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I am making this submission as	Emergency services
Submission type	Personal
Organisation making the submission (if applicable)	
Your position in the organisation (if applicable)	Crew Leader, Lansdowne RFS Brigade
Consent to make submission public	Public
Your story	<p>I am a crew leader in the Lansdowne RFS, and was heavily involved in the fires on the mid north coast this season, especially the Rumba Dump Fire which swept through my community of Upper Lansdowne. I am also a retired IT developer and manager and my working life has been spent designing and implementing complex systems around the world and in Australia, which gives me some insight into the communications and systems in use in the RFS. The limits of these aging systems became very clear during the large, widespread and continuous fires this fire season. I include detailed suggestions in the response to fires section, but there are three key elements:-</p> <ul style="list-style-type: none">• Collect better quality information from fire calls and deliver it to the responding brigades.• A two-way pager system where volunteers state whether they are responding, visible to the rest of the brigade and to operations.

- Provide all trucks with tablets and digital communications with a view of the topology, fire extent, position of other units and access to online weather forecasts and satellite imagery.

Much more effort is needed to improve the resilience of housing. In the past owners have been complacent, but this is changing, and lots of people are asking for advice. We now have an information gap and more detailed tools like the excellent Bush Fire Household Assessment Tool are needed. Sprinkler systems are effective but expensive, so information on recommended sprays should be provided, turning it into a straightforward plumbing job.

One of the most important actions is promoting local groups at street and village level. A "Landcare for Fires" organisation would improve local knowledge, act as a bridge to the RFS and support those who choose to stay and defend.

I include a suggestion for a one-stop "RFS App" which simplifies key public interaction with the RFS. It includes reporting a fire, an improved fires near me, information on property protection and a WhatsApp type chat group for local fire groups.

1.1 Causes and contributing factors

Simply put climate change is increasing the frequency and severity of the droughts and extreme fire weather. It will continue to get worse, but if we rapidly reduce our emissions and encourage other countries to do so we can limit the damage. If we do not many areas of inland Australia will become virtually uninhabitable this century. Contrary to the now almost hysterical federal government reaction a rapid move to a renewable economy is affordable and will help Australia's economy in the medium term as we start to export clean power to Asia.

1.2 Preparation and planning

There was not enough aviation support this year, but this is probably best addressed at federal level.

It seems the RFS budget is considerably down on Victoria compared to the amount of activity and certainly Western Australia appears to replace their tankers more often than NSW.

A Video of a tanker driving through flames while the crew struggled to hold up blankets to block out the radiant heat reminded me that our old Cat-1 still doesn't have the thermal window blinds that have been installed on the new trucks for years now. Our truck has a cranky gearbox, the old mushroom spray, manual hose winders, and two steps up into the cab rather than the powered winders and three steps in the new trucks.

While the blinds will occasionally save lives, the others don't sound like a major issue, but when you have a minimal crew of retirees scrambling in and out of the truck and deploying and rewinding the live-reels repeatedly over the course of a 12 hour or longer shift it soon adds up to the physical exhaustion many of us feel when we return home.

We fought for some years to have a Cat-9 Land Cruiser for the brigade and ever since then it has been heavily requested for work well outside our area, involving travel times of an hour and a half or more each way, so it is clear that many more of these trucks are needed in our district at least.

As the fires get bigger and more intense, it becomes more dangerous to face them on foot with hose in hand, which limits the truck's ability to move away quickly when needed, and the water runs out more quickly. While this will impact off road ability a larger tanker with water canon controllable from inside should be considered.

We have worked extensively with Forestry this season, and I was shocked to find they have no storz fittings or adaptors on their trucks. This stopped us using our lay-flat hoses with their units when needed, especially as their units are better adapted to forest conditions than our larger trucks. They only use UHF CB radios and this made communications difficult between Forestry and RFS vehicles to the point that personal mobile phones were often the only practical option. As the size of fires increase we need to ensure that all vehicles at fires are able to interoperate

effectively.

Mapping software is often critical in rural areas, whether finding a smoke sighting by grid reference or understanding the topology to predict where the fire will run. The official maps on our tanker are paper and almost never used. All units should be equipped with a tablet and software allowing fire extent and the locations and identities of all local trucks to be seen and managed. More information on the key aspect of communications and systems is included in the next section.

Lastly the RFS has centralised much of its decision making, and in general this is a good thing. However when there is a problem, the brigade is certainly not encouraged to object, and district management are reluctant to query the central authority. This has led to some procedures that are overly bureaucratic and sometimes increase risk. A perfect example is our Cat-9 Land Cruiser, which is very useful in rugged terrain and as a patrol vehicle. It is close to its weight limit and therefore we are told not to carry a chainsaw, though we often do anyway. During the major extensive fires we have had this year this would have severely limited its use, and on a couple of occasions endangered the crew. There is also a concern about lack of hazard reduction, and while the longer fire season is the main influence, excess bureaucracy is also partly to blame.

1.3 Response to bushfires

While some brigades, including mine, have spent their own money to partly mitigate the limits of the official RFS systems, a complete standardised solution is badly needed.

The 000 Call system is antiquated and no longer fit for purpose. During the local fires I encouraged everyone I knew to call me immediately after any 000 call, and on at least 3 occasions I knew about a problem more than 7 minutes before my pager went off. Most callers are probably using a mobile phone, which can automatically collect most of the important information. Much of this information is then discarded and does not get to the responding brigades. There is also no standard way to report a fire which is not an immediate emergency, causing many unnecessary callouts, especially in the weeks following a major fire.

Data communication is almost completely lacking between operations and brigades, which rely on voice radio. The current situation that operations has a full picture of the fireground and the brigades do not need one failed repeatedly in this seasons extensive and long lasting fires.

Operations have no idea of a brigade's availability, and may not even know if a brigade will respond for 15 minutes or more after a pager call. This obviously means more brigades are called to even minor callouts. We use a system called BART which allows volunteers to share their availability, and more importantly to state if they are responding to a callout or not. A smartphone based two-way pager system of this sort should be adopted so that this information is available to operations.

The brigade has virtually no information about a callout until someone makes a radio call from the truck. While the pager used to show type of callout and address, it now does not. During the Rumba Dump fire I often made a round trip of more than 30 minutes to the fire shed and then returned to within 5 minutes of my house, delaying the response as I am one of the furthest from the station. In the weeks after a major fire there are many calls to 000 from worried residents to smoke sightings we cannot reach or are of no immediate threat. When a brigade has been working flat out for weeks this is very frustrating. All callouts should include a level of urgency, the address and the phone number of the caller as even in normal seasons we often need to contact them. The quality of the information captured at the time of the call is vital; see my suggestion for an RFS App.

Brigade trucks have no standard navigational software, no view of local topography and fire extent, no visibility of other local trucks positions, no way to report fire extent, no access to the

latest weather forecast or satellite hotspots and no address lookup. A vehicle acting as divisional control is operating almost blind. Some of us carry mapping software on our phones to try and remedy this, but what is needed is a 12 or 14" tablet with digital communications and fully integrated software that can operate in no signal areas, but which refreshes automatically when possible. This could provide a host of other useful information like contact numbers for dozers and bulk water carriers operating in the area. I understand some of this is being considered for group captains, but in these extensive fires brigades were often required to stand in.

Radio communications were overloaded during the larger fires, with wait times for access to Fire Control of 5 minutes or more. I hate to think what would happen to a truck facing an emergency at these times. Ideally trucks should have a panic button which digitally transmits its location and an alert. The number of different radio channels in use is also problematic, it is common to use two PMR channels, one for Fire Control and a local tactical channel, plus the hand-held fireground radios, but as soon as Forestry or other agencies are involved then a CB radio is also necessary.

Repeating my comment in the planning section, all agencies active on the fireground must be able to communicate and interoperate effectively. At the minimum any other agency acting as divisional control should have a PMR radio, and all trucks should carry adaptors so we can share equipment.

These fires have hit rural communities hard, but the sense of community is stronger than ever, and many people want to help the RFS. The fire at Upper Lansdowne saw people putting out spot fires, clearing fallen trees, helping their neighbours, while the community hall was serving food and drinks to fireys. We also had some who put themselves at risk due to lack of knowledge and at least one who lit a back-burn they probably could not have controlled. Better links between the community and the RFS are needed and will pay large dividends although the bureaucracy around hazard reduction in particular is an obstacle in many places.

Logistics at rural fires needs review. Upper Lansdowne is not that remote, but during the 10 days of continuous 24 hour activity tankers were travelling 60 minutes round trip from the brigade station or 90 minutes from the fireground to collect food and supplies. Each village should have a designated control point, either the brigade station or a community hall or school, which can be manned by RFS volunteers and members of the public. Food and supplies can then be provided much closer to the fireground, either by support vehicles or by the community. Crews can changeover efficiently and tankers can stay close to the action.

1.4 Any other matters

Upload files

The-RFS-app.docx - [Download File](#)

The RFS App

I would like to see an RFS app which would combine four functions, being “Report a Fire”, the current “Fires near me”, a “Local fire community” and “Fire Information”.

“Report a Fire”

There is no established way for the public to contact the RFS other than calling 000, and this has the following disadvantages:-

1. Much information that can be automatically collected by a smartphone is either laboriously collected or ignored, or lost between the call and the responding brigade.
2. There is a significant delay. On several occasions locals called me immediately after the emergency call, and I was able to save between 7 and 10 minutes of valuable response time.
3. There is no way of distinguishing between an emergency and someone wanting to report something they believe is no immediate threat.

The process is started by selecting “Emergency” or “Non Critical Fire”

The process starts the camera and starts to obtain location from the phone asking for a 20m resolution and displays the live picture on screen, along with the other information collected. Voice prompts ask the user to point the phone at the fire and pinch-zoom the camera to highlight the fire. The following information is automatically collected:-

1. Location (This often has trouble indoors, and needs to be queried if not available – suggest moving outside)
2. Phone number.
3. Direction that the phone camera is pointed at
4. The displayed image.

If internet access is not available the user is asked to move so that either wifi or mobile data is available. Once that happens pass available information to the server which starts the following:-

- As soon as location is available use Reverse Geocoding to convert location to address, and return this to the app.
- Open a voice chat connection to the app.
- An operator is assigned to the call, and starts to talk to the user. Key data which cannot be collected automatically is queried such as distance and size, speed of the fire, and the conversation captured and stored.
- The user is asked for the address as a check and corrected if necessary.
- The user is informed that the call is complete.

This process addresses most of the problems above. It significantly improves the quality of information while increasing speed. It allows non critical calls to be handled, either by a different group or eventually by an automated process. They can be directed to the local brigade as non-critical for follow up, rather than a full response event.

“Fires near me”

The Fires Near Me app is an excellent idea, but needs considerable work, all of it at the server end.

1. It is often out of date and the fire extent has jumped around and changed erratically. Any information available to the RFS internally needs to be automatically made public. Only then can the public make informed decisions on what is a life and death matter.
2. It needs to differentiate between the containment area and any active fire, especially with the very large fires.
3. It should show satellite hotspots.
4. It should show predicted extent.

“Local fire community”

Street or village based fire groups are important for the following reasons:-

1. They help improve the general fire knowledge and give people direct feedback on property protection, especially if connected to the local brigade.
2. They allow people to help each other during local fires so that those who do want to stay and defend are better prepared. Groups can move house to house in some conditions, and history shows houses with multiple defenders are considerably more likely to survive.
3. They can provide valuable information about fire extent to the group and to the RFS, especially if some of the members are known to the brigade. In the weeks after a fire passes though there are many false alarms that could be avoided by some reliable local information.
4. The group allows the local control or the brigade to get information out to the community in a targeted way. This could be on back-burns, hazard reductions or severe forecasts.

The app operates in two modes; first it encourages the user to join a local group, showing the nearest groups and allowing the user to join, or encouraging them to start a new group.

Once joined it operates in a similar way to Messenger or WhatsApp, allowing pictures, text and voice to be directed at the group or at individuals. Each person could optionally allow their contact details to be published to the group.

Each group should be attached to one or more brigades, with members able to participate, and be identified as RFS members.

“Fire Information”

This should be a collection of information and assessment tools like the excellent [Bush Fire Household Assessment Tool](#). It should contain practical information on measures to protect homes, including various types of bushfire sprinklers, window screens and refuges. Importantly it must not concentrate on the ideal solutions, but include partial and DIY options, while explaining their limits.

The app could be extended to allow landholders to request a fire permit in season, or to state when they are burning off in winter.