

**5.56** A number of questions in the survey probed respondents' knowledge about wildfire behaviour and the safest courses of action during a fire. Most respondents knew:

- that if they were caught in a fire while travelling in a car, it is safer to stay in the car than get out;
- that a fire will generally burn more intensely uphill than downhill; and
- what clothing to wear while fighting a fire.

**5.57** However, the survey showed some areas where significant numbers of respondents held incorrect beliefs or knowledge that may lead them to make household survival plans that could place them in danger. These are:

- Respondents were fairly evenly divided on the statement *"most houses are destroyed in the short period of time it takes for the fire front to pass through"*, with around 43 per cent disagreeing (the correct answer), 51 per cent agreeing and 7 per cent undecided; and
- Many respondents were uncertain on whether "a timber house can provide effective protection from the effects of a fire-front", with 44 per cent agreeing (the correct answer) and 56 per cent disagreeing or undecided. A smaller proportion of respondents (31 per cent), incorrectly believed that weatherboard houses are likely to explode in severe bushfires.

**5.58** Accurate knowledge of fire behaviour is essential. The mistaken belief that houses "explode" into flames as the fire-front passes can lead to people leaving the relative safety of a house and attempting a high-risk late evacuation in the path of a fire. While our survey showed that people who attended wildfire meetings were not necessarily better informed on all issues, those who had attended meetings were more likely to understand this important point.

### Understanding of emergency services' role

**5.59** When discussing their decision to stay or go, around 25 per cent of respondents planned to stay but would leave if advised to do so by emergency services. On the face of it, this is a sensible position. However, 64 per cent of respondents in the Dandenongs and 85 per cent in Gippsland believed, incorrectly, that "*the emergency services will let people know whether it is necessary for them to leave their home during a bushfire*". If residents are relying on emergency services to tell them when to evacuate, this could be a fatal misunderstanding.

**5.60** The CFA's advice on the issue is clear, specifically, people should make their own decision well in advance of any fire, taking into account their level of preparedness and their degree of mental and physical fitness. Any evacuations should occur well before the fire is in the area. It is unlikely that emergency services personnel will have the resources to contact individual households.

**5.61** Victoria is unique in allowing residents the right to make their own decision to stay and defend their property. Under the *Country Fire Authority Act* 1958 (section 31) and the *Emergency Management Act* 1986, the resident's right of choice is protected and there is no legal authority for residents to be ordered to evacuate from a fire ground. Media coverage of interstate fires frequently focuses on situations where residents are "ordered to evacuate" and may reinforce the perception that Victorian fire authorities can and will advise residents if they need to leave in the event of a fire.

## The media and community misconceptions

**5.62** Media coverage of fire emergencies can also powerfully reinforce mistaken public perceptions of fires moving "faster than express trains", houses "exploding into flames" and residents making dramatic last-minute escapes.

**5.63** While it is outside their control in many ways, fire authorities are gradually coming to grips with ways to more effectively use the media to promote appropriate behaviour. Pre-season briefings from the CFA provide journalists with basic wildfire training, advice about the coming season and the planned media program. In 2002, this session also included a short briefing on community safety (in particular, evacuation and the "stay and defend, or leave early" message). It is important that the CFA's media management is not just focused on managing the media at the fire ground, but continues a focus on appropriate messages that promote community safety.

**5.64** At a regional level, media liaison generally falls to the CFA community education co-ordinator. However, this responsibility is currently not reflected in position descriptions and Area Service Level agreements. As the CFA moves further into pro-actively working with the media to promote community safety and to keep the community advised during a fire emergency, the role of local liaison with the media needs to be better defined and regional staff need to be provided with appropriate training and resources to undertake the task.

## Recommendations

**5.65** We recommend that:

- the CFA continue work to identify and correct common misconceptions, community information needs and effective channels of information during a fire; and
- the CFA formally define the role of community education staff in managing information flows and content, including any media liaison roles that may be involved.

## FIRE REFUGES

**5.66** A significant percentage of respondents to our survey (24 per cent in the Dandenongs and 30 per cent in Gippsland), said they plan to go to a local fire refuge if they leave their home during a fire.

**5.67** In Victoria, fire refuges emerged after the 1983 Ash Wednesday fires as a local government response to a perceived need for safe places where people could gather in the event of a fire. Areas such as community halls, schools and, sometimes, open clearings or beaches, were signposted as refuges.

**5.68** However, the Statewide position on fire refuges is unclear and inconsistent. A review of fire refuges was initiated by the Shire of Yarra Ranges and undertaken by a Fire Refuge Working Party drawn from local government and emergency management agencies. The review was completed in August 2001 and identified a number of issues with the current system including:

- lack of clarity on the role and purpose of fire refuges;
- lack of resources for opening and staffing refuges; and
- lack of standards regarding the performance requirements of buildings or places designated as fire refuges

**5.69** Some municipalities have removed all signage and information from what were formerly fire refuges because of concerns about potential legal liability, a situation worsened by the lack of applicable standards. Where signage continues to advise the location of fire refuges, there is no guarantee that the location and access routes have been subject to a comprehensive risk assessment, no process for ensuring that the refuge will be open and defended by fire personnel in the event of a fire, and no guarantee that the refuge will be built or maintained to appropriate standards.

**5.70** The Shire of Yarra Ranges review was presented to the Office of the Emergency Services Commissioner in August 2001. In January 2003, the Office called for expressions of interest in the "Fire Refuges – Local Solutions through Consultation" project. This project proposes a series of local case studies to develop a robust and transferable consultation model, exploring:

- public needs and expectations (recognising that many people in fire-prone areas expect local refuges to continue);
- wildfire management issues (recognising the research that shows late evacuation to be the most deadly option);
- community emergency behaviour and the uptake of the CFA's messages and education programs about safe behaviours; and
- the perspectives of emergency services and municipal emergency managers.

**5.71** The unresolved issues around fire refuges, and the inconsistent position across local government areas, make it of considerable concern that so many survey respondents see refuges as an appropriate option in the event of a fire. One of the most significant concerns is the potential for community reliance on fire refuges to work against acceptance of the "stay or go early" message.

**5.72** In a limited number of circumstances, fire refuges may be an appropriate risk treatment, however, they should only be implemented as part of a comprehensive municipal fire prevention plan.

### Recommendations

**5.73** We recommend that:

- the OESC, in consultation with the CFA, the DSE and local government, urgently progress work on a consistent Statewide position on fire refuges which incorporates a risk assessment process, standards for fire refuges and aligns with the policy position on evacuation.

## CONCLUSION

**5.74** Our examination and survey findings provide strong support for CFA community education programs, with evidence that participants in face-to-face community education programs are more likely to have sound knowledge of fire behaviour than other respondents, have better knowledge of how to prepare their property and family to survive a bushfire, and are more likely to have translated this knowledge into tangible steps to prepare for a fire.

**5.75** However, ensuring that the community is adequately prepared for a fire is an ongoing challenge and education programs aren't reaching all households at risk. A significant number of residents in wildfire-prone areas have not undertaken essential preparedness steps, have potentially dangerous knowledge gaps about fire behaviour and are planning inappropriate survival strategies. Community education programs need to continue, and to become more fully integrated within the risk assessment framework that is utilised for other wildfire prevention and preparedness countermeasures.

**5.76** Audit findings also showed that a significant proportion of residents in fire-prone areas need to improve their level of preparedness and increase their knowledge of safe behaviours in the event of wildfire. These results indicate that the CFA needs to target its programs to address these important knowledge gaps. And, given the DSE's limited resources for community education, it is particularly important that the DSE and the CFA develop a co-ordinated approach to this work.

# Part 6

# Key stakeholders and wildfire prevention

## INTRODUCTION

**6.1** Wildfire does not respect boundaries. In order to ensure that the community is protected, every land owner or land manager in the State has responsibilities for fire prevention and hazard reduction. In this Part of the report, we shift our attention from community readiness and the way individuals minimise the harmful effects of fires on their own land to 3 industry groups: electricity distribution companies; non-metropolitan rail; and private forests, and their role in wildfire mitigation. Where appropriate, we also focus on their preparedness to help control wildfires.

**6.2** This Part of the report examines:

- The effectiveness of wildfire mitigation by electric power companies in Victoria and how well this is overseen by the Office of the Chief Electrical Inspector (OCEI). The OCEI has statutory responsibility for ensuring that electricity companies minimise safety risks to the community, including the risk of wildfires;
- The effectiveness of wildfire mitigation by non-metropolitan private railway operators in Victoria, and the way in which this is overseen and managed by the Victorian government – in particular, by the two authorities with responsibility in this area, Victorian Rail Track Corporation (VicTrack) and the Public Transport Division of the Department of Infrastructure; and
- The impact of privatisation of forestry plantations in terms of risk, mitigation and response.

**6.3** These 3 industries were selected because:

- All 3 are responsible for assets of significant value to the community;
- All 3 manage those assets in a newly privatised environment. This new context raises important questions about who is now responsible for wildfire mitigation; and
- Electricity transmission lines and railways have caused wildfires in the past, and have the potential to do so again.

### Audit approach

**6.4** The audit assessed whether the OCEI was effectively discharging its responsibilities to ensure a high standard of wildfire mitigation by power companies with work being done to prescribed standards. To confirm this, the audit:

- examined the OCEI's regulatory processes;
- reviewed background material provided by the OCEI;
- held detailed discussions with OCEI staff;
- visited and interviewed staff of an electricity company;

- checked on the work of an OCEI contract auditor; and
- inspected powerlines management in the Dandenong Ranges and foothills areas in West Gippsland.

**6.5** Our focus on railways adopted a similar approach. We examined the regulatory framework for Victrack and the Public Transport Division's wildfire responsibilities in regional Victoria, and conducted on-site examinations of the fire mitigation work conducted on behalf of rail companies.

**6.6** The audit assessed the impact of privatisation, including planning regulations, on wildfire risk in private forest plantations. Field inspections were conducted in the far south-west of the State and discussions were held with central and locally-based Country Fire Authority (CFA) staff and relevant municipal fire prevention officers.

## POWERLINES AND WILDFIRE MITIGATION

### Background

**6.7** Fire events can start when high winds blow trees or branches on to lines, conductors clash, poles fail or fuses burn out, sending hot or burning material to the ground. There is a long history of wildfires being started by electricity from powerlines. Specifically, fires initiated from powerlines were significant in 2 of the most serious wildfire events in recent Victorian history (1977 and 1983).

**6.8** Since 1983, there have been no fire events started from powerlines comparable to that of Ash Wednesday. To a significant degree, we can attribute this to the progress made over the past 20 years, initially as a result of systems developed by the former State Electricity Commission of Victoria and, more recently, by the combined efforts of the OCEI and the private companies.

**6.9** However, the effectiveness of the OCEI's oversight of fire prevention activities in the current framework is difficult to assess for 2 reasons:

- although each power company has a Bushfire Mitigation Plan covering their responsibilities and processes, the OCEI does not have a similar document covering its own work; and
- there are no reliable statistics on wildfires started by powerlines or failure of electrical assets to demonstrate the effectiveness of the OCEI's wildfire mitigation work.

## The OCEI's wildfire mitigation process

**6.10** The *Electricity Safety Act* 1998 provides strong legislative underpinning for the OCEI's work. The Act establishes the Office, outlines its powers with respect to wildfire mitigation and requires companies to prepare Bushfire Mitigation Plans. In addition, the Electricity Safety (Electric Line Clearance) Regulations 1999 outline detailed requirements for vegetation management under and adjacent to powerlines, including the preparation of an annual Vegetation Management Plan. The Electricity Safety (Network Assets) Regulations 1999 also play an important part in wildfire prevention, as powerlines not meeting statutory standards can start fires.

*Without sound management, powerlines can be a cause of wildfire.*

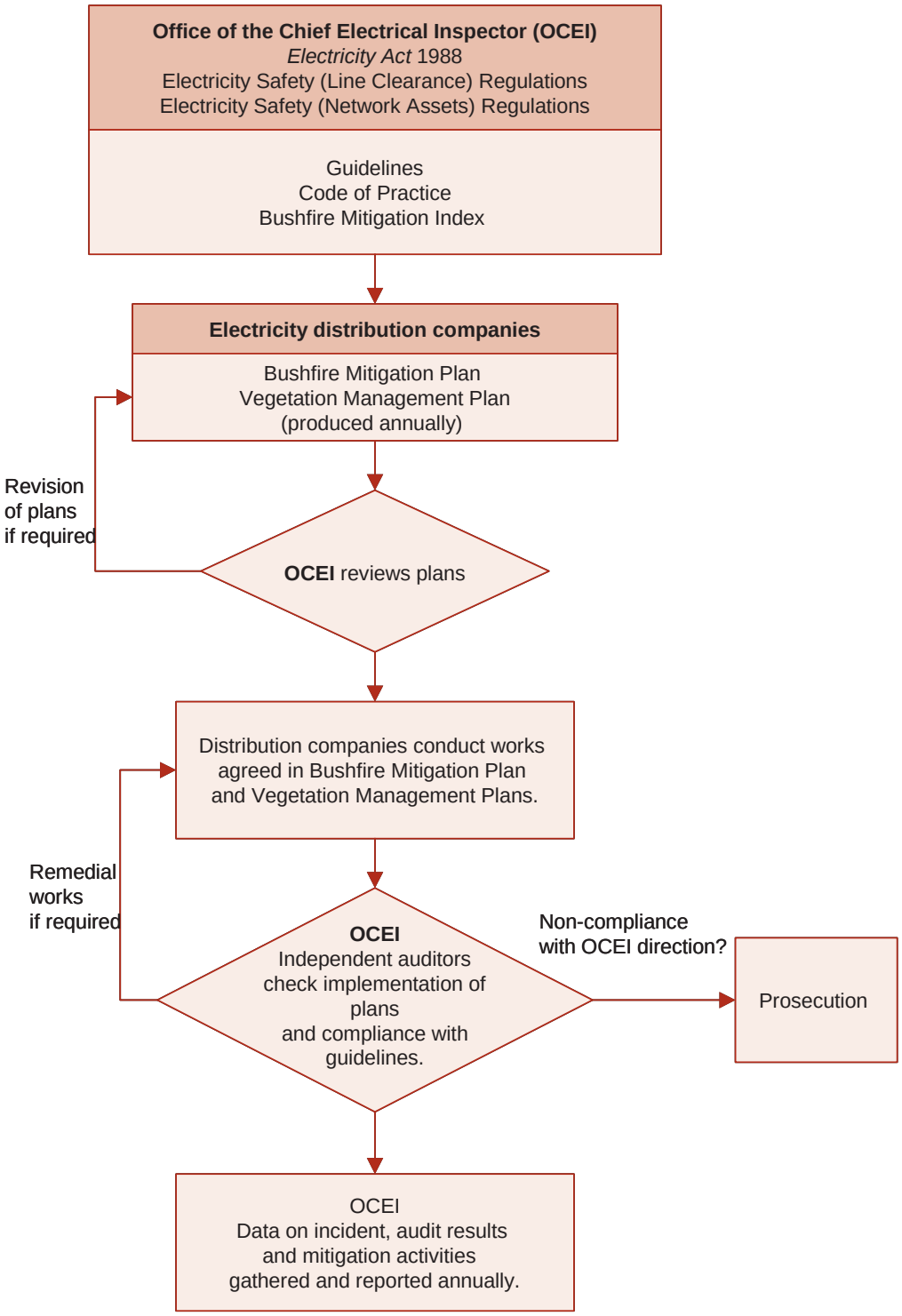
**6.11** Although not consolidated in a publicly available document, the OCEI does have a clear process for overseeing wildfire mitigation by power companies:

- The OCEI (in conjunction with the power companies) has produced a set of guidelines, a Code of Practice and a monitoring instrument (known as the Bushfire Mitigation Index) which establish standards and timelines for power companies to meet;
- Each year, power companies are required to prepare a Bushfire Mitigation Plan and submit it to the OCEI. This sets out the work to be completed over the next 12 months to ensure wildfire risks associated with the company's field assets are minimised. The Bushfire Mitigation Index is used to monitor how much work has been completed prior to the upcoming fire season;
- The OCEI reviews the Bushfire Mitigation and Vegetation Management Plans, and comments on them, in some cases requiring material to be added or standards upgraded. If the companies object, OCEI attempts to resolve this by negotiation;

- The OCEI employs independent auditors to sample-check implementation of the management plans and compliance with guidelines and relevant documentation and systems. This is done in the weeks leading up to the opening of the fire season. The audits can disclose deficiencies in work by companies and the OCEI can direct companies to attend to problems. The OCEI directs that deficiencies must be fixed immediately (e.g. trees touching high-voltage lines) or the company may be given up to 12 months to fix them (for less urgent work);
- OCEI auditors physically check for compliance with any directions arising from the initial audit, especially urgent requirements considered to have a high wildfire risk;
- In the event of non-compliance with an OCEI direction, the Office has the option of instituting prosecution which would lead to severe penalties through the courts and notification of the company's insurer (this option has never had to be exercised);
- The OCEI requires that all fires started by electricity be reported to it, so they are able to maintain a database and undertake trend analysis; and
- The OCEI reports annually on wildfire mitigation to its Minister, and occasionally makes an independent report to the Premier.

**6.12** Chart 6A summarises this process.

**CHART 6A**
**THE OCEI'S WILDFIRE MITIGATION PROCESS**




*Source*: Victorian Auditor-General's Office.

**6.13** The OCEI convenes and chairs an Electric Line Clearance Consultative Committee, which has wide representation from stakeholders and considers all aspects of line safety, including wildfire mitigation.

## Areas for improvement

**6.14** This process is well managed by the OCEI. However, there are areas where further improvements can be made:

- **Documenting processes and standards.** The wildfire mitigation process outlined in the previous section has not been documented in a consolidated document that defines the way the regulatory process is applied and the standards applicable to each step. OCEI currently relies heavily on the experience and judgement of its officers in assessing mitigation plans and electricity company performance. Standards that need to be defined include:
  - assessment criteria for Bushfire Mitigation Plans; and
  - methodology for calculating the Bushfire Mitigation Index.
- **Defining industry best practice**. There is a wide range of technology used in powerline construction and pole installations, and the way these are combined can also vary widely. The establishment of the Bushfire Co-operative Research Centre offers the OCEI the opportunity to sponsor research into, and promote progressive adoption of, best practice for cables, poles and pole-top installations, with a view to minimising wildfire risks;
- **Improving statistical validity of field audits**. There is a need for an improved and less subjective system of designing the OCEI's field sampling which, at present, is based on auditor experience. It is also important that the OCEI put in place a system of records showing lines which have been audited over the years;
- **Enhancing data collection and reporting**. Currently, there are no useful wildfire data sets relating to electricity-caused wildfires. For example, data provided on electricity-caused wildfires for the period 1976-77 to 1995-96 does not include wildfires smaller than 20 hectares in size, while more recent data (1997 to 2001) is for ignitions, not wildfires. It is important to continue to report and gather statistics on incidents (including ignitions), as these indicate system failures. Having said this, an even higher priority is to collect and maintain wildfire data that will help assess the effectiveness of wildfire mitigation strategies. In order to do this, it will be necessary to define a wildfire, as distinct from an ignition incident[1]; and
- **Ensuring full and transparent performance reporting.** While the OCEI reports briefly to its Minister on progress with wildfire mitigation at the start of each fire season, the Office could report more fully on the outcome of wildfire mitigation work, possibly through its Annual Report.

[1] For the purposes of the OCEI's reporting and evaluation, we suggest an *incident* is an event that has the potential to start a wildfire from electrical assets. Some incidents may result in a wildfire, which is a fire started by electricity in the CFA's designated wildfire area that causes damage to third party assets and needs to be suppressed by a firefighting agency.

### Recommendations

**6.15** We recommend that the OCEI:

- document its wildfire mitigation process;
- develop standards for the preparation of Bushfire Mitigation Plans and the Bushfire Mitigation Index;
- improve data collection and performance reporting on wildfire mitigation outcomes; and
- sponsor national research into best practice for cables, poles and pole-top installations with a view to minimising wildfire risks.

## RAILWAYS AND WILDFIRE MITIGATION

### Background

**6.16** While there is a long history of wildfires being started by railways, this has declined significantly since steam locomotives were replaced by diesels. Modern diesel engines have effective exhaust and spark arrester systems and, in recent years, very few wildfires have been started by railway operations. Those that start are generally confined to smouldering sleepers in the track.

**6.17** The principal ignition sources from a rural railway system are (not in order of priority):

- locomotives, especially steam, but also diesel;
- train wagons, especially their braking systems;
- accidents;
- line maintenance, especially the use of tools for metal cutting and welding; and
- crews losing control of burning-off operations.

**6.18** The most common railway wildfire situation and, therefore, the one to which the focus of preventative management should be addressed, occurs when sparks (hot metal fragments generated by metal-on-metal or faulty brakes) fall onto the rail bed and set fire to wooden sleepers or to dry grass growing between or immediately adjoining the tracks.

**6.19** Effective fuel reduction in rail corridors is also important because they are often difficult areas in which to tackle wildfires which start *outside* the rail reserve, but then burn into or along the reserve. An unmanaged rail reserve can act as a “wick” allowing fire to spread through areas where land outside the reserve has been fuel reduced. Rail reserves can be difficult for fire crews to access and can usually only be crossed by a firefighting vehicle at level crossings. These crossings can be widely dispersed.

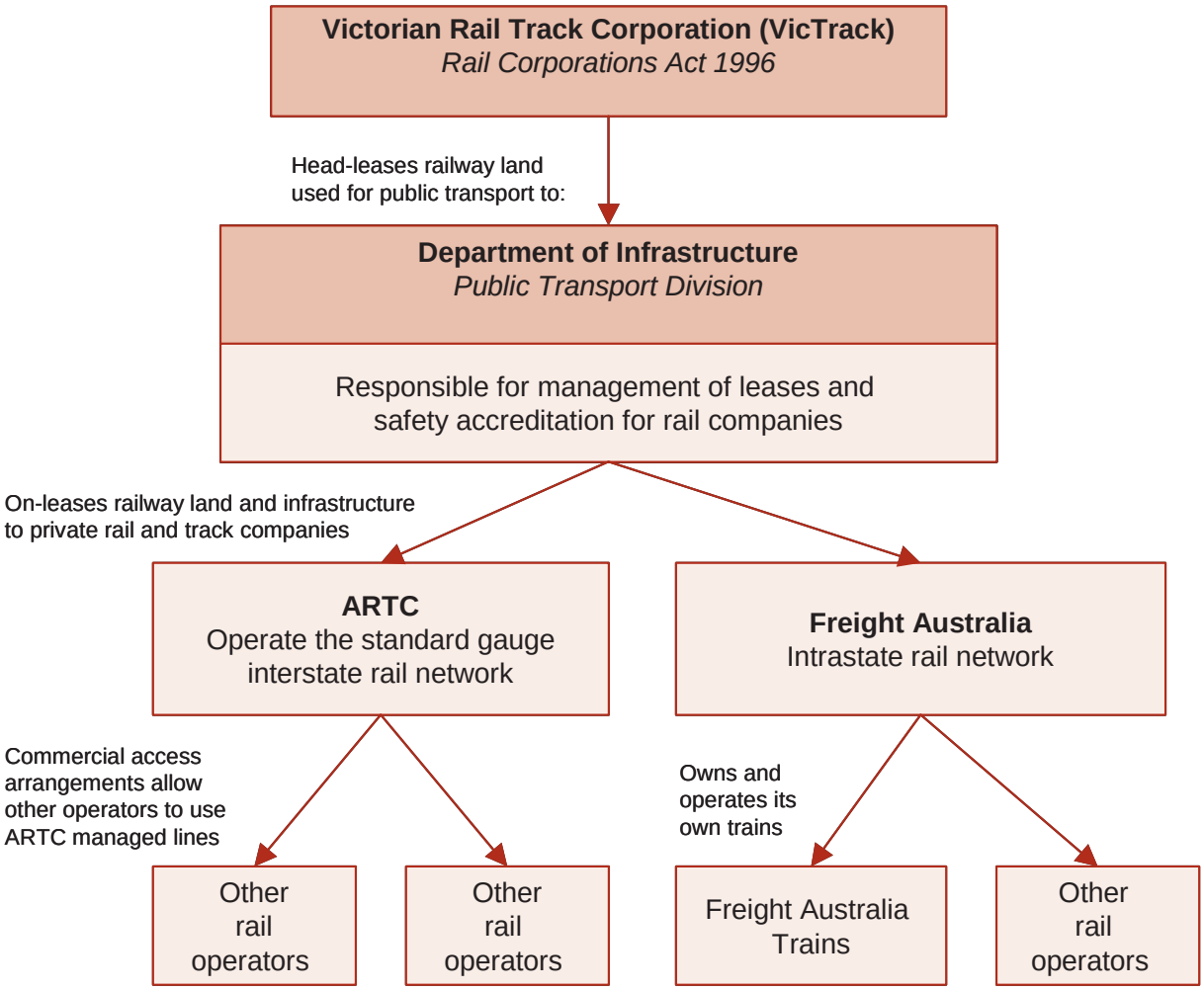
**6.20** Victorian railways governance and management arrangements are complex. Railway land and infrastructure in Victoria is owned by the Victorian Rail Track Corporation (VicTrack), a public authority established under the *Rail Corporations Act* 1996. VicTrack head-leases railway land used for public transport (trains and trams) to the Public Transport Division (PTD) in the Department of Infrastructure. PTD on-leases railway land and infrastructure to private rail and track companies (Australian Rail Track Corporation [ARTC] and Freight Australia) and is responsible for management of these leases and also for on-going safety accreditation of rail operators.

**6.21** The 2 key companies managing infrastructure maintenance and operations in rural Victoria and, therefore, of interest from the wildfire perspective, are ARTC and Freight Australia:

- ARTC has a 15-year lease (commenced in July 1998) to operate the standard gauge interstate rail network. It does not operate its own trains, but enters into commercial access arrangements with rail operators to use its tracks; and
- Freight Australia manages designated rail lines and operates its own trains. It has a 45-year lease from the PTD (commenced May 1999). Freight Australia operates the intrastate railway network in Victoria.

**6.22** Chart 6B summarises these relationships.

**CHART 6B**
**RAILWAYS GOVERNANCE IN VICTORIA**




*Source*: Victorian Auditor-General's Office.

## Fire prevention in rail

***6.23*** Because of the number of parties involved and the complexity of the relationships, it is important that a clear chain of responsibility is established and documented, specifying: how fire prevention works on rail corridors will be conducted, and by whom; and defining clearly the fire protection safeguards that may need to be in place for parties operating trains on the rail lines. As with electrical companies, effective fire prevention on rail lines depends on establishing clear processes and responsibilities for planning mitigation works, identifying and addressing hazards, auditing works conducted and maintaining sound data on incidents.

**6.24** Government, through VicTrack and the PTD, has the ultimate accountability for fire prevention and mitigation activities on rail lines operated by private rail companies. The PTD utilises infrastructure lease agreements and franchising arrangements with the rail companies to discharge its responsibilities. Under the leasing and franchising arrangements, the rail companies have operational responsibility for ensuring that fire prevention and mitigation works are carried out in a timely manner.

**6.25** Currently, hazard management responsibilities are not always as clear as might be desirable. VicTrack, the owner of the lines, is a public authority and, under the *Country Fire Authority Act* 1958, municipal councils are precluded from serving a fire prevention notice requiring a public authority to remove a hazard. Under this legislation, fire prevention officers *are* able to service a notice on the rail companies leasing the rail lines. However, the PTD and the CFA have advised that, since privatisation, many municipalities are unclear as to who has responsibility for addressing fire prevention concerns on leased rail lines.

## Documenting standards and policy

**6.26** Each organisation managing and using the rail network needs to have clear operational policies setting out its responsibilities and standards for fire mitigation, specifying management and control systems, and identifying roles and responsibilities. Currently, the status of operational policy development is as follows:

- VicTrack has recently produced a written policy, however, the document is limited in scope and has not been endorsed by the CFA;
- The PTD relies on the safety accreditation guidelines under the rail safety regulations, however, there is no component dealing specifically with fire prevention;
- The ARTC has no written policy, but relies on the Railway Safety Management System prepared by its contractor, Works Infrastructure. This document does not embrace railway operations and has not been endorsed or approved by the CFA or PTD. ARTC policies do not specify standards for the trains and locomotives of other rail organisations which use ARTC track; and
- Freight Australia has a comprehensive written policy with detailed guidelines for implementation. This document has been formally endorsed by the CFA but not formally approved by the PTD. Freight Australia occasionally allows vintage trains with steam locomotives to use its tracks. There is an informal policy not to allow this during the fire season.

**6.27** The PTD has prepared (and updates annually) a major document called The Co-ordinated Emergency/Incident Management Response Plan. This document covers a range of emergency management issues including wildfires. The PTD also chairs a bi-monthly emergency management planning co-ordinators' meeting to which all rail bodies are invited. One of the agenda items is wildfire prevention.

**6.28** ARTC and Freight Australia's rail line maintenance works are undertaken by a contractor who provides a schedule listing proposed work, expected completion dates and actual work completed. The basis for the current work program is not risk-based, but entails a systematic review and maintenance of all parts of the line in an orderly process. The details of the works program are submitted to the PTD on a regular basis during the fire season so that progress can be assessed.

**6.29** Currently, there is no independent audit of Freight Australia's and ARTC's wildfire mitigation programs. The PTD does not play a role similar to the OCEI with respect to electricity companies and fire mitigation.

## Areas for improvement

**6.30** While fire mitigation outcomes from rail have been good in recent years, a number of enhancements could ensure that accountabilities are clear and the wildfire mitigation responsibilities of all companies leasing and accessing the rail network are clearly defined.

- **Formalising requirements for wildfire mitigation in lease arrangements**. A clause in the lease charges the ARTC with wildfire prevention and mitigation responsibilities on the land it leases. There is no specific clause in Freight Australia's lease relating to fire prevention and mitigation, although it can be argued that the situation is covered in a catch-all phrase of the head lease requiring Freight Australia to comply with relevant legislation which would include compliance with the relevant sections of the *Country Fire Authority Act* 1958.
- **Formally documenting wildfire management policies and plans**. As discussed in paragraph 6.26, development and documentation of wildfire management policies by the rail authorities and companies is variable. Each rail company needs to have a policy that:
    - sets out the organisation's objectives and responsibilities in relation to wildfire mitigation;
    - specifies the management and control systems to be adopted;
    - identifies roles and responsibilities; and
    - ensures outcomes are reported and reviewed.
- **Improving integration with municipal fire prevention planning.** In addition to the difficulties some municipal fire prevention officers have in identifying who is responsible for addressing hazards on rail corridors, there is currently no process linking wildfire mitigation programs on rail corridors with municipal fire prevention plans. Closer links, including attendance at key municipal fire prevention committee meetings, and integration of rail fire mitigation works within municipal fire prevention planning would be valuable. A further benefit of linking rail company fire mitigation plans within the municipal planning process would be that any commitments made would be subject to CFA review.

- **Establishing an independent audit process**. Freight Australia and ARTC do not appear to have a program of auditing work carried out on their behalf by their contractor. We examined a section of one line and found work reported by the contractor as completed had not been undertaken. An independent audit process of fire mitigation works on rail lines could be established by incorporating a fire prevention component into the current safety audits routinely conducted by the PTD.
- **Improving reporting.** While individual rail companies and the CFA report internally on railway-related wildfires, there is no consolidated database of railway-related fires across Victoria. As a consequence, it is not possible to undertake any meaningful Statewide analysis of the causes, size and extent of wildfires that result from rail operations. This limits the PTD's capacity to develop a system-wide view of any concerns and to respond appropriately in terms of policy and additional safeguards.

### Recommendations

*6.31* We recommend that:

- the PTD review internal documentation and commence negotiations to revise and strengthen leasing arrangements to ensure that:
  - fire mitigation responsibilities/accountabilities of government agencies and rail companies are clearly documented; and
  - each company leasing or accessing rail corridors is required to have appropriate policies and plans for fire mitigation;
- the PTD extend its current safety audit process for rail companies to include an audit of wildfire mitigation activities conducted by companies and by contractors on the company's behalf;
- the PTD, the CFA and local government work to establish closer liaison between rail companies and municipal fire prevention committees; and
- the Office of the Emergency Services Commissioner, in consultation with the CFA, the PTD and the OCEI, establish systems to improve performance reporting on wildfire trends and outcomes for industry sectors.

## PLANTATIONS AND WILDFIRE MITIGATION

### Assessing the wildfire risk

*6.32* Wildfire behaviour and ease of control in plantations is affected by a wide range of variables, including:

- the standard of fire prevention planning and maintenance before and after the plantation was established;
- the age and species of the plantation;

- the severity of the fire season; and
- the prevailing weather conditions.

**6.33** As the area of timber plantations expands over former farmland (principally cropland and pasture), the extent of changes to the inherent risk of wildfire is unclear, even among experts. Further research is needed on fire behaviour in plantations. This will enable the most appropriate prevention and suppression strategies for each particular situation to be developed.

**6.34** Concerns about increased fire hazard associated with plantations are influenced by wider concerns about the social impact of recent land-use change on rural communities and the perceived threat or opportunity offered by the associated change in land values. The movement of people from former farms to larger towns will alter the number and distribution of fire brigade volunteers. On the other hand, fewer people means less risk of ignition, and of death and injury.

## Forest industry fire brigades

**6.35** When Victoria's State-owned plantations were privatised there were concerns that reduced government involvement and the transfer of responsibility to the CFA would increase the burden on volunteer firefighting resources. Consequently, an amendment to the *Country Fire Authority Act* 1958 was introduced, requiring plantation owners to provide for their own fire protection. Plantation owners must now establish, equip and staff their own fire brigades if they own more than 500 hectares of plantation within a 25 kilometre radius. While the legislation states that the CFA can direct companies within this category to form a brigade, companies generally take the initiative by approaching the CFA.

**6.36** There are now 25 forest industry brigades across the State, owned by 15 separate plantation companies. This level of resourcing approximates to what was previously available in the State-owned plantations. Forest industry brigades are structured as normal CFA brigades and members must meet the same accreditation requirements. CFA regional operations officers inspect the industry brigades along with other brigades as part of the required annual review.

**6.37** It is not clear whether the forest industry brigade legislation is the best means of promoting fire prevention and preparedness in the new plantations. Anomalies exist and there is confusion as to who is responsible for brigade formation where company holdings are dispersed over a wide area and interspersed with the holdings of several other companies. These holdings may or may not be large enough to require a brigade. While the legislation provides for companies to form joint industry brigades, this option is rarely taken up and the CFA should adopt a firm line in encouraging affected companies to take the necessary steps to provide adequate fire prevention and suppression coverage.

## Municipal views and responsibilities

**6.38** In the rural zone, timber production does not require a planning permit, however establishment of forestry plantations is subject to a Development Notice. Timber production must comply with the Code of Forest Practices for Timber Production which is an incorporated document in the Victorian Planning Provisions.

**6.39** In the south-west of the State, some council planners are using guidelines developed by a CFA regional office in their assessments of plantation fire prevention design. Many council planners believe this document gives valuable guidance, but would prefer to have clearer powers to enforce the recommended practices. The guidelines in use in the south-west have not been formally endorsed by the CFA, which is currently working with industry to develop performance-based fire prevention design guidelines for plantations.

**6.40** The councils we visited advised us that they inspected and considered plantations within the standard municipal fire prevention planning processes. They felt that these processes accommodated any issues raised by the expanding area of plantations.

**6.41** We found that municipal officers regularly inspected newer plantations to ensure compliance with the CFA design guidelines for plantation establishment. There were, however, fewer inspections of older plantations. These were treated in much the same manner as established farmlands where hazard management notices would be issued if problems become apparent. The municipalities we visited kept no records of inspections at older plantations and kept no records of the number of infringement notices issued to plantations.

**6.42** We inspected numerous plantations that were being well maintained in accordance with the fire prevention design guidelines; in others we saw no effective wildfire protection measures. In terms of general farmlands, the quality of wildfire prevention works also varied considerably.

**6.43** The differing levels of rural fire prevention/mitigation performance appeared to be general issues associated with the municipal fire prevention planning process and not specifically related to plantations or to the change in land-use.

## Areas for improvement

**6.44** **Encouraging formation of industry brigades.** In most cases, the initiative to form industry brigades has come from the company concerned. However, in cases where company holdings are dispersed and interspersed with the holdings of other companies, and the aggregate holdings are large, it may be appropriate that joint brigades are formed.

**6.45** **Improving understanding of the wildfire risks.** As land-use changes and plantations replace farmland, it is unclear, even to experts, what changes in wildfire risk may result. No-one has a greater commercial interest in understanding and managing this risk than the companies themselves, and the establishment of the Bushfire Co-operative Research Centre offers an opportunity to conduct research and establish standards to minimise risk.

**6.46** **Providing better guidance for municipalities.** Some councils we visited believed current guidelines were adequate, however, our analysis of fire prevention on private land (see Part 4 of this report), identified some key weaknesses in the council planning approval and hazard management framework, including a low level of fire management expertise in some councils. Clear and consistent guidelines for the location and design of forest plantations that also outline wildfire prevention requirements need to be developed and made available to municipalities.

## Recommendations

**6.47** We recommend that:

- the DSE, the CFA and the plantation industry initiate work with the Bushfire Co-operative Research Centre to develop fire behaviour models and standards to minimise wildfire risk in commercial forest plantations;
- the CFA adopt a firm line in encouraging companies at risk to form industry brigades as provided for under legislation;
- the CFA formally endorse State Fire Prevention Design Guidelines for Plantations to provide guidance to key stakeholders; and
- State and local government, and the CFA, improve the standard of municipal fire prevention planning and ensure its consistent implementation in forest plantations .

## CONCLUSION

**6.48** We concluded that the regulatory framework for overseeing the work of electricity distribution companies was sound although improvements could be made. Since 1983, significant progress has been made in preventing fires started by powerlines.

**6.49** In comparison, the regulatory regime for railways was weaker, with few reliable mechanisms to oversee the performance of rail companies in reducing the likelihood of wildfire. Clarification is urgently needed around responsibilities and accountabilities. We note, though, that the wildfire risk posed by railways has considerably reduced now that diesel locomotives have replaced steam locomotives.

**6.50** It is unclear whether the increase in the number of plantations has significantly increased wildfire risk throughout the community. While the legislation provides flexibility in forming brigades, including the provision for joint brigades, the CFA may need to take a more active role in encouraging companies to form industry brigades where a clear need exists.

**6.51** Just as on all privately managed land, the standard of fire prevention work conducted on private plantations is variable and it is essential that the municipal fire prevention provisions are implemented by well-trained and experienced fire prevention officers in order to minimise risks from plantations. The CFA draft guidelines provide a sound start, but more work needs to be done in increasing understanding of the risks associated with the growth of private plantations.

# Part 7

# Firefighting personnel

## INTRODUCTION

**7.1** Throughout this report we argue that strong policy and planning frameworks must underpin fire prevention and preparedness practices. But, as we also stress, wildfires *will* occur in Victoria despite our best preventative efforts. This means that the skill and response capacity of our firefighting personnel is critical to the success of fire suppression and disaster management. How do we recruit, replace and train these valuable people? How well are we meeting the personnel needs across the State? And how well are these valuable human assets being managed?

**7.2** This Part of the report looks in detail at the recruitment, succession planning and training of Victoria's firefighting personnel.

**7.3** We concentrated our examination of recruitment activities on 2 key areas:

- large-scale recruitment of staff by the Department of Sustainability and Environment (DSE), and the Country Fire Authority (CFA), specifically, the recruitment programs for DSE's Project Fire-fighter program and the CFA's base-level firefighters; and
- CFA volunteer recruitment; in recognition of the critical role that CFA volunteers play in Victoria's firefighting effort.

**7.4** We examined available data on the number and age of DSE and CFA firefighters and non-operational personnel, and reviewed existing succession plans across the agencies.

**7.5** We examined training and development activities across the DSE and the CFA, focusing on both the standard and consistency of Incident Control System (ICS) training and training in communications.

## Personnel

**7.6** Victoria's rural firefighting personnel are located in the DSE and the CFA. They include:

- 40 staff attached to the DSE's Fire Management Branch, located at head office ;
- 60 staff based in DSE regional offices around the State;
- between 600 and 800 seasonal Project Fire-fighters (PFFs) who are employed seasonally by the DSE;
- approximately 2 000 other DSE, DPI and Parks Victoria staff who are trained and accredited for various firefighting and support roles[1];
- 405 full-time firefighters located at 29 CFA stations;

[1] The 2 000 staff from DSE and DPI business units and land management agencies, including Parks Victoria, are not full-time firefighters but are required to be available for firefighting duties appropriate to their training and accreditation. They are released from their normal day-to-day responsibilities to assume Incident Control System (ICS) roles in the event of fire.

- 92 operational staff based at the CFA's headquarters, regional offices and at its Fiskeville training complex; and
- around 60 000 CFA volunteer firefighters attached to 1 218 brigades, of whom approximately 28 000 can be operationally deployed in the event of a fire.

## Audit approach

**7.7** In conducting this audit, we held discussions with human resource and training personnel, reviewed documents including minutes, recruitment and succession plans and training materials, and observed training sessions. Audit criteria covered whether:

- **recruitment programs and strategies**:
  - continued to effectively meet fire preparedness needs;
  - were based on sound selection criteria and transparent processes;
  - employed recruitment practices that increased the pool of potential candidates in a cost-effective way; and
  - were well-administered in terms of regular management support and oversight;
- **succession planning processes**:
  - provided for regular management information in order to identify shortfalls in staff resources;
  - assessed the implications of these shortfalls in terms of the capacity to achieve organisational priorities and targets;
  - showed evidence that management responds by introducing appropriate action based on the significance of shortfalls (within resourcing constraints); and
  - monitored the situation and introduced further corrective action if required; and
- **training and development processes**:
  - included joint decision-making by the DSE and the CFA on wildfire training priorities;
  - included joint decision-making by the DSE and the CFA on sharing resources and infrastructure;
  - determined the number and level of staff to be trained;
  - identified emerging training needs;
  - provided for skills maintenance after initial training; and
  - established a continuous improvement process covering all phases of the training process.

## RECRUITMENT

### DSE Project Fire-fighter program

**7.8** Prior to each fire season, the DSE engages between 600 and 800 PFFs on a casual basis. The cost of the PFF program for 2001-02 was $10.7 million. The number of firefighters varies according to the forecasts of fire season severity.

**7.9** The PFFs are involved in a range of fire suppression and prevention activities and two-thirds of them work for periods of between 3 to 5 months each year. When not engaged in fire suppression, PFFs work on a range of maintenance and fire protection works such as preparing fire breaks, clearing access tracks, and maintaining roads and facilities. Other general forest and park maintenance tasks may be carried out by agreement with other areas within the DSE or the Department of Primary Industry (DPI).

**7.10** Approximately half of all engaged PFFs will return for a second year. Approximately 70 per cent of PFFs over the 2001-02 fire season had 3 years experience or less. The DSE's ability to engage and train large numbers of casual PFFs within relatively short time frames is a considerable achievement.

**7.11** The audit found that the PFF program is well-administered with:

- clear program objectives and key selection criteria;
- regular management oversight and reporting;
- significant stakeholder involvement in program decision-making; and
- in-built continuous improvement mechanisms such as questionnaires completed by PFFs after each period of employment.

**7.12** While the operational administration of the program is subject to regular oversight, we believe there would be benefits in a review of the program's current focus.

#### *Review of program focus*

**7.13** The recruitment, selection (including task-based assessments and medicals), training and supervision of such a large number of PFFs is a significant task for the DSE's Fire Management Branch. There are dedicated work force co-ordinators that manage PFF work programs and a specific role in the Branch manages PFF recruitment, however, not all resources utilised in managing the PFF program are identified as program costs.

**7.14** The primary purpose of the PFF program is fire suppression and the extent of this work is largely dictated by the severity of the fire season. Inevitably, a large proportion of the PFFs' time is devoted to fire prevention activities. Currently, PFFs report after the completion of their period of employment on the nature and extent of their non-suppression related activities. There is no specific performance measurement system in place that identifies key fire prevention priorities and confirms the extent to which these have been achieved. Given the level of expenditure involved in the PFF program and the renewed strategic focus on fire prevention, this issue should be addressed.

**7.15** The PFF program is a long-standing initiative. However, a range of factors suggest it is opportune to examine its current form and focus. These factors reflect the complex and changing environment within which the program operates and suggest that the program may need to expand, contract or change its focus, depending on the strategy adopted:

- In Part 4 of this report, we outlined options for increasing achievement of fuel reduction targets. If this recommendation is implemented, PFFs could be used as an additional work force. This would require the PFF employment period to extend further into autumn;
- Given the relatively low retention rates for PFFs, the cost of administration and the ongoing nature of the program, a cost-benefit analysis would determine whether, on balance, a proportion of the PFFs could be employed under more permanent staffing arrangements. This analysis would need to take into account flexible working arrangements designed to maximise coverage during the fire season (and, possibly during autumn, if PFFs' employment is extended to include fuel reduction burn activities). The CFA has also expressed interest in using PFFs during the fire season when they are not engaged in the DSE's fire suppression duties. This, too, would need to be factored into the cost-benefit analysis; and
- Since the PFF program first commenced, there has been an increased emphasis on aircraft use for firefighting. While acknowledging that aircraft by themselves do not put out fires, we see value in examining whether the balance between equipment and firefighting personnel is correct.

**7.16** In summary, the DSE will always need some additional firefighting resources to deal with the additional demands of the annual fire season. In our view, it is timely to examine whether current arrangements represent the most cost-effective approach to both fire suppression and prevention.

## CFA's firefighting work force

### *Career firefighters*

**7.17** The CFA recently commissioned a report into its career firefighter recruitment procedures. The report has 2 main recommendations:

- That the CFA improve the efficiency of the current recruitment process. For example, the report proposes that compulsory elements of the recruitment process be completed at an earlier stage with subsequent recruitment effort devoted to ranking applicants. Under current arrangements, an applicant can progress well into the recruitment process before being found unsuitable; and
- That the CFA upgrade objectivity and transparency. Under proposed arrangements, new assessment measures have been introduced, together with improved feedback mechanisms to applicants.

**7.18** The report's recommendations are currently being implemented.

### CFA volunteer firefighters

**7.19** Volunteer recruitment is managed by individual brigades which conduct all phases of the recruitment process. Brigades are actively assisted in this process by CFA headquarters personnel who provide considerable resources to volunteer support services through ongoing guidance (e.g. recruitment seminars and workshops) and recruitment support (e.g. recruitment kits and posters).

**7.20** Currently, Regulation 47 of the Country Fire Authority Regulations 1992 provides only very broad criteria for recruiting volunteers, requiring that *"… the person is of good moral character and habits …"* and *"… is capable of performing his or her duties … without endangering his or her safety, or the safety of others"*.

**7.21** The CFA's Brigade Management Manual provides broad criteria to guide decision-making around commencement as a probationary member and confirmation of senior membership status. There are no specific criteria to assist decision-making in terms of particular operational and non-operational roles. The CFA has indicated that this issue will be addressed as part of the current review of recruitment and retention programs.

**7.22** As well as entry-level recruitment, we also examined processes for filling higher-level brigade roles. Advancement to brigade officer is by election to the position, with some positions requiring certain prerequisites. For example, the Country Fire Authority Regulations 1992 state that volunteers wishing to stand for election as captain must have been an officer of the brigade for 2 or more years[2].

**7.23** For key command and control positions, we believe it is prudent for additional safeguards to be introduced regarding a member's capacity to undertake key roles. This should occur *prior to* the election process. These safeguards might include:

- completing operational ICS accreditation;
- successfully completing designated leadership courses currently run by the CFA; or
- meeting pre-determined criteria such as demonstrated leadership skills in other fields of endeavour.

## Recommendations

**7.24** We recommend that:

- The DSE review the focus and priorities of the Project Fire-fighter program to ensure it is aligned with changing strategies in fire prevention and suppression; and
- The CFA introduce requirements that must be met (such as the completion of ICS accreditation) before a brigade member can stand for election for key command and control roles.

[2] At the end of November 2002, 147 captains had completed the Australasian Fire Authorities Council competency 4.04 Incident Control Systems. This represents 12 per cent of brigade captains.

## SUCCESSION PLANNING

**7.25** Developing staff to fill fire management roles takes time and forward planning. Strong succession planning policies are essential because:

- There is a limited external recruitment market for this specialised work;
- There is a long lead time before officers have gained the qualifications and experience through exposure to wildfire. The DSE estimates that it takes 8 to 15 years for an officer to gain the necessary proficiency to perform in key fire management roles (8 for supervisors; up to 15 for an Incident Controller Level 3); and
- Fire management roles are high-risk.

**7.26** Given these factors, succession planning is highly applicable to the fire management area and equally relevant to staff and volunteers.

### DSE's firefighting work force

**7.27** The DSE will need to deal with the significant challenges posed by the ageing of its work force and the anticipated departure of a significant number of key firefighting staff. If not addressed, this matter has the potential to jeopardise Victoria's capacity to effectively respond to wildfire.

**7.28** Anticipated departures (all in the foreseeable future) apply at all levels of the firefighting organisation and include incident control, operations, planning and logistics staff. The age profile of senior Incident Controllers is a major concern as Table 7A shows.

**TABLE 7A**
**AGE PROFILE INCIDENT CONTROLLERS[3], AT NOVEMBER 2002**

| *Role* | *Average age* | *Number* | *Number 50 years and over* |
|---|---|---|---|
| Incident Controller Level 3 | 49 years | 17 | 11 |
| Incident Controller Level 2 | 47 years | 28 | 9 |
| Incident Controller Level 1 | 43 years | 42 | 8 |

*Source:* Department of Sustainability and Environment.

[3] An **Incident Controller Level 1** is qualified to control a Type 1 incident (a small, simple fire which is controlled within the resources of the local area and may/may not involve other agencies).

An **Incident Controller Level 2** is qualified to control a Type 2 incident (a developing/developed incident of medium size or complexity, expected to be controlled within 24 hours and involving resources from outside the local area).

An **Incident Controller Level 3** is qualified to control a Type 3 incident (a large or complex incident where resources from a range of locations are involved, normally multi-agency and normally expected to exceed 24 hours).

**7.29** Of the 17 Incident Controller Level 3s, only one is over 55 years of age, indicating that few are likely to work beyond this point. The age profile shows the capacity of Incident Controllers Level 2 to adequately replace any future departures at Level 3 is likely to be problematic. Given these circumstances, the fast-tracking of capable but less experienced staff to assume senior leadership roles should be examined.

**7.30** Frontline fire supervisors (Operations Officers) have a similar age profile to Incident Controllers (Table 7B below) although the succession planning issues, while significant, are less serious. It is also worth noting that the age profile of Operations Officers Level 3 indicates their ability to fill future Incident Controller vacancies is marginal.

**TABLE 7B**
**AGE PROFILE OPERATIONS OFFICERS, AT NOVEMBER 2002**

| *Role* | *Average age* | *Number* | *Number 50 years and over* |
|---|---|---|---|
| Operations Officer Level 3 | 48 years | 30 | 11 |
| Operations Officer Controller Level 2 | 47 years | 90 | 28 |
| Operations Officer Level 1 | 42 years | 224 | 42 |

*Source:* Department of Sustainability and Environment.

**7.31** The DSE's fire crews are also a relatively old work force. Of particular concern are Plant Operators (dozer and grader drivers) who possess specialist skills not readily found in other industries: 46 per cent of the large plant work force is aged 50 years and over; 55 per cent of its small plant work force is in this age bracket.

**7.32** The DSE has commissioned a study to match the number of staff needed to fill various fire management roles (as specified in the DSE Model of Fire Cover) with anticipated training needs and subsequent staffing requirements. The study covers the period 2003 to 2007. While this is a very useful study, with the exception of Parks Victoria, no formal succession planning policy or procedures exist for individual staff members. The Fire Management Branch sees this as a priority.

**7.33** Discussions at a corporate level with the DSE's Human Resources Branch confirmed that the factors that make succession planning a priority within the Fire Management Branch also apply to other specialist areas within the Department. They agree that there should be a corporate approach to addressing succession planning issues, with the needs of Fire Management Branch being given high corporate priority.

### Where to from here?

**7.34** A number of key steps would progress succession planning within the DSE. These include:

- **Defining the scope of succession planning and identifying priority positions**. In addition to succession planning for ICS roles, planning should also apply to key day-to-day fire management roles. For example, the average age of the senior fire position in the regions – Manager, Fire (VPS-5) – is 49 years;
- **Developing policy and procedures to guide the process**. Given the comparatively small scale of the DSE's fire management operations, we suggest the performance review process be used for this purpose. One outcome could then be an individually-tailored development program covering training, job rotation and senior staff mentoring for those staff considered willing and capable of assuming more senior roles;
- **Establishing short-term contingency plans** that identify interim successors for designated key positions in the event of unplanned departures;
- **Providing periodic reports** to senior management on work force profiles and the timing and extent of impending shortages;
- **Developing a succession planning template** to identify individuals against current positions and monitor their progression to other roles over time. (This process has commenced in Parks Victoria.) In addition, introducing career pathways into designated roles would provide invaluable guidance to both management and staff; and
- **Assigning clear functional responsibility** within the Fire Management Branch for overseeing succession planning. In discussions with the Human Resources Branch, there was support for one-off assistance to the Fire Management Branch to establish this function.

**7.35** The above issues presuppose that funding structures will enable longer-term work force planning. Current short-term funding arrangements which, in part, provide for ongoing prevention and preparedness activities are not conducive to long-term work force planning.

**7.36** In addition to introducing the measures in paragraph 7.34, the DSE should also consider new strategies to fast-track individuals into key positions. Potential strategies include:

- **Broadening roles and responsibilities at the more senior level.** Currently, there are 24 districts within 5 regions. A Fire Management Officer (FMO) is responsible for each district and reports to the Manager, Fire. Under existing arrangements, there is a considerable difference in the level of responsibility between the FMO and Manager, Fire. If the number of districts was reduced when FMO positions fell vacant, existing FMOs could take up broader responsibilities. This should make the transition from FMO to the more senior role easier to achieve;

- **Using the PFF program as a bridging program into selected positions at lower levels.** Based on the outcomes of DSE's succession planning, consideration could be given to using the PFF program as a bridging program into targeted positions where actual or consequential vacancies are likely to occur. According to DSE data for the 2001-02 fire season, there are few PFFs with tertiary qualifications, with only 4 forestry students participating in the program. Given the increasingly complex role of incident management, the recruitment of forestry graduates and provision of fire management experience is critical to succession planning. Bridging programs could also be utilised in a similar manner for fire crew roles, where shortages are likely in the future; and
- **Using mentors and trainees at all levels.** Having experienced managers mentor less experienced staff during fire incidents is an important way to plan for the future. Formal trainee positions could be established in this area. While trainee positions could apply at all levels, the significant concerns over the Departments' ability to fill future vacancies at the senior Incident Controller level suggest these positions should be targeted first.

***RESPONSE*** *provided by Secretary, Department of Sustainability and Environment*

*Succession planning is a major issue for the Department which will receive significant attention during the next 12 months. In particular, experience gained in the 2003 fires will be used to develop the next generation of fire controllers.*

## CFA's firefighting work force

**7.37** In contrast to the DSE, the CFA's career firefighters (including headquarters staff) are comparatively young. In general terms, three-quarters of operational staff are 45 years and below. The issue of succession planning, while important is, therefore, less pressing. However, positions such as Regional Operations Manager will require attention from a succession planning perspective.

**7.38** The CFA has recently introduced succession planning policy and procedures for positions identified as pivotal. Staff will be provided with the opportunity to apply for the succession planning program with their suitability assessed against pre-determined management capabilities. Successful applicants will be involved in the preparation of a 2-year development plan.

**7.39** In the case of volunteers, the impact of age on the CFA's operational preparedness is difficult to determine without a record of fire attendance. The total number of volunteers is not in itself useful as it includes inactive members as well as members filling a non-operational role. There are no Statewide details yet available on individual volunteers' fire attendance histories, although the CFA has commenced the process of data collation and analysis.

### Where to from here?

**7.40** The CFA has made a sound start to addressing succession planning. We believe future developments should include:

- Expanding the policy and procedures to cover pivotal positions in the volunteer ranks as well as covering ICS accreditation levels for volunteer and career staff. In the case of volunteers, "trigger points" for designated key roles (e.g. the length of time an individual has occupied a position) would be a useful way to signal that a plan was needed. In conjunction with this targeted approach, we favour a general strategy that encourages and supports volunteers to undertake succession planning;
- Improving the use of existing data and undertaking system developments to assist management planning and decision-making. For example, the data within the CFA's Resource Management System could be used for work planning purposes such as forecasting potential resource shortfalls. Currently, the Human Resources Information System is unable to flag hard-to-fill positions and locations;
- Developing succession planning tools such as a succession planning template;
- Assigning clear responsibility for volunteer succession planning; and
- Developing specific initiatives to increase additional sources of supply for hard-to-fill positions and locations, covering both staff and volunteers.

### Building membership

**7.41** In relation to this last point, the CFA has introduced the Brigade Broader Membership program to expand brigade roles and activities while maintaining core responsibilities for fire suppression. The program aims to respond to community needs while simultaneously using a range of community-based skills to fill critical roles such as media relations, community education and fire prevention.

**7.42** As well as brigades better reflecting the communities they serve, introducing programs to increase volunteer and employee diversity may go some way to maintaining membership numbers in hard-to-fill brigades. As stated previously, comprehensive data on the level of attendance at fires by volunteers is not available, however, it is apparent that in some locations the CFA has difficulty in providing firefighting capacity during business hours due to factors such as the extent of commuting from the urban fringe to the central business district. Broadening membership offers an opportunity to address this issue.

## Recommendations

**7.43** We recommend that the DSE and the CFA implement effective work force planning and management policies and procedures, including needs analysis, reporting and succession planning in order to ensure that future resourcing needs will be met.

## TRAINING AND DEVELOPMENT

### Current status

**7.44** The firefighting roles and qualifications used by the DSE and the CFA are structured around Incident Control System (ICS) roles. An individual may be accredited to perform either one or a number of different ICS roles spanning the operational, planning and logistics streams.

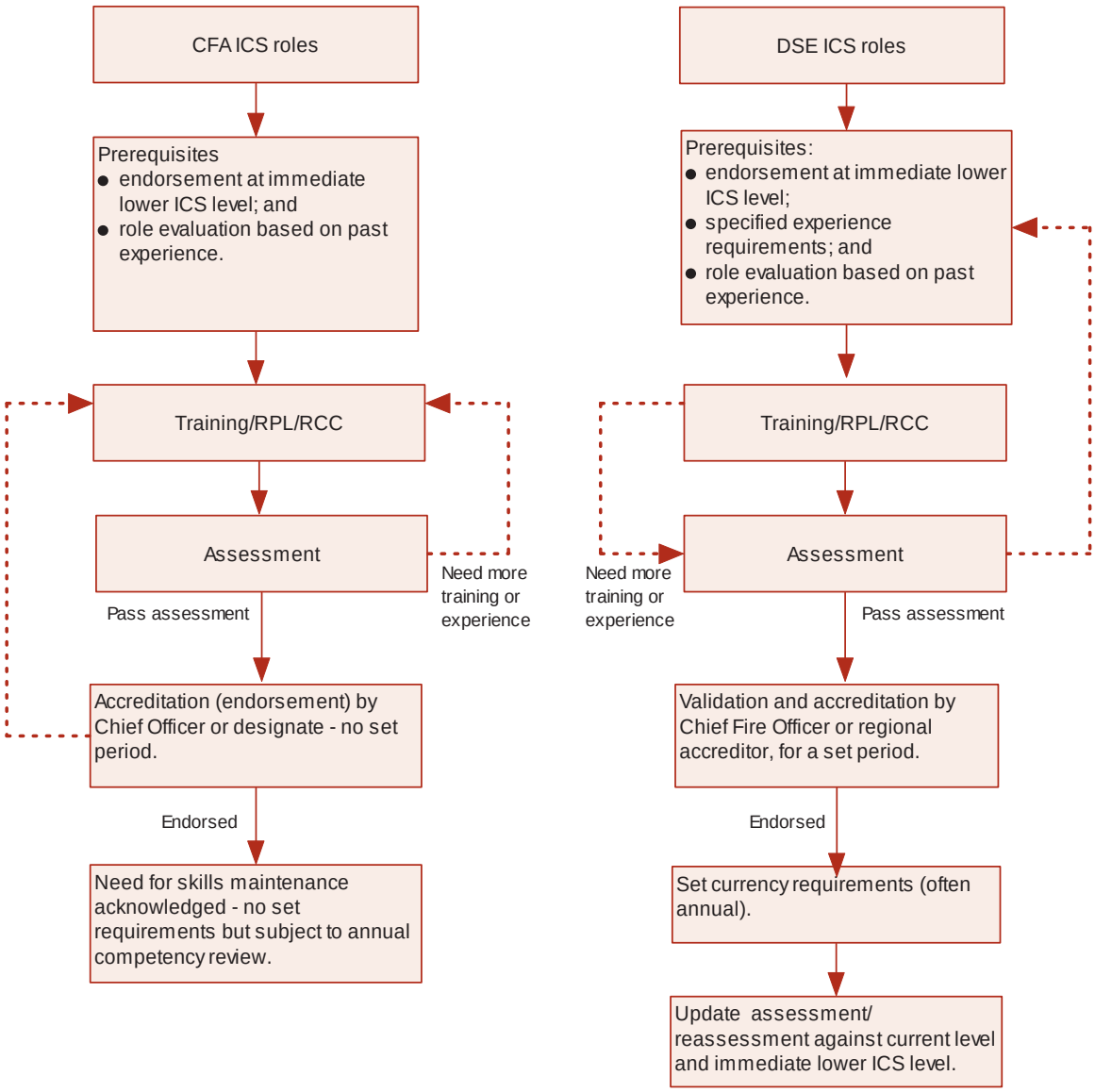
**7.45** To ensure that wildfire ICS competencies are consistent between agencies, the DSE and the CFA have agreed to the minimum national content required to meet the needs of each ICS wildfire role in the *2001 Safe Forest Firefighting Agreement*. Each agency also has additional competencies to suit its organisational needs. Both agencies have still to develop competencies, training and assessment tools for some ICS roles, such as Logistics Officer.

**7.46** Career and casual firefighters and volunteers are accredited to undertake various ICS roles if they:

- pass the competency assessment for the role after completing their training; and
- have gained sufficient experience.

**7.47** Both the CFA and the DSE have policies that include recognition of prior learning (RPL) and recognition of current competencies (RCC). The training, assessment and accreditation frameworks used by the DSE and the CFA are compared in Chart 7C. Following completion of training, assessment and competency assessment, a senior officer must endorse the officer's operational experience before full accreditation is obtained.

**CHART 7C**
**TRAINING, ASSESSMENT AND ACCREDITATION PROCESSES**




*Source:* Victorian Auditor-General's Office.

***7.48*** The DSE and the CFA manage and deliver their wildfire training and development under different organisational arrangements:

- The DSE's wildfire training function is located within the Fire Management Branch of the DSE. A small head office group of 2 permanent staff manage and co-ordinate the function. There are no dedicated regional training resources, with the bulk of training being developed and delivered by operational experts. General management skills training is met by the corporate human resources area; and

- In contrast, the CFA's fire-related training is undertaken by dedicated training staff with both centrally-located and regionally-based wildfire trainers. There are also a number of volunteer instructors. The development and delivery of training is undertaken by a unit located separately from the fire operations area. With the CFA having a wider range of firefighting responsibilities than the DSE (including structural fires), wildfire training comprises only a small component of the CFA's total fire training effort. However, in recent years, wildfire training has been recognised as an increasingly important area. The unit also provides training in general management skills.

**7.49** The CFA's training unit has prime responsibility for delivering the Minimum Skills Training program to approximately 28 000 volunteers by June 2005. The need for this program was identified following the Linton tragedy and represents one of the CFA's top corporate priorities. The CFA received an additional funding allocation and employed an additional 52 training staff to meet the increased training demands associated with the program. Discussions with senior representatives of Urban and Rural Fire Brigade Associations indicate a high degree of satisfaction with the current management and delivery of the program.

**7.50** These different organisational arrangements have led the DSE and the CFA to develop different strengths. For example, the CFA is strong in training material development and presentation whereas the DSE, as the agency that specialises in forest firefighting, is able to use a range of staff with a significant depth of current practical experience. The challenge for both organisations is to introduce arrangements to better share expertise, without diminishing their own areas of excellence. We suggest how this might be done later in this Part of the report.

### *Joint decision-making*

**7.51** At a senior operational level, the DSE and the CFA have no forum for pro-active planning on training, nor is there evidence of regular high-level contact between agencies to consider issues of mutual interest in this area. A review of the minutes of the CFA's Training and Development Consultative Committee and the DSE's Fire Management Advisory Training Committee showed that the DSE and the CFA representatives were not invited to attend the other organisation's committee meetings, even though there were agenda items where the other agency's attendance would have been advantageous.

**7.52** The inter-agency agreement discussed in Part 3 of this report refers to the need for commonality in the training materials used to develop core competencies in forest firefighting. This agreement should be strengthened to encourage increased joint decision-making on Statewide training priorities and standards. Currently, operational management involvement in decision-making is not explicit.

### Sharing resources and facilities

**7.53** There are instances of joint attendance by DSE and CFA personnel at particular courses (e.g. ICS planning) and some training modules have been exchanged to promote greater consistency in training delivery. Understandably, the CFA tends to place greater priority on wildfire training for grass fires. On the other hand, the Department's training focus is on forest fires. A greater emphasis on crossover and joint training at all levels will assist in implementing the ICS structure which, as we saw in Part 3 of this report, is vitally important. The inter-agency agreement should also be amended to promote greater sharing of resources and facilities.

### Training delivery and assessment

**7.54** In both agencies, training and assessment tools are developed centrally, but many courses are then adapted and delivered regionally.

**7.55** We observed Crew Leader and Sector Commander training and assessment delivered by the DSE and the CFA, respectively, and reviewed training modules and assessment tools. The relative training strengths and weaknesses identified in Table 7D were confirmed in discussions with agencies.

**TABLE 7D**
**COMPARATIVE STRENGTHS AND LIMITATIONS IN TRAINING DELIVERY**

| | *DSE* | *CFA* |
|---|---|---|
| *Comparative strengths* | Use trainers with substantial fire management experience. | Use trainers with good training abilities. |
| | Provide experience with wildfire in a training environment. | Good ratio of trainers to students. |
| *Limitations* | Large variation in training ability of trainers. | Limited opportunity to experience wildfire in a training environment. |
| | Insufficient ratio of trainers to students. | Some trainers had limited direct wildfire management experience. |

*Source*: Victorian Auditor General's Office.

**7.56** We comment later in this Part of the report on the importance of increased joint training as a means of sharing expertise to mutual advantage.

### Accrediting and maintaining skills

**7.57** The DSE and the CFA both operate in accordance with the national training framework and are striving to co-operatively develop joint training materials and assessment tools according to these standards. The CFA does not have a standard approach for endorsing personnel to undertake specific roles (after training and assessment), while the DSE has guidelines for this endorsement process. In a multi-agency scenario there should be common guidelines for this operational assessment.

**7.58** The DSE and the CFA both use the professional judgement of a more senior firefighter to assess a trainee's skills, experience and ability to perform competently in the role. However, this means that inconsistent standards may be applied both within and between agencies. We believe the accreditation process should be guided by defined criteria that provide sufficient assurance that a person satisfies the operational requirements for a particular role.

**7.59** The DSE's accreditation for many ICS roles has a sunset period of 5 years, after which accreditation must be renewed at both the current ICS level and the immediate lower ICS level. The DSE also requires regular skills maintenance before a firefighter can be deployed to a fire. We found, however, that the DSE is only now establishing formal records of skills maintenance.

**7.60** In the case of the CFA, there are no formal requirements for skills maintenance. We believe this is a significant gap that needs to be urgently addressed, particularly in the context of the Minimum Skills Training Program. While the delivery of such a major training program by the CFA is a significant achievement, maintaining volunteers' skills after initial training is a major challenge that will need to be addressed.

**7.61** In developing a skills maintenance program, objective operational criteria should be set and met. However, skills maintenance should also be considered in the context of training relapse. Broadly speaking, complex and infrequently used tasks (e.g. joint ICS team development for major wildfires) should be addressed more regularly as part of a skills maintenance program than comparatively straightforward and commonly applied tasks[4].

***RESPONSE** provided by Secretary, Department of Sustainability and Environment*

*For the positions Incident Controller and Operations Officer there is a clearly defined minimum standard, and the assessment of those competencies for DSE, DPI and Parks Victoria personnel is conducted by a nationally endorsed assessor.*

### Identifying and ranking training needs

**7.62** The Department uses the DSE Model of Fire Cover in each region as a risk-based approach to determine the numbers required for each ICS role. Regional needs and current availability are assessed annually against the required numbers for each ICS role. Training and other management options are then used to try to fill any gaps in the required numbers.

[4] A Kirk and D Brown, 1992, "Failure to maintain competencies following training in new work practices: a relapse prevention model", *Training and Development in Australia* 19(4): 5-8.

**7.63** The CFA has no comparable, structured process for identifying training requirements. This is a significant issue that needs to be addressed. Currently, the CFA's regional training requirements are determined at the discretion of local management, however, this can lead to inconsistency across regions. For example, 5 CFA regions have an average of over 80 sector commanders in each region who are accredited for wildfire, which the CFA acknowledges is in excess of operational requirements. In contrast, Region 8, which covers the high wildfire risk area of the southern Dandenongs, has only 15 accredited sector commanders.

**7.64** Similarly, the number of volunteers required to be trained as part of the Minimum Skills Training Program is not based on any objective operational assessment.

**7.65** To ensure wildfire training keeps abreast of the latest developments, both agencies need a more systematic approach to identifying and ranking emerging training needs and requirements, particularly in relation to technological advances. Currently, this occurs on an ad hoc basis through the respective training committees.

### Communications training

**7.66** Our analysis so far has focused on Statewide strategies, systems and practices that govern the provision of ICS training and general management training. Having assessed the overall approach to training adopted by the DSE and the CFA, we believed it was important to examine a key area of specialist training that is delivered "on-the-ground" – communications.

**7.67** Communications training forms part of most training courses for ICS accreditation, although the nature of the training varies according to different role requirements. Previous coronial inquests into fires at Creswick, Linton and the Dandenong Ranges suggested that the use of communications is a perennial concern in terms of communicating within and between agencies.

**7.68** We examined the coverage of communications in the training modules for the Crew Leader level and Sector Commander level roles and observed some of the communications training and assessments for these roles. We found a generally sound coverage of communications systems, procedures and protocols by both agencies, including recent changes to communications such as the use of default communications plans[5], red flag warnings[6] and the SMEACS briefing format[7].

[5] A plan prepared for a specific incident detailing the methods of communication to be used at that incident.

[6] A specific, targeted safety advice to all or specific officers on the fire ground, requiring direct acknowledgement that the warning has been received by each intended recipient.

[7] A structured briefing covering Situation, Mission, Execution, Administration and logistics, Command and communications, and Safety.

**7.69** However, in some cases we found a lack of consistency in coverage of communications between training modules, training delivery and assessment tools. For example, the DSE's Sector Commander training materials did not cover default communications plans but these were addressed in the assessment materials.

**7.70** We also identified difficulties in using radios in trunking mode which is acknowledged as potentially more complex than operating conventional simplex mode. This is a particular issue for those who use trunking mode infrequently such as firefighters from other DSE or DPI businesses and CFA volunteers from less active brigades. Despite the acknowledged difficulties, neither agency has a systematic approach to addressing the issue. We believe that, given the critical importance of radio communications to firefighter safety, both agencies need to introduce a requirement for pre-season, hands-on refresher training in radio use (conventional and trunking modes).

### Recommendations

**7.71** We recommend that:

- the DSE and the CFA establish a joint high-level training committee to:
  - approve training priorities, standards and modules;
  - facilitate sharing of resources and infrastructure; and
  - identify emerging training needs;
- the CFA implement a more structured and systematic approach to training, incorporating: regional needs analysis based on risk; defined standards to ensure the accreditation process meets operational standards; and minimum skills maintenance requirements for continued accreditation; and
- the DSE and the CFA introduce a requirement for pre-season, hands-on refresher training in radio use for on-the-ground communications training.

## CONCLUSION

**7.72** The professional, volunteer and seasonal firefighters who comprise Victoria's firefighting work force, are our most important resource for preventing and suppressing fires. Aircraft can assist in containing fires, but fires can still only be extinguished by well-trained and prepared people at the fire ground and in command centres.

**7.73** The DSE's workers – a full-time forest management force – have outstanding expertise and experience in fighting wildfires in a forest environment. But they are an ageing work force and, as key staff retire, the DSE risks losing significant expertise in the next decade. The DSE faces particular challenges in effectively developing staff to take on key fire management roles, and in recruiting and retaining staff for the future. The Project Fire-fighter (PFF) program brings in up to 800 seasonal staff each year, but under current arrangements this program does not act as the first step on a career path, and retention rates are low. A review of the focus, management and employment arrangements of the PFF program is needed to ensure that it effectively meets the needs and changing priorities of the organisation.

**7.74** The CFA faces challenges that are unique to its situation as a volunteer firefighting agency. Systematically identifying training needs for, and delivering training to, 62 000 volunteers is a huge task in itself. Keeping those skills up-to-date is a further significant challenge. Much has been done to improve the training and accreditation of the CFA volunteers, and by 2005, 28 000 volunteers will have undergone the Minimum Skills Training Program.

**7.75** Each agency has strengths and weaknesses in the provision of wildfire training, however, there is scope for both to further improve. Critical challenges involve:

- introducing greater objectivity into the decision-making processes that underpin accreditation and skills maintenance;
- ongoing adequate support for skills maintenance; and
- strengthening operational management's involvement in decisions about training priorities, standards and course content.

**7.76** One of the key challenges for both the DSE and the CFA is to extend the strong co-operative arrangements already established in fire suppression to encompass greater co-operation in training and developing their people. At a strategic level, this includes jointly identifying training priorities and developing strategies to build and retain skills. At an operational level, increased sharing of resources and facilities offers benefits to all parties and attending joint training courses fosters positive relationships between individual agency representatives.

***RESPONSE** provided by Chief Executive Officer, Country Fire Authority*

*In addition to volunteer and full-time firefighters based on stations, the CFA has operational management capacity located at its regional offices and State headquarters. The CFA's operational expertise includes fires in grasslands, in the urban–rural interface, as well as in forests.*

*In relation to the matter of building CFA membership, the audit report notes the role of the Brigade Broader Membership program. We also note that in locations where the CFA has difficulty in providing firefighting capacity, a range of plans are being introduced by the CFA to maintain service delivery, including the appointment of additional career staff in new career fire stations.*

# Part 8

# Infrastructure management

## INTRODUCTION

**8.1** In this Part of the report, we turn from human to physical resources to consider how well key firefighting infrastructure assets are being managed. The assets on which we focus are vehicles, other equipment and roads.

**8.2** Efficient and well-maintained equipment is essential to effective firefighting capability. The Department of Sustainability and Environment (DSE), the Department of Primary Industry (DPI) and the Country Fire Authority (CFA) each own and operate large inventories of specialised equipment that enable them to respond to wildfires on remote and rugged public land and on private land in rural areas.

**8.3** Many of these firefighting assets are of significant value, e.g. an urban aerial appliance (a large turntable ladder truck) can cost up to $1.3 million. Moreover, firefighting assets such as tankers and pumpers cannot always be purchased on demand. Special orders need to placed with manufacturers, and often need to be co-ordinated with other fire authorities to enable manufacturers to produce units. Strategic management that incorporates long-term planning for replacement and management of firefighting equipment is, therefore, essential.

### Audit approach

**8.4** The State's high-level policy framework, *Sustaining our Assets* (Department of Treasury and Finance, 2000), sets out the main principles for managing public sector assets. We used these principles as the basis for assessing the status of firefighting infrastructure management, as follows:

- asset management practices and decisions should be *based on service delivery needs*;
- asset planning and management should be *integrated* into corporate and business planning, budgetary and reporting processes;
- decisions about assets should be *well-informed*;
- *ownership, control, accountability and reporting* requirements for assets should be clearly defined and communicated; and
- asset management should be consistent with the Government's asset management policy framework and with *best practice* in government and industry.

**8.5** In particular, we focused on 3 key areas of the asset management framework, namely:

- information systems that recorded the condition, location and availability of critical firefighting infrastructure;
- whole-of-life-cycle planning in order to manage firefighting equipment and infrastructure; and
- programs for inspection and maintenance of critical assets.

## FIREFIGHTING EQUIPMENT

**8.6** The DSE, with a primary focus on forest fires and remote areas, maintains a substantial inventory of heavy vehicles, camping equipment and trailers to support remote firefighting assignments. Outside of the fire season, the DSE also uses this equipment for other activities such as road construction. The CFA, with primary responsibility for firefighting in rural, urban and interface areas, maintains a much larger, decentralised, mobile fleet. Table 8A details these respective assets which reflect the DSE's and the CFA's differing roles and responsibilities.

**TABLE 8A**
**KEY FIREFIGHTING EQUIPMENT,**
**AT JUNE 2002** *(a)(b)*

| *DSE* | *Quantity* | *CFA* | *Quantity* |
|---|---|---|---|
| Fire tankers | 82 | Fire tankers and pumpers | 1 520 |
| 4WD vehicles with slip-on units | 360 | All terrain vehicles | 3 |
| Bulldozers | 37 | Urban aerial appliances | 6 |
| Trailers, camping equipment etc. | 369 | Mobile control, rescue, incident units etc. | 46 |
| | | Brigade-owned vehicles | 551 |
| | | Staff transport vehicles | 234 |
| Communications – radios, pagers etc. | 6 125 | Communications – radios, pagers etc. | 19 500 |
| Other – pumps, chainsaws etc. | 575 | Other – portable equipment etc. | 1 848 |
| **Total number of items** | **7 548** | **Total number of items** | **23 708** |
| **Estimated replacement value** | **$39.8m** | **Estimated replacement value** | **$700m** |

*(a)* Excludes details of infrastructure, road networks, information systems and lookouts. Also excludes equipment owned by the private sector and accessed by the DSE and the CFA during the fire season, such as dozers and aircraft.

*(b)* Personal protective clothing is considered a consumable equipment item. The value of protective clothing issued to the field was unavailable.

*Source:* Information provided by the DSE and the CFA.

**8.7** Both the DSE and the CFA have arrangements in place to access equipment such as aircraft and additional dozers from the private sector or other government agencies. The DSE has also entered into formal arrangements with interstate government services to share firefighting resources, including equipment.

### Asset management

**8.8** A strategic approach to the management of specialist firefighting assets requires a comprehensive, whole-of-life-cycle asset management system that includes planning, acquisition, operation, maintenance and disposal, with clearly defined control, accountability and reporting requirements. Such a system should provide assurance that firefighting assets are in place in the required quantities and in serviceable condition. It should also develop strategies to ensure that core assets are replaced at appropriate times rather than replacement relying on intermittent initiative funding.

**8.9** The co-operative agreement between the DSE and the CFA (discussed in Part 3 of this report) encourages both agencies to share information on fire equipment development and standards. A joint Wildfire Research and Equipment Committee has been established for this purpose and, to date, there has been joint design and purchasing activities by the agencies. Inter-operability of firefighting vehicles is being pursued.

## DSE asset management strategies

**8.10** In managing its firefighting assets, the DSE is guided by the following specific departmental policies and procedures:

- an overarching asset management strategy, based on guidelines issued by the State Government;
- *Fire Management Instruction – Personnel and Equipment*, which establishes high level processes and accountabilities for determining the quantities, type and location of fire equipment; and
- the *Code of Practice for Fire Management on Public Land* which requires equipment to be available, strategically located and maintained in order to support operational readiness and emergency response.

**8.11** The DSE also is developing an integrated fire equipment manual detailing procedures for the day-to-day management of fire equipment.

**8.12** The existing asset management strategy specifically addresses the DSE's capital assets such as buildings, land and major structures. Given the particular characteristics and use patterns of firefighting equipment, a discrete strategy for management of fire equipment would assist long-term planning and co-ordination with other fire agencies.

## CFA asset management strategies

**8.13** In 2001, the CFA engaged consultants to develop a formal asset management strategy to enhance its current practices. This review highlighted the following priorities for the Authority's development of such a strategy :

- clear corporate direction and commitment to effective management of assets;
- a process for developing, prioritising and recommending proposed capital projects;
- decision-making based on demonstrated need and comprehensive financial evaluation; and
- strategies to address significant funding gaps in future programs for replacing aged capital infrastructure, notably firefighting vehicles and fire stations.

**8.14** In December 2001, the CFA Board adopted the proposed asset management strategy, which sets out over 50 recommendations for the Authority to address as the first step in implementing this new approach. The CFA has prioritised these recommendations and commenced work on several areas, such as development of a system for evaluating capital and a reporting model for capital projects. Considerable work remains to fully implement the asset management strategy.

## Information systems

**8.15** The DSE and the CFA need rapid and reliable access to information about the condition, location and availability of their fire equipment resources. Both agencies recognise that this information is the basis for co-ordinated resource deployment and have in place, or are developing, systems to collect information on the nature, location and capability of their fire equipment.

### *DSE's Fire Web*

**8.16** *Fire Web* is a system used by the DSE to record fire information, equipment and resources. This information is then used to allocate and deploy resources for fire suppression.

**8.17** *Fire Web* is a highly flexible and user-friendly equipment information system. It includes information about mobile equipment such as radios, pagers and slip-on[1] units and has considerable reporting capability to assist decision-making and equipment management.

**8.18** Information on vehicles and plant is updated centrally and DSE regions are responsible for updating details of their fire equipment and resources.

**8.19** We examined the equipment information recorded in *Fire Web*, and held discussions with regions. Our review found that some regions had not yet entered all their equipment onto *Fire Web* and there was a lack of clarity on how to record certain equipment items as guidelines were still being developed.

**8.20** Information in *Fire Web* needs to be kept accurate and up-to-date, so that decisions are comprehensive and soundly based.

### *CFA's Resource Management System*

**8.21** The CFA's Resource Management System (RMS) is the primary system for recording personnel and fire equipment located in the CFA's 1 281 brigades. At the time of our audit, the information in RMS was incomplete in that communications, clothing and protective equipment were recorded on various other centrally-maintained databases.

[1] A removable tank and pump that may be fitted to a four-wheel drive vehicle.

**8.22** We were advised that regions are currently using RMS to record details of firefighting equipment under their management. Discussions with regions disclosed that several had purchased their own equipment inventory systems as they consider the RMS too complex.

**8.23** The challenge for the CFA is to ensure all regions embrace RMS and maintain up-to-date information for managing firefighting equipment.

## Equipment planning

**8.24** A key element of the DSE's and the CFA's management of firefighting vehicles is the timely replacement of vehicles in accordance with estimates of their useful life.

### *DSE equipment planning*

**8.25** The DSE's tankers and dozers have a useful life of 12 and 10 years, respectively. This life span is based primarily on the Department's experience in using the equipment as well as on the following considerations:

- access to parts is not guaranteed by manufacturers for more than 10 years;
- technological change, as well as occupational health and safety requirements, impact on the design and capability of vehicles;
- maintenance becomes far more demanding and costly as vehicles age; and
- residual values on 10 to 12 year old equipment are significantly greater than older equipment.

**8.26** Our review of the DSE's replacement program found that, generally, dozers and fire tankers were being progressively replaced at the end of 10 and 12 years in service, respectively.

**8.27** DSE's *Fire Management Instruction – Personnel and Equipment* includes State and regional readiness and response plans that outline key aspects of fire equipment management for the coming season, including:

- summaries of all equipment owned, leased or available to the DSE;
- location details of all firefighting equipment, and other equipment; and
- maintenance schedules.

**8.28** Our review found that Statewide and regional equipment plans had not been completed for 2002.

**8.29** The annual Model of Fire Cover assessment, which is also undertaken under the *Fire Management Instruction* highlighted a shortfall of around 9 slip-on units and the 4WD vehicles to transport them, thus demonstrating the usefulness of these processes in bringing such shortfalls to the attention of management.

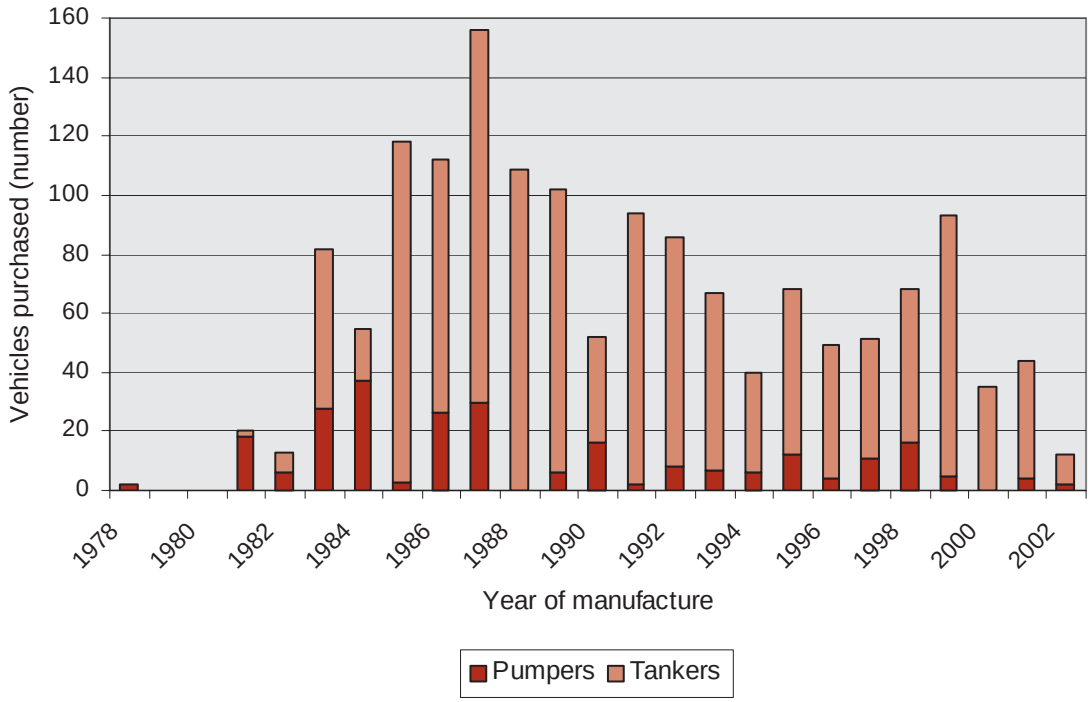
**8.30** An emerging issue that requires attention is DSE's declining ability to access dozer resources from the private sector[2]. This is due to a decline in logging activity within the State as well as technological change that has seen excavators replace dozers. Consequently, the Department needs to plan to access dozers and suitably skilled plant operators.

**8.31** The current condition of equipment has been assisted significantly by the provision of $6 million initiative funding over the 3 years from 2000-01 to 2002-03. This enabled the replacement of fire towers, airbases and slip-ons.

## CFA equipment planning

**8.32** Chart 8B outlines the current age profile of the CFA firefighting fleet of tankers, pumpers and other vehicles. The chart demonstrates the build-up of tankers following the 1983 Ash Wednesday fires.

**CHART 8B**
**AGE PROFILE CFA PUMPERS AND TANKERS**




*Note*: Chart excludes details of rescue units, mobile control units, protective equipment appliances and hazardous materials incident units.
*Source*: Information provided by the Country Fire Authority.

[2] During the January 2003 fires in the State's north-east, around 50 dozers were hired from the private sector to supplement the DSE's resources in constructing fire control lines.

**8.33** The CFA Fleet Management Policy of 1989 provides the current guidelines on the replacement of CFA tankers and pumpers. This policy specifies that vehicles should be replaced after 20 years of service, placing demands on the Authority now to replace any vehicles purchased prior to 1983. If the policy was to remain in place, the CFA would face significant challenges in replacing vehicles reaching 20 years of age in the coming 3 to 5 years.

**8.34** The CFA is currently reviewing the fleet management policy in the light of best practice asset management and the replacement of vehicles after 20 years is likely to be reconsidered as part of this wider review. Factors likely to be considered in any new replacement policy include:

- the condition and serviceability of the vehicle;
- the operational need for the vehicle, potentially allowing for redistribution of vehicles between brigades; and
- the appropriateness of the size and capability of the vehicle, which would allow some brigades to acquire smaller and more mobile equipment while reducing unit cost.

**8.35** We support this action, which will allow the CFA to align its firefighting resources more closely with the current operational needs of brigades and to make better use of funding for asset replacement.

**8.36** The CFA has a set of policies to guide the local management of its equipment. These cover acquisition, tendering and hire, operational tasks, approval and review processes, and the purchase and maintenance of brigade-owned vehicles and disposal.

**8.37** Our examination of these policies identified a number of areas for improvement, including:

- policies issued from 1993 to 1998 had not been reviewed; we noted areas where policy was out of date or processes were no longer relevant; and
- no current policy exists on:
    - the CFA's role in, or the support it will provide to, brigades purchasing their own firefighting equipment (excluding vehicles); and
    - the requirement for standard equipment on firefighting vehicles.

### *Hire of contractors*

**8.38** Both the DSE and the CFA rely on private contractors to provide additional sources of heavy plant for some fire operations. The DSE has plant management procedures in place to guide access from the private sector, and the CFA relies on the DSE's contractors to source required plant.

**8.39** DSE regions identify equipment sources prior to the fire season and seek documentation from potential contractors on their licences, workplace safety, maintenance and risk management systems so that the safe operation and condition of equipment is assured. Plant management procedures state that these documents must be provided to the DSE or produced at the time the DSE requires the services of the contractor.

**8.40** Our examination of contractor files revealed that the required documentation may not be produced when the contractor is appointed. We understand that it is unlikely to be produced at the time of service on the fire ground as operators may not have the documents with them and the situation faced by incident controllers in extreme fire conditions may preclude them from checking the adequacy of contractors' plant at that time.

**8.41** While we acknowledge that extreme fire conditions may require the urgent use of equipment from other regions and States, the risks to contractors and others on the fire ground must be managed more assiduously than in the past.

*Bulldozers, sometimes hired from the private sector, are an important part of the DSE's firefighting capability.*

## Equipment inspection and maintenance

**8.42** We assessed the DSE's and the CFA's implementation of procedures to ensure fire equipment, primarily vehicles and protective and other equipment, is adequately maintained and in a suitable quantity and condition for firefighting.

### *DSE inspection and maintenance programs*

**8.43** DSE regional workplaces are required to ensure their fire equipment is maintained in accordance with the Department's maintenance standards and to conduct regular inspections and spot checks on the readiness of equipment. The DSE also requires annual inspections of fire equipment before the fire season begins. These include:

- a visual inspection of regional workplaces, to ensure the regions are following the appropriate procedures for managing fire equipment and maintaining equipment in working condition; and
- an audit of the quantity and condition of all firefighting equipment in each work centre.

**8.44** However, no guidance is given on the aim and scope of work centre and equipment inspections, who should conduct them, the expertise required, timelines to be achieved, reporting responsibilities or responsibility for rectifying reported faults. This lack of guidance can undermine the effectiveness of the process with inconsistent performance of checks.

**8.45** We found that the DSE has comprehensive and consistent maintenance programs for vehicle, plant, protective and other equipment, covering both preventative and routine maintenance. However, we noted that there were sometimes inconsistencies in regional application of these procedures.

**8.46** In mid-2002, the DSE undertook a specific assessment of the condition of its firefighting equipment to assist the allocation of special funding. The majority of the DSE's fire equipment was considered, by the regions, to be in either excellent condition or not a priority for replacement. Nevertheless, the regions assessed that around 650 items of fire equipment required priority replacement or upgrade in 2002-03 as follows:

- equipment valued at $2.6 million (representing around 6.5 per cent of equipment) was in poor condition and in urgent need of upgrade as there was very little operational life remaining; and
- equipment valued at $2.6 million needed some work.

**8.47** This represents an improvement on the findings in our 1992 report which reported that over 30 per cent of the State's firefighting equipment was in poor condition and required replacement.

## CFA inspection and maintenance programs

### Annual inspections

**8.48** The CFA conducts annual inspections of all equipment managed by brigades, including brigade-owned vehicles and equipment, to ensure that equipment is operationally ready for emergency response. This involves:

- inspection of the operational efficiency of brigades under section 29 of the *Country Fire Authority Act* 1958; specifically the readiness of vehicles, serviceability of equipment and adequacy of personal protective clothing; and
- inspections of all CFA emergency vehicles and inspections when vehicles are permanently transferred to another brigade.

**8.49** In mid-2002, the CFA commenced a special review of how well its inspection approach complied with its legislative obligations. This review raised the following issues:

- There is wide variation in how inspections are undertaken across regions;
- There is no process to track issue resolution and improvements; and
- Current inspection criteria do not facilitate assessment of the "readiness" of a brigade. For example, speedometer readings are recorded but vehicle maintenance records are not checked to confirm that the vehicle has had scheduled services.

**8.50** Our examination of the inspection process at 2 area offices confirmed the issues identified in the review and noted some additional shortcomings. For example:

- where inspections had taken place, reports were not provided to brigades in a timely manner and, in some cases, not provided at all;
- there was no evidence that reported matters had been followed-up; and
- 42 brigades (3 per cent) had not been inspected during 2002.

**8.51** These shortcomings undermine the effectiveness of inspection as a management tool to monitor brigade performance. We support the CFA's current review. It is important that any revised approach is consistently applied.

**8.52** The CFA's 2001-02 annual inspections disclosed that 88 per cent of brigades met requirements in terms of the *readiness* of firefighting equipment – vehicles, protective equipment and clothing. However, these findings may be qualified by the shortcomings in the inspection process noted in the CFA's own special review.

*Brigade-owned vehicles are an important part of the CFA's firefighting capability.*

### *Inspection and maintenance of brigade-owned tankers and pumpers*

**8.53** The 220 brigade-owned tankers and pumpers represent 13 per cent of the CFA tanker and pumper fleet. In total, brigade-owned vehicles make up 23 per cent of the CFA vehicle fleet.

**8.54** Brigades need to obtain the CFA's approval before purchasing a vehicle. This approval is based on an assessment of operational needs and the brigade's capacity (personnel and funds) to establish, maintain, repair and operate the vehicle.

**8.55** Where the CFA approves a brigade's purchase of a vehicle, it also provides the following support which, excluding the first 2 points, ceases when the vehicle is 20 years old:

- comprehensive insurance cover;
- annual inspection and report by the CFA's district mechanical officers;
- for larger vehicles, an annual subsidy of $340 (for third party insurance cover, registration fees, service costs and battery replacement), plus fuel and tyre costs; and
- for command vehicles, an annual subsidy of $170, plus fuel costs.

**8.56** Current CFA policy stipulates broadly that brigades must maintain their vehicles, but does not specify the standard to which they must be maintained, e.g. the policy does not require that brigade-owned vehicles undergo regular programmed maintenance.

**8.57** Brigade-owned tankers and pumpers are assessed annually for roadworthiness and to ensure they are maintained to CFA operational and safety requirements. A brigade-owned vehicle that is assessed as unroadworthy or unsafe is required to be withdrawn from service until the brigade, at its own cost, rectifies the vehicle's condition. The cost of maintaining a CFA tanker is around $3 000 to $4 000 per year, which exceeds the maximum subsidy provided to brigades by the CFA.

**8.58** We examined vehicle reports from 3 CFA workshops responsible for inspecting around 30 per cent of brigade-owned tankers and pumpers in 2002. Our examination showed that several vehicles had significant and multiple mechanical problems, e.g. brake faults causing vehicles to swerve, safety props missing from cabin, no lights, new tyres required and batteries needing replacement. We also found that there was no process in place to ensure brigades rectified reported vehicle defects. In some cases, vehicle faults had not been rectified from the previous annual inspection.

**8.59** Brigade-owned firefighting vehicles can be retained up to 25 years from their date of manufacture, at which time they must be disposed. However, once they reach 20 years of service, brigade-owned vehicles are not being inspected by the CFA despite the requirement for annual inspection. This inconsistency with CFA policy was initially brought to the attention of management in July 2001 and had not been addressed at the time of the audit.

**8.60** Consequently, at December 2002, around 40 brigade-owned vehicles over 20 years of age may not have had a roadworthy inspection for up to 5 years. The CFA advised that it would inspect these 40 vehicles. We support this action and consider these inspections should be undertaken as a priority.

### Recommendations

**8.61** We recommend that

- the CFA and the DSE further develop existing asset management practices and implement a whole-of-life asset management strategy for specialised, firefighting assets that establishes a clear replacement funding model;
- the CFA and the DSE review the processes for inspection of fire equipment and work centres so that:
  - scope, conduct, accountabilities and issues resolution for inspection programs are clearly defined; and
  - information resulting from inspections is collected Statewide to enable consistent analysis of the condition of fire equipment and to facilitate its management;
- the DSE and the CFA revise plant contract management policies to ensure that documentation on contractor licences, equipment maintenance, risk management and workplace safety systems is sighted at the time of appointment and prior to deployment of hired equipment; and
- the CFA review its policy on inspection and maintenance of brigade-owned vehicles to ensure that all emergency response vehicles, including vehicles over 20 years old, are inspected and appropriately maintained.

***RESPONSE*** *provided by Secretary, Department of Sustainability and Environment*

*Information from workcentre inspections is already collected centrally and used to direct improvement programs. However, the Department agrees that processes for inspecting fire equipment need to be clearly defined and standardised for application across the State*

## FIRE ACCESS ROADS

**8.62** The fire access system that enables people and equipment to move around (roads, tracks, bridges) is another key factor in minimising and controlling wildfire. Firefighters need to know that roads, tracks and bridges are open and in good condition.

**8.63** Four separate parts of the DSE and the DPI are responsible for managing over 25 000 kilometres of roads and tracks on State forests across Victoria (Forestry Victoria, Fire Management, Forest Management and Parks Victoria). This extensive road and track network provides access for forestry operations, water catchment management, fire management and recreational users.

**8.64** Firefighting services also use other public roads as well as roads owned by local councils, private residents and private forest plantations. This section of our audit was limited to the fire access network on public land.

## Information systems

**8.65** The extensive nature of the fire access network, the remoteness of many tracks and the sometimes limited options for alternative routes means that it is vital for accurate information to be available on the location, condition and accessibility of roads and bridges used for fire access.

**8.66** Following the release of our 1992 report, *Fire Protection – Special Report No. 16*, a review of fire access roads and tracks was undertaken by the Department. This inventory record of the road and track network is currently reviewed annually through desktop revisions that are based on the knowledge and experience of staff.

**8.67** This system suffers from a number of shortfalls such as:

- the inability to readily produce comparative Statewide data; and
- the review process does not include physical inspection of assets, such as bridges, by qualified personnel.

**8.68** We found that the current system of monitoring and reporting the condition of roads and bridges is not robust, and objective data essential to good asset management was not available, for example:

- details of inspection programs, specifying the current condition of infrastructure;
- the nature and status of safety audits;
- the current state of the maintenance program;
- details of road and bridge closures; and
- trend data on the levels of funding provided for roads and bridges over time.

**8.69** Additional funding was allocated in late 2002 to revamp the information system, *ROADS*. This system is intended to provide:

- road access information to meet the information needs of a number of business units;
- integration with Geographic Information System software and compatibility with the DSE's digital road mapping system; and
- information on the status of roads and bridges, as well as planned and actual road construction and maintenance activity.

**8.70** This development offers a significant opportunity to enhance the strategic management of the fire access road network by:

- introducing a cyclical program of physical inspections and safety audits to ensure that information contained on the system is reliable and up-to-date; and
- clarifying accountabilities for gathering, reporting and maintaining this information.

### Availability of information to the CFA

**8.71** The DSE's fire access information is also critical to the CFA, which uses the same roads for joint firefighting operations. CFA brigades use hard-copy map books, which are updated every few years. Information on changes to the condition of fire access tracks is provided to the CFA under response arrangements, usually through a phone call at the time of a fire.

**8.72** Many access tracks are adequate and trafficable for DSE equipment needs but may be unsuitable for larger CFA vehicles and plant. Information on access road standards not only needs to be timely and current, it needs to be assessed in terms that are meaningful to both DSE and CFA users.

**8.73** As the DSE implements enhancements to its information systems, it is essential that the needs of end users such as the CFA are considered, and that integrated processes for managing and accessing information are agreed. As the key position paper defining shared working arrangements, we consider that the co-operative agreement between the DSE and the CFA should be revised to include arrangements for the provision of timely, accurate and appropriate information on access.

*Safe access roads are essential for a swift and safe response to wildfire.*

## Planning and management

**8.74** One of the fundamentals of effective asset management is that practices and decisions need to be undertaken within a strategic framework that reflects program and service delivery needs.

**8.75** We found that the current road network has developed over a long period without an objective assessment of road access needs from a fire prevention and suppression perspective. An important consideration in making this assessment should be the current condition of the roads and tracks, service delivery needs, and the costs and benefits of continuing to maintain this infrastructure to an acceptable standard.

**8.76** In identifying Statewide and district policy regarding fire access infrastructure we were referred to a number of documents. Individually, all of these documents contained some elements of access policy but none contained a full, clear, strategic and comprehensive policy statement on fire access.

**8.77** We believe that a consolidated document would provide better guidance to regions and districts in terms of access planning and management. The need for a clear and consolidated policy statement on fire access is particularly vital given that the fire access road network is managed by 4 different business units, only one of which has fire management as its core business.

## Road inspection and maintenance

**8.78** In 2002, an allocation of roads and tracks on public land was agreed between Forestry Victoria, Fire Management and Forest Management. While objective data on the condition of roads is not readily available, a desktop assessment was conducted as part of this allocation process. The results of this assessment are set out in Table 8C.

**TABLE 8C**
**DESKTOP ASSESSMENT, CONDITION OF ROADS 2002**

| *Business entity* | *Percentage of aggregate kms rated as good or fair condition* |
|---|---|
| Fire Management | 81 |
| Forests Victoria | 91 |
| Forest Management | 80 |

*Source*: Department of Sustainability and Environment.

**8.79** We also examined the condition of roads and bridges in the Dandenong Ranges and Gippsland. While some roads were in good condition, a number appeared to be in poor condition. Some of these roads adjoined major urban areas. The condition of these roads could reduce the capacity of fire agencies to promptly respond to an incident, having potentially serious consequences. Load limits imposed by councils and the DSE on some bridges were as low as 5 tonnes. In contrast, the weight of tankers and other firefighting equipment such as bulldozers and transporters can be up to 50 tonnes.

**8.80** However, the issue of road condition needs to be addressed by earlier review of the service delivery needs and assessment of the number and condition of access roads against these needs. Better decisions about the maintenance of these roads will then follow.

## Recommendations

**8.81** We recommend that:

- that the DSE and the CFA extend the current co-operative agreement to include formal arrangements for providing regular, appropriate information on changes to, and the condition of, the fire access network on public land;
- the DSE enhance the proposed upgrade of existing systems by:
  - clarifying system management responsibilities between business entities;
  - identifying and addressing external stakeholder information needs;
  - introducing systematic inspection processes to verify system accuracy; and
  - implementing regular safety audit processes to highlight areas of concern; and
- the DSE develop a consolidated fire access infrastructure management strategy, based on service delivery needs and this be agreed to by all relevant parties.

## CONCLUSION

**8.82** Our examination of the management of firefighting equipment and firefighting access infrastructure revealed a number of areas for attention. We believe that these issues arise from the lack of a fully comprehensive integrated asset management approach to equipment and infrastructure. Many of these are common to both equipment and access infrastructure, and relate to the need for clear and consistent application of effective asset management principles.

**8.83** Our analysis of the management of firefighting assets in the DSE and the CFA found that both organisations face significant challenges in managing the timely replacement of essential high-value assets such as pumpers, tankers and dozers. We identified significant and emerging funding challenges within the CFA as high value equipment approaches the end of its useful life. The DSE and the CFA are beginning to address these issues as they develop detailed asset management policies. However, without clear asset management objectives and principles, defined in terms of service delivery need, it is difficult to assess the likely impact of the current situation. We are concerned at the absence of a clear and comprehensive strategy for managing these specialist assets.

**8.84** The planning and management of the network of fire access roads and bridges also needs to be conducted within a clearly defined strategic policy framework based on program and service delivery needs. This strategic policy framework for the fire access network has not been clearly defined and, until this occurs, maintenance cannot be based on a clear understanding of costs and benefits.

**8.85** We identified significant issues for both the DSE and the CFA in ensuring that central processes in place are properly understood and effectively implemented by field staff throughout their large, decentralised networks. We found that asset management and information systems were not always used or regularly updated by regional staff, and that processes developed for inspecting and monitoring equipment were not always adhered to by staff. In the case of inspection and monitoring procedures, this inconsistency sometimes resulted from a failure to define in adequate detail what was required.

**8.86** A critical issue identified during the course of the audit was the need for asset management practices to enhance co-operative operations between the 2 agencies. We found that considerable effort has been made to ensure that firefighting equipment in the CFA and the DSE is compatible, and to progress joint design and purchasing activities. In the case of fire access infrastructure, however, we found that formal processes have not been developed to enhance co-operative operations.

# Appendix A

# Audit objectives and scope

# AUDIT PURPOSE

## Objective

The objectives of the audit were to assess:

- The effectiveness, efficiency and economy of fire prevention and preparedness by the Department of Sustainability and Environment (DSE) and the Country Fire Authority (CFA). Specifically, the audit assessed relevant issues at:
    - a strategic level, to cover areas such as research, policy development, planning and co-ordination between agencies;
    - an operational level, to cover prevention and operational activities such as training of staff and the co-ordination of fire preparedness activities across agencies; and
    - an infrastructure level, to cover the deployment and use of equipment and information technology;
- The effectiveness of fire prevention strategies by local councils under the CFA legislation; and
- The effectiveness of fire prevention arrangements by electricity distribution companies.

## Scope

The audit focused principally on fire prevention and preparedness activities across private and public land in respect to the threat of wildfires. While the principal agencies are the CFA and the DSE, the audit also examined the adequacy of co-ordination and liaison arrangements with other key agencies such as the Office of the Emergency Services Commissioner.

The audit also examined the adequacy of fire prevention activities:

- in local government, and by rail companies and private forests, under the *Country Fire Authority Act* 1958; and
- by electricity distribution companies under the *Electricity Safety Act* 1998.

In relation to the last point above, this is managed under the auspices of the Office of the Chief Electrical Inspector.

The audit did not examine fire suppression activities as these were scrutinised as part of the recent Linton coronial inquest. Reference was made to the inquest's findings to the extent that they relate to the CFA's and the DSE's fire prevention and preparedness activities.

## Methodology

The audit investigated wildfire fire prevention and preparedness in the Victorian public sector and relevant private companies in 2 stages.

The first stage consisted of a pilot investigation of the DSE, the CFA and local government in West Gippsland, a high wildfire risk area of the State. The pilot was used to examine and prioritise 14 potential focus areas for an audit of wildfire prevention and preparedness, identified below:

| | |
|---|---|
| Community education and safety | Equipment |
| Hazard reduction | Communications |
| Enforcement | Fire access |
| Operational policy, planning and implementation | Management information systems |
| Co-ordination with other agencies | Fire detection |
| Resource deployment | Fire weather forecasting |
| Recruitment, training and succession planning | Research and development |

The second stage consisted of a fuller examination of 8 focus areas selected on the basis of the pilot findings. State level activity was examined in the central offices of the organisations concerned, and fieldwork examining operational implementation of fire prevention work was undertaken in regional offices in Gippsland and the Dandenong Ranges. The areas selected for detailed examination are identified below:

| | |
|---|---|
| Community education and safety | Recruitment, training and succession planning |
| Hazard reduction | Equipment |
| Operational policy, planning and implementation | Fire access |
| Coordination with other agencies | Resource deployment |

## CONDUCT OF THE AUDIT

The audit complies with Australian Auditing Standards for performance audits, and includes the necessary tests and procedures.

The fieldwork and investigation for the audit took place from May 2002 to January 2003.

The following individuals and organisations provided specialist assistance to the audit team:

- Stuart Ellis, of Leading by Example, in examining the selected agencies in detail and advising us throughout the audit;
- Peter Sheehan, in examining the selected agencies in detail and advising us throughout the audit;
- Roger Underwood, of York Gum Services, in examining the Office of the Chief Electrical Inspector and the rail agencies and companies, and for advising us throughout the audit;
- Professor Ian Ferguson, Professor of Forest Science at the University of Melbourne, in assisting with the audit specification, participating in the Audit Steering Committee and advising us throughout the audit
- John Fidler, of Wallis Consulting Group Pty Ltd, in preparing, administering and analysing the community survey;
- David Brown, of La Trobe University, in providing technical advice, and workshop facilitation in respect of recruitment, training and succession planning strategies and research in relation to gender equity within fire service work force; and
- Ros Harris, of Wordsworth Effective Communications, in providing specialist assistance with editing.

# Appendix B

# Victorian legislation relating to fire prevention and suppression

## THE LEGISLATION

The Department of Sustainability and Environment (DSE), the Country Fire Authority (CFA) and municipal councils are all required under their respective Acts, to undertake fire prevention and suppression.

The DSE's legislative authority is principally contained in the *Forests Act* 1958 under section 62 (2)[1]. Other statutes that detail the DSE's legislative responsibility for fire management include the *Conservation, Forests and Lands Act* 1987, the *National Parks Act* 1975, the *Emergency Management Act* 1986 and the *Flora and Fauna Guarantee Act* 1988.

The CFA has legislative responsibility for the prevention and suppression of fires in "the country area of Victoria" under section 14 of the *Country Fire Authority Act* 1958.

Municipalities in "the country area of Victoria" have responsibilities under the *Country Fire Authority Act* 1958 for fire prevention planning. These responsibilities include directing the removal of fire hazards. They are also responsible for introducing and implementing the statutory planning and building controls required under a number of Acts in wildfire-prone areas:

- *Planning and Environment Act* 1987;
- *Subdivision Act* 1988;
- *Local Government Act* 1989;
- *Building Act* 1993;
- *Building Regulations Act* 1994; and
- Fire Protection Regulations 1992.

Other legislation and regulations impact on fire prevention measures in some way. These include:

- *Health Act* 1958;
- *State Electricity Commission Act* 1958;
- *Transport Act* 1983;
- *Dangerous Goods Act* 1985;
- *Road Safety Act* 1986;
- *Rail Corporations Act* 1996;
- *Electricity Safety Act* 1998;
- Electricity Safety (Installations) Regulations 1999;
- Electricity Safety (Electrical Line Clearance) Regulations 1999; and
- Occupational Health and Safety (Minor Hazards Facilities) Regulations 2000.

[1] Specifically, the Act states "*Notwithstanding anything to the contrary in any other Act or law it shall be the duty of the Secretary to carry out proper and sufficient work for the prevention and suppression of fire in every State forest and national park and on all protected public land proper and sufficient work for prevention of fire shall be undertaken only by agreement with the person or body having management and control*" [section 62 (2)].

# Appendix C

# Glossary of terms

# GLOSSARY OF TERMS

| | |
|---|---|
| AFAC | Australasian Fire Authorities Council |
| AIIMS ICS | Australian Interagency Incident Management System - Incident Control System. A nationally adopted structure to formalise a co-ordinated approach by all agencies involved in the management of an emergency. The Incident Control System is a major subsystem. |
| Area manager | The senior field manager of any of the largest geographical units defined for DSE or CFA administrative purposes. |
| Backburning | A fire lit along the inner edge of a control line to consume the fuel in the path of a wildfire. |
| Basic firefighter | The minimum level of accreditation for a firefighter under the DSE fire management training system. |
| Minimum skills | The minimum level of accreditation for a registered firefighter under the CFA fire management training and/or endorsement system. |
| BASO | CFA Brigade Administrative Support Officer. |
| BoM | Bureau of Meteorology. |
| Brigade | Basic unit of CFA firefighting based on suburb, town or locality. Comprises a number of trained firefighters and equipment. |
| Burn plan | A plan, in the required DSE format, used to gain approval for the conduct of prescribed burning. |
| Bushfire | Used synonymously with wildfire to describe an unplanned fire (burning in predominantly native vegetation). |
| CAD | CFA Computer Aided (call taking and) Dispatch |
| CFA | Country Fire Authority. The agency responsible for fire suppression in the Country Area of Victoria. |
| Country Area of Victoria | As defined by section 3 of the *Country Fire Authority Act* 1958 and includes all that part of the State outside of the Metropolitan Fire District which is not public land. |
| Critical incident | A fire scenario which would require utilisation of all DSE local resources to meet its suppression performance criteria. |
| Department | The Department of Sustainability and Environment or its predecessors. The body corporate known as the Secretary of the Department of Sustainability and Environment is the agency responsible for the prevention and suppression of fire in the fire protected area. |
| DISPLAN | The Victorian State Disaster Plan authorised by Part 3 of the *Emergency Management Act* 1986. |
| EBA | Enterprise Bargaining Agreement |
| Fire agencies | Refers collectively to the Country Fire Authority and Department of Sustainability and Environment. |
| Fire cover | Refers to the overall level of services that fire agencies provide. |
| Fire cover standards | Benchmarks that define the level of fire cover being provided; traditionally focused on how quickly and aggressively the fire services respond. Typical performance measures are “response time” and “weight of attack”. |

## GLOSSARY OF TERMS – *continued*

| | |
|---|---|
| Fire danger | The resultant of all the factors, which determine whether fires start, spread and do damage, and whether and to what extent they can be controlled. |
| Fire District | DSE basic administrative unit for fire management (25 in Victoria). |
| Fire hazard | A source of potential harm or situation with the potential to cause loss by wildfire. |
| Fire incident | An incident reported as a fire to a fire agency and requiring a response. |
| Fire intensity | The rate of heat release, per unit length of fire front. A function of the fuel consumed and the rate of spread of the fire. |
| Fire prevention | All activities concerned with minimising the incidence of wildfire. |
| Fire Protected Area | As defined in section 3 of the *Forests Act* 1958 to describe all the various categories of public land for which prevention and suppression responsibility rests with the DSE. |
| Fire risk | The probability of a fire starting. |
| Fire safety measures | Any measures to improve personal fire safety. |
| Fire suppression | (=fire control) Activities connected with restricting the spread of a wildfire and making it safe. |
| Fire tower | Lookout tower strategically located and manned to detect and report the occurrence and location of wildfires. |
| Fire Web | DSE on-line fire information management system. |
| Firefighter | An employee, volunteer or agent from any fire agency who occupies or is designated to undertake a role in fire suppression. |
| Firefighting operations | Any work or activity directly associated with control of wildfire. |
| FMB | DSE Fire Management Branch |
| Fuel Management Zone | DSE Priority areas for hazard management by prescribed burning (also called Priority Burning Zone). |
| Fuel reduction burning | The planned use of fire to reduce fuel levels in a specified area. (Often also described as prescribed burning.) |
| Grassfire | Used synonymously with Wildfire to describe an unplanned fire (burning in predominantly open grassland.) |
| Group | A group of adjacent CFA brigades (no specific number). |
| Hazard management | The processes and programs directed towards effective minimisation of fire hazards. |
| ICS | Incident Control System is a command structure set up under AIIMS to systematically and logically manage emergency incidents, including wildfires from small simple incidents to large difficult or multiple situations. It is designed to expand to ensure effective span of control at all levels. |
| IMT | The Incident Management Team under AIIMS ICS comprises the group of personnel including the Incident Controller and the personnel responsible for the functions of operations, planning and logistics. |

## GLOSSARY OF TERMS – *continued*

| | |
|---|---|
| Incident Controller | The person responsible under AIIMS ICS for the overall management of all activities during an incident including the development and implementation of a suppression strategy and the ordering and release of resources.<br>An **Incident Controller Level 1** [CFA: Crew Leader/Controller at Small Incidents] is qualified to control a Type 1 incident (a small, simple fire which is controlled within the resources of the local area and may/may not involve other agencies). The IC generally takes on more than one role at these fires (e.g. IC plus Operations Officer).<br>An **Incident Controller Level 2** [CFA: Operations Officer (experienced Sector Commander)] is qualified to control a Type 2 incident (a developing/developed incident of medium size or complexity, expected to be controlled within 24 hours and involving resources from outside the local area).<br>An **Incident Controller Level 3** [CFA: Incident Controller (very experienced Sector Commander)] is qualified to control a Type 3 incident (a large or complex incident where resources from a range of locations are involved, normally multi-agency and normally expected to exceed 24 hours). |
| Industry Brigade | A brigade formed by a private forestry company under the *Country Fire Authority Act* 1958. |
| Interface area | Area where residences and forest are interspersed. |
| IRIS | Integrated Resource Information System (part of DSE Fire Web information system) |
| MAV | Municipal Association of Victoria |
| MFESB | Metropolitan Fire and Emergency Services Board |
| MFPC | Municipal Fire Prevention Committee (convened under section 54 of the *Country Fire Authority Act* 1958 for the purpose of coordination of fire planning within a municipality). |
| MFPO | Municipal Fire Prevention Officer as appointed under section 96A of the *Country Fire Authority Act* 1958 for the purposes of the Act, including issuing of directions to remove hazards or clear firebreaks. |
| OESC | Office of the Emergency Services Commissioner |
| OH&S | Occupational health and safety |
| OMS | CFA Operational Management System |
| Phone Tree | A community information system where one caller rings several others, who each in turn ring several more according to an agreed list. Commonly used within CFA Community Fireguard groups. |
| Plantation | A forest stand established by the planting of trees of either native or exotic species. |
| Preparedness | All activities undertaken at any time in advance of a wildfire occurrence to decrease wildfire area and severity and to ensure more effective suppression. |
| Prescribed burning | The controlled application of fire under specified environmental conditions to a predetermined area and at the time intensity and rate of spread required to attain planned resource management objectives. (Includes fuel reduction burning, ecological burning and regeneration burning.) |
| Project Firefighters | Firefighters recruited and trained by DSE each fire season |

## GLOSSARY OF TERMS – *continued*

| | |
|---|---|
| Public land | All State forest, national park and protected public land as defined by section 3 of the *Forests Act* 1958, except that managed by the Victorian Plantations Corporation or its successors. |
| Pumper | A large four-wheel drive fire appliance with a large capacity pump, hoses and other suppression equipment, but reliant on mains or other water supply. |
| PV | Parks Victoria |
| Readiness and response plan | A plan outlining desirable levels of readiness of personnel, systems and equipment and their locations and availability for the detection and control of wildfire. |
| Region | CFA administrative unit comprising a number of Groups of Brigades managed by a Regional Officer. |
| Residual risk | The level of risk remaining after risk treatment measures have been taken. |
| Response | Term used in disaster management to describe the processes, procedures and actions taken to combat the disaster. |
| RFPC | Regional Fire Prevention Committee convened under section 52 of the *Country Fire Authority Act* 1958 for the purpose of co-ordinating fire prevention planning for the municipalities within a CFA region. |
| Risk assessment | The overall process of risk analysis and evaluation. |
| RMS | CFA Resource Management System |
| ROMP | CFA Regional Operations Management Plan |
| Section 29 audits | CFA Inspections of Brigades for equipment serviceability and operational readiness. |
| SES | State Emergency Service |
| Slip-on | A four-wheel drive works vehicle fitted with a removable tank and pump. |
| SPAS | CFA Statewide Personnel Alerting System |
| Standards of cover | The process used by the DSE to determine the level of personnel, vehicle and infrastructure preparedness prior to each fire season. |
| StOMP | CFA State Operations Management Plan |
| StOPA | CFA Structural Operational Performance Audit |
| Tanker | A large four-wheel drive fire appliance carrying 2 or 3 thousand litres of water plus pumps, hoses and other suppression equipment. |
| TFB | Total Fire Ban (Day); declared for days of very high fire risk in regions of the State; prohibits the lighting of any fires in the open air. |
| UFU | United Firefighters Union |
| VRFBA | Victorian Rural Fire Brigades Association |
| VUFBA | Victorian Urban Fire Brigades Association |
| Weight of attack | The quantity of suppression resources, including tankers and air support committed to the initial attack, and the rate of the subsequent build-up of support resources. |
| Wildfire | Any unplanned grass, scrub or forest fire. |
| WOPA | Wildfire Operational Performance Audit |

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*(a)* This report is included in Part 3.2, Human Services section of the *Report on Ministerial Portfolios,* June 2001.

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