

'Taking it to the streets': Operation Bushfire Blitz

A case study in community awareness, information and education

Victoria and bushfires are synonymous. Bushfires repeatedly devastate Victorian communities with extensive property and life losses. In the past 20 years alone, over 5,000 buildings have been destroyed and more than 60 lives lost. Since the turn of the century over 330 lives have been lost to bushfires. The cost of this type of devastation is enormous both from a social perspective and also from an economic perspective.

Every year parts of Victoria face the prospect of bushfire and every year the community, the emergency services and other agencies prepare and then brace themselves for the weather conditions that are conducive for bushfires.

The lead up to this summer was no different in this respect. However, what was different was the intense efforts of the CFA, other agencies and local government to work with the community to ensure, as far as possible, their safety from bushfire. All available indicators were pointing to the fact that this summer was likely to be the one that provided an unprecedented risk in Victoria. The type of year that comes along once every twenty years or more. In fact the last time the indicators looked this severe was in 1983 when an El Nino event had influenced weather patterns producing drought conditions and spells of very hot weather.



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Operation Bushfire Blitz was designed to reduce community vulnerability to bushfire and encourage active participation by the community in their own safety. Operation Bushfire Blitz was the centerpiece of CFA's diverse but integrated suite of information and education strategies to effectively manage the bushfire risk. These strategies recognise that managing a complex fire environment requires:

- a high level of awareness of the risk to the extent that an immediate need to act is realised
- quality education and information from which decisions can be made, delivered to meet the communities needs.

Bushfire Blitz was a high-intensity short-term (8 week) community education program designed to be delivered to residents at the local street corner, face-to-face, on 'their turf'. Street corner meetings were hosted by local brigades, in conjunction with Operation Bushfire Blitz community consultants.

The bushfire risk 1997–98

The bushfire risk in Victoria is known to have two critical dimensions.

1. The nature of the *hazard*, in this case the bushland areas in urban interface and forest areas. The volatility of the hazard (i.e. the bush) is influenced most significantly by seasonal rainfall and daily weather variations particularly the wind, temperature and humidity.
2. The extent to which communities are *vulnerable* to the bushfire hazard, by virtue of their location, attitude to bushfire, level of preparation, planning, and their capacity to manage.

Risk can also be described as having 'unrealised potential'. When the potential of the risk is realised through an event, the consequences can be described as disastrous. A disaster is defined by the office of

the United Nations Disaster Relief Coordinator as 'a measure of the vulnerability of a community to a specific hazard' (Salter 1992, p1). Petris and Potter (1995, p17) argue that 'the magnitude of a bushfire disaster is largely a function of the extent to which the actions and behaviour of people make them particularly vulnerable in the event of a fire'.



El Nino and bushfires

'El Nino' is a recently identified weather phenomenon that is responsible for a number of diverse weather events on both sides of the Pacific Ocean. Forest fires have been raging in Indonesia, there have been widespread droughts in Papua New Guinea and in North and South America floods have claimed lives and destroyed towns.

In south-eastern Australia generally, and in Victoria more specifically, El Nino is associated with low rainfall and drought conditions. During the spring of 1997–98, Victoria was in the grip of an extreme El Nino event which produced very low rainfall totals. *Figure 1* (next page) shows the urban–bushland interface areas around Melbourne with a cumulative rainfall for the nine month period, January to September 1997, as the lowest on record and therefore below that received during 1982 leading up to the Ash Wednesday fires.

Rainfall deficiency was a critical factor in predicting the severity of the bushfire hazard. When long term rainfall was an-

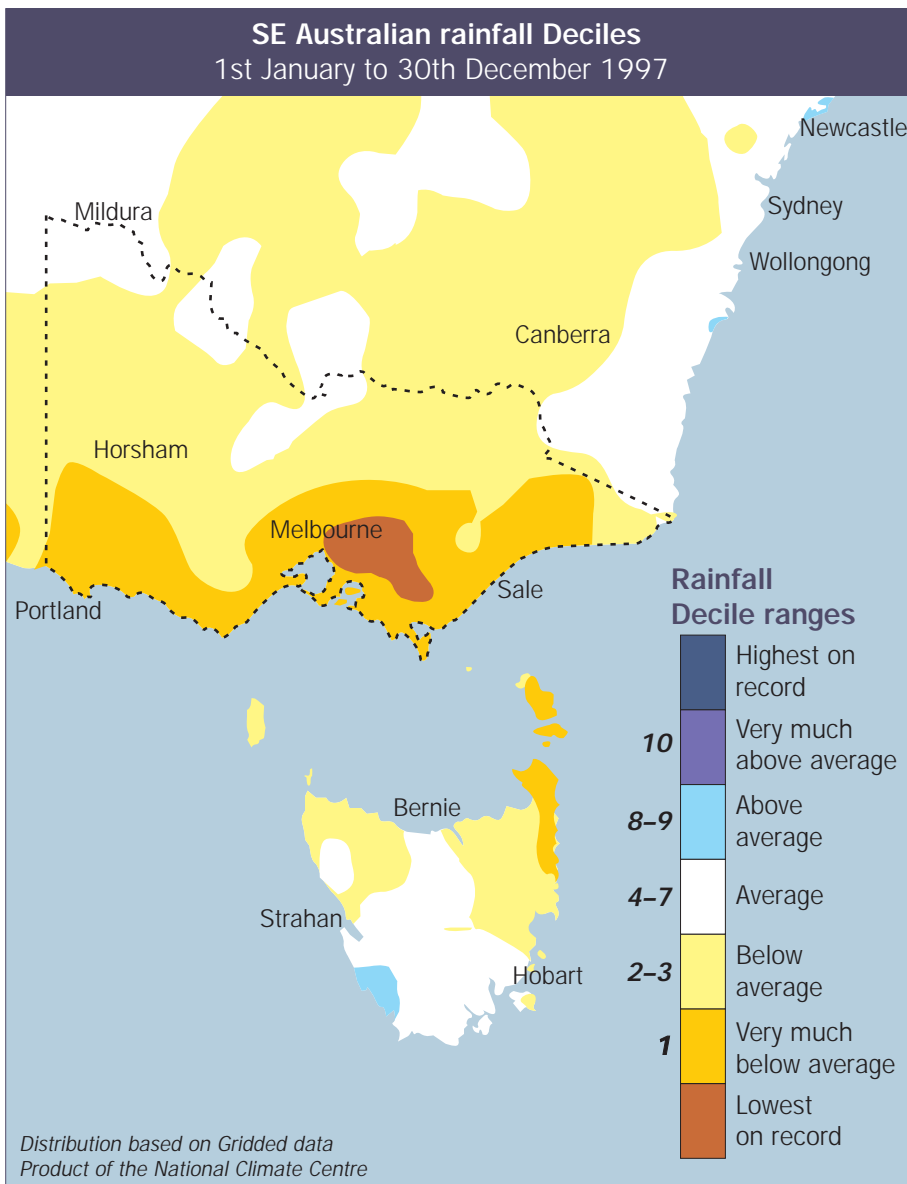


Figure 1: Rainfall from 1 January 1997 to 30 September 1997

alysed in the lead up to summer, around September, it was clear that even if average rainfall returned for the rest of the summer, and understanding that there was only a small chance that this could occur, Victoria would still be drier than 1982.

Fire behaviour implications

The dominating weather patterns have a strong effect on the way a bushfire behaves. Experience from previous major fires and current research all pointed to the following factors:

Bushfire will be more severe. They will be more frequent, occur over an extended 'fire season' beginning earlier in the summer, and with the right weather conditions spread more rapidly than usual.

Bushfires will be more intense. Fire intensity is directly related to the damage potential of a bushfire. The greater the intensity, the more difficult it is to suppress a fire, the more damage it will inflict, and the more vulnerable a community in the path of the fire will be.

The landmark fire season in recent Victorian history was in February 1983 when the 'Ash Wednesday' fires consumed many parts of Victoria. Fire intensities during Ash Wednesday reached 100,000 kilowatts per metre. The losses associated with Ash Wednesday in Victoria were 47 lives, 2090 houses, the social cost cannot be estimated but many people still bear the physical and emotional scars from 1983.

In New South Wales during 1994, fire intensities reached 60,000 kilowatts per metre and in January 1997 in the Dandenong Ranges intensities in the order of 30,000 kilowatts per metre contributed to the loss of 3 lives and 41 homes.

Bushfires may be uncontrollable. In major bushfire situations such as occurred in 1983 the limits of traditional fire prevention and suppression become apparent (Petris and Potter 1995). During the Ash Wednesday event it was found that fire-fighting forces were overwhelmed and that a controlled response was impossible. Even with its vast firefighting forces of over 2,000

fire vehicles and aircraft, it could not hope to protect every single person in high intensity bushfires. The equation is simple ... in most communities there is on average one fire appliance for every 1,000 residents, therefore many people will have to face bushfire on their own.

The situation today

The situation in 1997-98 was different to that faced in 1983. A study of the circumstances surrounding civilian deaths during the Victorian Ash Wednesday bushfires by Krusel and Petris (1992) identified three groups of victims, and three critical factors that influenced their vulnerability. Summarised these factors were a lack of understanding, recognition of immediate threat and capability. In principle the community in partnership with agencies should be able to prevent all of the deaths that occurred in 1983 with targeted initiatives.

However any initiative to reduce community vulnerability requires more than a reliance on agencies. It also requires self reliant and self-aware people who have the knowledge, motivation and capacity to manage the risks in their own communities as an active partner with fire management agencies. While the CFA play a major role in facilitating improved fire management there are many others that also have a responsibility. CFA have concentrated heavily on forming partnerships with local government, industry, agencies, the community and individuals so that the total system functions effectively leading to improved safety for the community.

Vulnerable communities

The magnitude of the bushfire risk is derived from an analysis of the extent to which the actions and behaviours of *people* make them particularly vulnerable in the event of a *bushfire*. Therefore the identification of high risk communities was vital to ensuring efforts were targeted and effective from awareness and education through to the ability to respond to fires if they occurred.

A series of spreadsheets and spatial analyses identified that the majority of losses occurred within 100 kilometres of Melbourne, mostly in areas known as the urban/bushland interface. In other words where city meets bush. In the interface area's surrounding Melbourne the probability of death associated with bushfire is six times higher compared with rural areas. The primary strategic target was therefore Melbourne's urban bushland interface.

Urban bushland interface areas are characterised by relatively large populations living in areas of heavy fuel loads, rugged topography, and poor access. A high

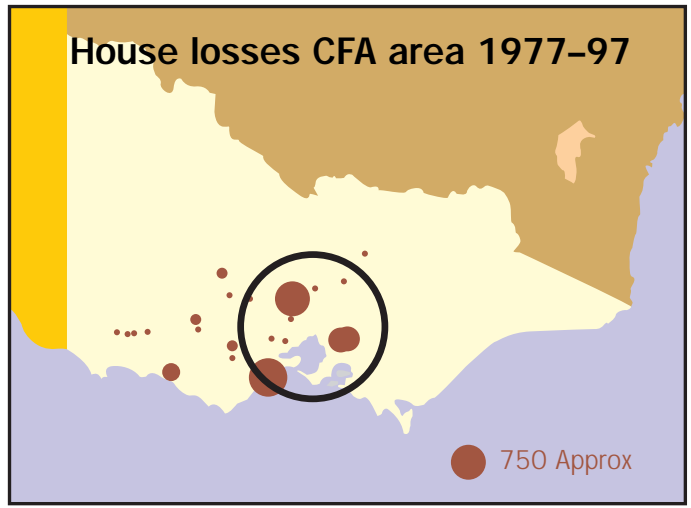
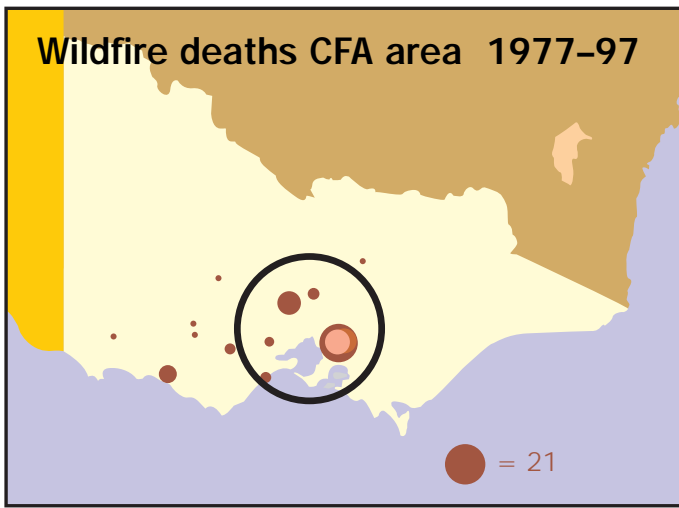


Figure 2: Wildfire Deaths 1977-97

Figure 3: Wildfire House Losses 1977-97

proportion of the inhabitants are people who are looking for a semi rural quality of life whilst being close to the city. Many people who live in these urban bushland areas are commuters who have very little experience in living in the bush or fending for themselves in a major fire (Miller 1984).

In addition constant population shifts, urban growth and industrialisation on the outskirts of metropolitan Melbourne, and on the fringes of regional centres, pose significant challenges. For example, increases in population in the outer Melbourne areas over the last 5 years have been in the range of 10% and 25%. This directly raises the complexity of the community awareness and education task.

The communities who reside in urban bushland areas are no longer uniform and homogenous in their make-up. Growing population diversity means that brigades are serving a multitude of customers, and they now demand choice and accountability, especially if things go wrong. Those moving into growth areas generally expect government agencies to look after them and this holds true for emergency and safety services.

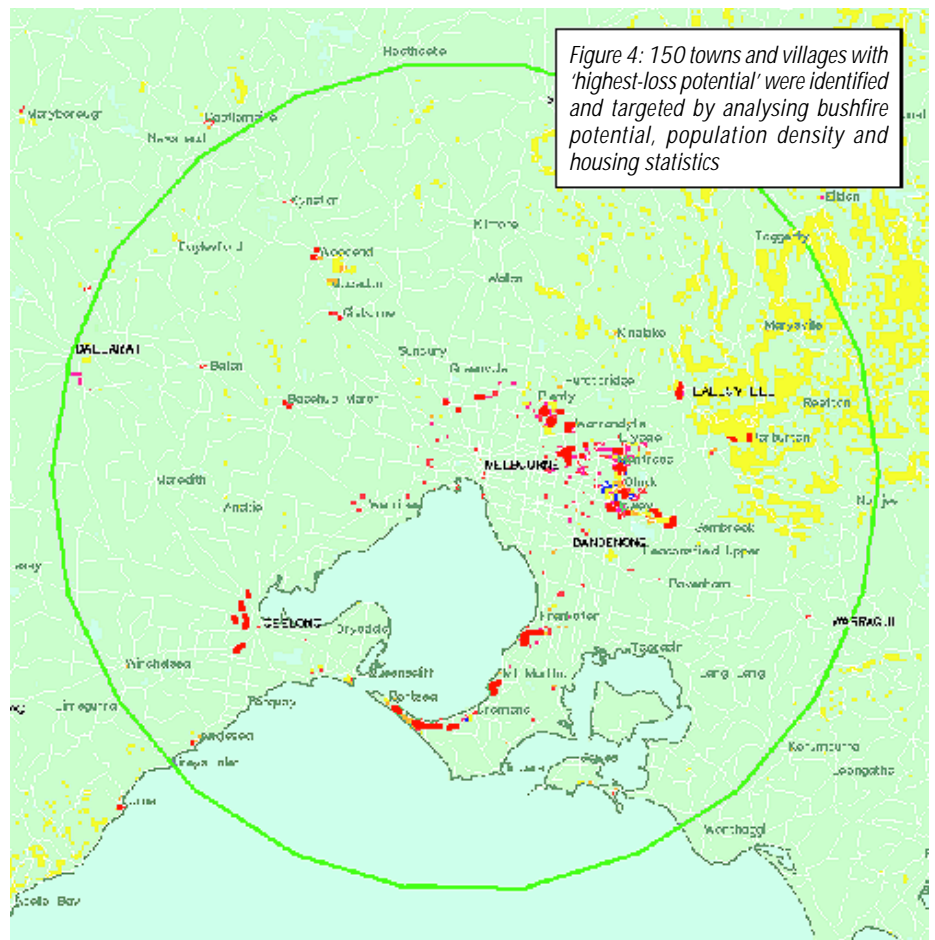
This provides a challenge for the CFA who have derived an approach to bushfire management that focuses heavily on social solutions to safety and creating a partnership with the community, rather than a total reliance on technological solutions. Research clearly demonstrated that able bodied people who are well prepared and have a basic understanding of bushfire, have the capacity to defend their families and houses successfully (Wilson and Ferguson 1984). For those who do not fit this profile the CFA encourages leaving their homes early on critical fire weather days before fires start. Last minute panicky evacuations are a recipe for multiple life loss and these are actively discouraged at every opportunity.

The next phase of the analysis introduced the use of bushfire intensity maps. The intensity and rate of spread of a bushfire, both important indicators of loss potential, are dictated by a number of interrelated bio-physical variables including weather, topography and vegetation.

Fire intensity has been described as the most important determinant of house survival in bushfires and is measured as the rate of heat release per unit length of fire front, usually expressed as kilowatts per metre (kW/m). Fire intensity can be calculated spatially in a geographic information system (GIS).

CFA's GIS Group had extensive data on hand to quickly calculate potential fire intensity within a 100 kilometre radius of Melbourne. An algorithm was developed which overlaid fire intensity, population and housing data from the 1996 Australian Census to produce several maps identifying 150 towns and villages with the highest loss potential. These communities became the target for 'Operation Bushfire Blitz' (Figure 4).

Even though by this phase of the study many communities had been identified as being at risk from bushfire there remained the problem of identifying which parts of



a town were most at risk. The urbanised areas of most small towns are in many ways like suburbs in the city. Houses stand next to one another with carefully watered gardens and relatively low vegetation loads. The intrusion of fire fronts into these areas is rare with the exception of attack from wind borne embers produced by bushfires. By comparison, houses become isolated on the outskirts of towns and are more likely to be immersed in flammable vegetation. The risk of house loss from bushfire may change from low to extreme within a few streets.

To meet this problem the CFA GIS group produced large scale fire intensity maps for each of the towns and villages which had been identified in the previous analysis. The potential fire intensity theme was this time overlaid with digital road networks.

In this manner streets and roads were identified that in the event of a fire were likely to sustain extreme fire intensity, thus increasing the risk of life and property loss. Over 150 town maps were produced and distributed within 2 weeks to brigades, who then targeted specific streets for Bushfire Blitz meetings.

The challenge

The challenge for the CFA in partnership with the community and other agencies is to develop and implement a diverse but integrated suite of strategies to effectively manage the bushfire risk. These strategies recognise that managing a complex fire environment requires:

- that social and cultural changes must be made within and outside CFA
- identification of high risk communities
- an acceptance that fire prevention and mitigation is everyone's responsibility
- an understanding of all the factors that contribute to community vulnerability
- an understanding of the extent to which the CFA can facilitate a reduction in community vulnerability
- attention to targeted awareness and education programs that actively involve people and provide information from which people can make informed decisions about their own safety.

CFA's awareness and education approach

CFA's research had indicated that despite all efforts people were having difficulty in translating written information and advice into action to improve their own safety. Therefore much of the information went unheeded. Silberbaur (1990, p10, pers. comm.) expresses the view that information contained in publicity material is 'clear, reliable, readily applicable and widely ignored'.

Petris and Potter (1995, p24) suggest that 'as the most appropriate bushfire safety strategies will vary according to each individual's particular circumstances—lifestyle, environment and governing values—a more effective method of achieving behavioural change may be one that allows two way communication between fire management agencies and individuals.' Beckingsale (1994) describes this two way communication approach as the participation paradigm.

CFA had for some time recognised that merely resorting to bigger and better publicity campaigns was unlikely to provide the total solution, but also recognised that any education program is next to useless if nobody knows about it. An integrated awareness-education strategy was developed to ensure high levels of

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awareness were translated through local level education programs into practical actions and behavioural changes that improve the safety of individuals.

The CFA's extensive publicity campaign used all available means to deliver safety messages, raise community awareness and publicise programs. The CFA used all forms of the media extensively, developed an Internet site, conducted media briefings attended by major media outlets, worked with non-English speaking communities, conducted a radio phone in partnership with ABC radio and attended numerous displays and field days. The CFA's publicity efforts were unprecedented this year.

At the education end of the spectrum significant effort had been directed towards the 'Community Fireguard' education program. Community Fireguard is a program that facilitates small groups of neighbours towards the development of bushfire safety strategies that vary according to each individual's particular circumstances, lifestyle, environment and governing values. However, while Com-

munity Fireguard has experienced unprecedented growth over the last eighteen months and has proved very effective for those who were involved, further analysis revealed three critical issues:

- 1 The number of Community Fireguard groups across Victoria was very small when compared to the analysis of vulnerable communities.
- 2 There were time, space and resource limitations that restricted the delivery of Community Fireguard in all the identified vulnerable communities, and the style of the program did not lend itself to a short but intensive community awareness and education effort.
- 3 A small proportion of people in vulnerable communities new about Community Fireguard. Evidence for this came from a series of public meetings, often attended by hundreds and sometimes thousands of residents in high risk areas such as the Yarra Ranges, where when questioned about the existence of Community Fireguard only a handful of people responded on each occasion.

Bushfire Blitz

Bushfire Blitz was born out of the need to fill the service delivery gap between broad-scale publicity, such as television and radio, and highly-focused education activities including Community Fireguard (Figure 5).

There was a need for CFA to develop a program with specific characteristics, that could fill the identified service delivery gap. Bushfire Blitz was specifically designed to be delivered at the local street corner, to communities, face-to-face on 'their turf'. This delivery style aimed to:

- deliver to a large number of targeted vulnerable communities in a short period of time
- make the risk real and immediate and the information relevant to each individual by using real examples
- promote action that is practical and achievable and promote the concept of community interdependence
- facilitate two way communication with residents and a practical 'hands on' approach
- deliver at the street level and complement existing brigade community education activities
- be cost effective and able to be marketed effectively to community and stakeholders
- target specific at risk communities and streets
- demonstrate that the CFA are committed to community safety by coming to the street corner and meeting the need of the customer.

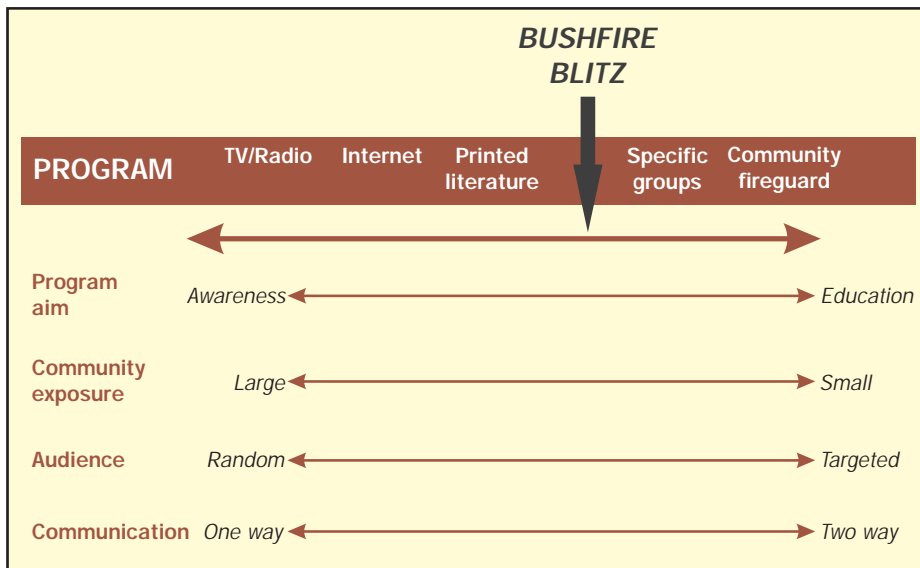


Figure 5: Awareness-education services and Bushfire Blitz

Fire brigades and the local approach

Operation Bushfire Blitz was developed to facilitate the provision of bushfire awareness and education services to the community and also to support volunteer brigades. The program was designed to complement the range of activities that brigades undertake to prepare the community for bushfire. The CFA considered brigade support so important to the success of the program that a decision was taken not to conduct Bushfire Blitz where there was no local brigade support.

Support for Bushfire Blitz was very high, with 250 brigades actively participating in the program. Street meetings were hosted by the local brigade, in conjunction with the Operation Bushfire Blitz community consultant. Residents were invited to participate in street meetings, usually by way of a letter, in groups of approximately three streets at a time. The meetings were designed to be interactive and specifically tailored to the local street situation. Meetings were held at predetermined locations in one of the streets for approximately 1–1½ hours, included a 'street walk' and covered the following issues:

- facts about the bushfire risk
- personal and family safety
- preparing your home
- helping your neighbours
- risk identification and practical solutions
- planning what to do on high risk days
- what residents can expect from the fire brigade
- Community Fireguard.

Managing Operation Bushfire Blitz

Bushfire Blitz was managed by a Project Manager and a part-time administrative assistant. Project coordination on a state-wide basis was achieved through the

Project Manager. The CFA is managed through 12 decentralised areas, each with its own management team. Each area has an Area Risk Manager, who was responsible for community education activities within that area.

Program Coordinators: to assist the Area Risk Manager with the local administration of Bushfire Blitz, a program coordinator was appointed specifically to work with brigades and the Bushfire Blitz community consultants who were recruited to deliver the program. In addition it was the responsibility of the program coordinators to arrange the street corner meetings with the local brigade, notify residents of meetings, assign community consultants to meetings and oversee the performance of community consultants.

Seven Program Coordinators were recruited from the volunteer ranks of the CFA for a period of approximately 12–16 weeks.

Community Consultants: fifty-five Community Consultants were also recruited from the ranks of CFA volunteers for a period of eight weeks. Their role was to deliver the street corner meeting in conjunction with the local brigade.

Recruitment: choosing the most appropriate people for Bushfire Blitz was particularly important and therefore the recruiting process was a critical part of the project. CFA decided to outsource the recruiting to a third party recruitment and employment specialist, Skilled Engineering. This was done for two reasons:

- 1 CFA did not have the capacity to recruit 55 people in a very short period, and Bushfire Blitz was viewed by the State Government and CFA as a critical community safety initiative.
- 2 CFA had used the expertise of a third party employer on a similar project recently and was pleased with the results.

CFA worked closely with Skilled Engineering to ensure that the recruitment process reflected its needs and that the people recruited had the necessary skills and abilities to carry out the Community Consultant role effectively. One of the key elements in recruiting Community Consultants was the decision by CFA to employ volunteer members. This worked particularly well because of CFA cultural factors, a knowledge of fire behaviour and in many cases an empathy with the local community and brigade.

Training: Program Coordinators and Community Consultants attended a two-day training course that focused on the following elements:

- Fire behaviour and weather
- House survival
- Personal survival
- Practical solutions
- Personal presentation and communication
- Facilitating a Bushfire Blitz meeting, understanding the script and key messages.

Each Program Coordinator and Community Consultant was supplied with Blitz polo shirts and a cap, specifically designed for the program.

The performance of Bushfire Blitz

Bushfire Blitz activity

Over eight weeks, 33,303 people attended 1408 street corner meetings and a further 10,000 people attended public meetings across Victoria's higher-risk communities.

CFA estimates that as many as 250,000 people have received the benefit of Bushfire Blitz when family and neighbourhood flow-on effects are factored in to the programs impact. One of the most rewarding outcomes of Bushfire Blitz is that it has achieved a level of community development and interdependence that goes far beyond the direct benefits of fire safety.

During Operation Bushfire Blitz, 250 brigades have improved the relationship with their communities. CFA have received numerous letters of support from the community and there has been an increased demand for Community Fireguard and increased recruiting for local brigades.

Fire events

During the 1997–98 bushfire season two fires occurred which directly threatened residents in areas where Bushfire Blitz had been in operation. Evidence collected by the CFA indicates that residents were better prepared for bushfire than in previous years. At fires occurring in Macedon and Kalorama under critical fire weather conditions, most residents understood what needed to be done, were calm, had

prepared adequately and had decided to stay and defend their property.

The most significant outcome this year is the fact that for a high risk year no lives were lost and only 10 houses destroyed. Interestingly these houses were lost in an area where Bushfire Blitz or Community Fireguard did not operate. When compared to other similar risk years this is an exceptional result, and one which can be largely attributed to the education and awareness programs conducted this year.

While there have been improvements in the CFA approach to bushfire management including the rapid attack of ground forces and the use of the skycrane aircraft it is clear that the significant difference between this year and others was the implementation and success of Operation Bushfire Blitz.

Bushfire Blitz cost the public of Victoria \$400,000, or the approximate value of two homes in the Dandenong Ranges. The fires at Macedon and Kalorama last summer directly threatened more than a dozen homes (value approximately \$2.4m), none of which was lost.

Independent evaluation

In 1998 the CFA engaged independent consultants, Strahan Research (1998), to evaluate CFA's 1997–98 bushfire education and awareness campaign, including Bushfire Blitz. The scope of the evaluation included:

- inputs and preparation for the campaign
- outputs and implementation of the campaign
- outcomes and impact of the campaign.

The research was conducted in the form of a community survey and randomly targeted 600 residents in high bushfire risk areas. Specifically the research aimed to assess the:

- extent of exposure to the CFA campaign messages
- acceptance of key messages
- impact of the campaign on perceptions of risk and motivation to take precautions
- perceptions of the effectiveness of the key awareness and education elements of the campaign, including Bushfire Blitz
- perceptions of the CFA.

The key general findings were:

- The majority of respondents (92.2%) recalled seeing or hearing something about the bushfire risk over the last summer.
- The general level of awareness of bushfire risk was found to be high with 89% of respondents believing a fire was likely to occur in their area, with most people (63%) perceiving the risk as higher than

last year and many (26.8%) believing the risk was the same as last year.

- Most respondents rated their level of preparation as the same (46%) or greater (53%) than last year.
- The 'stay or go' message was not well understood with 53% intending to leave once a fire was in the area, 43% planning to stay and defend their homes and 3% intending to leave the area on high risk days. Interestingly over 56% expected some form of official warning of fire and 32% expected to find out about a bushfire by the presence of smoke and ash.
- The CFA is seen as committed to and an integral part of the community, by the community and the media (98% and 100% respectively).
- The respondents believe that the CFA are taking new initiatives in relation to

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bushfire, increasing from 62% in a similar survey question in 1997, to 87% in 1998. It is reasonable to conclude that this increase is mainly attributable to Operation Bushfire Blitz as it was the only new initiative launched in the summer of 1997/98.

The key findings relating to Bushfire Blitz were:

- Although all forms of disseminating messages were rated as effective respondents rated Bushfire Blitz as the most effective in terms of raising awareness (90.7%), providing useful information (94.8%), informing people where to get information (84.6%) and motivating residents to prepare for bushfire (87%).
- Respondents (95.5%) overwhelmingly agreed (83.9% totally agreed and 11.6% agreed) with the messages that they received about bushfire from the Bushfire Blitz meetings.
- The main message respondents took from the Bushfire Blitz meetings was to prepare and take precautions (47.8%). Others recalled the main message as planning for fire (22.3%) and stay or leave (13.9%).

- As a method of improving the program 4.8% of respondents indicated that there should be better promotion of Bushfire Blitz meetings.

The future

The CFA is evaluating the effectiveness of all its activities conducted during the summer period, ranging from awareness and education through to operational response. What is clear is that no one program has provided all the solutions in isolation. It is the full suite of integrated programs and activities that provides real benefits to the community.

The blitz style of information and education program has been successfully applied to the risk of bushfire. However it does potentially have applications for other risk environments and community safety initiatives.

While the losses from bushfire were low this year the CFA are continuing to ensure that everyone involved with bushfire management are working cooperatively to achieve even higher levels of community safety.

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