EMERGENCY MANAGEMENT COMMISSIONER’S MESSAGE

Each year it becomes clearer that our summer is not about fire alone and this is supported by Victoria’s ‘all communities, all emergencies’ approach to emergency management.

It was apparent Victoria had an all-emergencies 2016-17 summer season with heat, flash flooding, thunderstorm asthma, storms, water safety issues, fire and the tragic events of the Bourke St Mall incident and Essendon plane crash.

Victoria’s response to these events continued to highlight how we work as one to manage emergencies and protect the community, while the community demonstrates its readiness to respond and its resilience in recovery.

It continues to be a challenging time across emergency management, locally, nationally and internationally, and sound planning and preparedness is crucial.

The key is to remain focused on the community to ensure we get the best outcomes for the Victorian community. This will be achieved through building on each other’s strengths and focusing on the job at hand.

The risks associated with emergency response remain very real. I encourage you to continue to focus on your safety and that of your colleagues as a priority, to ensure we are able to continue to protect and respond to the community in times of emergency.

Finally, I would like to acknowledge the valuable work that each of you contributes during what can be extremely difficult circumstances, and acknowledge the impacts that these contributions have on you and your families.

Thank you for your continued commitment.

Craig Lapsley PSM
Emergency Management Commissioner
EMERGENCY OPERATIONS HANDBOOK
Over the past few years, Emergency Management Victoria (EMV) has produced the Victorian Bushfire Handbook (Edition 5), which summarises the operational management structures and systems used by fire agencies for bushfire preparedness, readiness and response in Victoria.

In reviewing this handbook, the State Control Team has determined that it has a greater application than just bushfire and needs to move to include all types of emergencies. It will be renamed the Victorian Emergency Operations Handbook.

This new handbook will be published in 2017 and structured to have generic emergency management principles, processes and systems. It will include all the same information as the Victorian Bushfire Handbook but have a new structure.

Printed copies of the new handbook will be distributed by each agency, and an electronic version will be available on the EMV website and through EM-COP.

LACES
The application of LACES allows crews to monitor and plan for safety. The process for implementing LACES is:

Lookouts A fixed, aerial or mobile lookout shall be deployed to maintain a clear appreciation of risks and to provide timely advice of the need to use escape routes and safety zones.

Awareness Firefighters shall be aware of the impact of changes in fire behaviour including those resulting from variations in fuel, weather and topography and of other fireground hazards.

Communications All fire crews shall follow the communications plan, communicate with their crew and surrounding crews to address safety issues.

Escape routes At least two escape routes should be agreed and made known to all relevant personnel. The suitability of an escape route should be continually reviewed to ensure it remains effective.

Safety zones Safety zones should be identified and made known to all relevant firefighters. Firefighters need to consider escape time and safety zone size requirements that will change as fire behaviour changes.

DYNAMIC RISK ASSESSMENT
The Dynamic Risk Assessment (DRA) formalises existing practices where operational personnel rapidly assess and manage risk to themselves and others to decide on appropriate strategies and tactics. The process is detailed in the DRA Joint Standard Operating Procedure.

A series of videos has been produced including examples and case studies that apply the dynamic risk assessment process in an emergency services setting. The intention of these videos is to ensure you have the skills and knowledge to protect yourself, those around you and the community.

Property, equipment and the environment may be at risk, but we always want to ensure that you do your utmost to make it home safely. DRA is not just important to first responders in an emergency, but all personnel who may enter an area just after an incident. Use the link below to watch the videos.


JOINT STANDARD OPERATING PROCEDURES
The annual review of the JSOPs has been completed. The processes and procedures in some JSOPs will be different from previous versions, so it’s recommended that all emergency personnel familiarise themselves with these procedures.


AMBULANCE VICTORIA
Ambulance Victoria (AV) paramedics are crucial in supporting and ensuring the welfare of not only the public during an emergency but also our emergency management colleagues, by undertaking health monitoring at critical incidents.

AV actively supports EMV and the emergency management sector in heat-related activity statewide, both in consequence management and taking on the role of state controller for heat.

Operational frontline managers across AV continue to receive health commander training, which enables managers to respond to an incident and be represented at regional incident control centres and the State Control Centre as part of the emergency management teams (EMTs) in line with the Statewide Emergency Management Plan.

This year, given the critical link AV provides in planning and response, it is integrating its operations through the State Control Centre and the Department of Health and Human Services in Lonsdale Street. This alignment has allowed for increased visibility of activity and the strengthening of our continued relationships.
SPEAKING UP

Any of us who have led a crew at an emergency incident - always chaotic, often feeling like you’re stumbling into something without a full view - will know the value of having team members who know when and how to speak up. But so often people sit back and say nothing when something really needs to be said. It could be an idea, a suggestion, an observation, a criticism… for some reason they don’t want to speak up. At a developing incident, no individual has all the answers, but by working together a team may be able to develop a workable solution.

What stops us speaking up?

Those who have spoken up to a leader under pressure, only to be told curtly, “You’re here to do as you’re told, not to think”, or are ignored altogether, may have some answers to that question. But there’s more to it than arrogant or frazzled leadership. Why is it that curtness or irritation from a leader stops us speaking up?

A very important factor is that humans are powerfully affected by social pressures, which can be more powerful than pay or even fear of personal safety.

A classic example is that of the presence of rank or authority structure. We often hear stories of individuals who felt intimidated by rank or seniority and didn’t voice their concerns about a particular course of action. This often leads to injury.

Problem detector: the sixth sense

Research shows that humans are good at pattern matching; we do it almost unconsciously. We recognise when there is an abnormality, often without knowing exactly what it is. We have an uncomfortable feeling, a ‘sixth sense’ that something isn’t right. It’s important to acknowledge these feelings and to at least speak up about them, if not act on them.1

A high-performance environment

To develop high performance, teams need to feel psychologically safe and this is built by trust among members, by encouraging and supporting feedback and reporting negative behaviours. This can be especially difficult with newly-formed teams. Trust takes time to build, but team leaders can fast-track this process by making the effort to get to know team members at the start of the mission, introducing themselves, and asking respectful questions. This provides an opportunity to do a skills audit and spell out the leader’s intent for open team communication, sending a powerful message that the members are valued, as are their observations and reports of information critical to the mission. A note of caution: leaders need to work to achieve the right balance, encouraging others to speak up constructively, but avoiding wasting time on issues they think are irrelevant.

Our meta-mistake: we’re wrong about being wrong

Something that inhibits many of us from speaking up is the fear, even terror, of being wrong. Making errors is actually an opportunity to learn and improve, rather than a point of shame and blame. We all make mistakes all the time. We can’t help it. We are ‘wired for error’. We need to get over our fear of mistakes. We don’t have to like being wrong, but we would be more successful if we were more calm about it and saw it as an opportunity to learn2.

LOCAL KNOWLEDGE... SOUNDS EASY

The use of local knowledge in IMTs has been an issue that seems to come up time and time again after significant events. It seems an easy concept – just bring some locals into the IMT to help make better decisions that reflect local community needs. So why is it an issue?

In the first hour of any event, it’s the actions of local responders and the community that will have the greatest influence on the extent of community impact, even more so if it’s a significant fire, storm or flood. It’s imperative that we view the community response as part of our local response efforts. The community is expected to react as per our advice, but we know that community will be operating from a totally different space. For our local knowledge to be of value, we must plan on what we think people in our community will actually do, not what we’d like or wish they’d do. That requires different thinking to include ‘what if’ scenarios. It means thinking and planning and it will take discipline.

As an incident impacts or threatens a community, our local responders will typically be fully occupied protecting their community, so the ability of key local people to disengage from the first hour of response to go to an IMT will always present a challenge.

Are they providing best service at the ICC or are they best served heading to the incident ground? Should local responders have a ‘set play’ where key people go or are already at the control command facility? Do we have local members from the town to provide information? There is no one answer, but the answer needs to come from the local leaders and community.

1 Gary Klein, Sources of Power 1999 MIT Press.
2 Kathryn Schulz, Being Wrong 2010 Portobello
LEARNING FROM EXPERIENCE

Severe weather event, October 2016

Background
Victoria experienced above-average rainfall during spring 2016 which resulted in emergency management agencies responding to multiple significant incidents statewide, far in excess of usual activations. Relentless rain, flooding and severe storms collectively caused significant property and road damage.

On Sunday 9 October 2016, damaging winds impacted areas of metropolitan Melbourne with wind speeds averaging 50 to 60km/h and gusts peaking at 120km/h. The resulting damage was widespread, with areas north of Melbourne and in the Yarra Valley and Dandenong Ranges severely impacted.

The severe winds and storm caused damage to homes, roads, buildings and infrastructure, with fallen trees and debris a large contributor to this damage. There were also major power outages across Melbourne with 90,000 properties affected for a significant time.

Before the storm, information from the Bureau of Meteorology and discussions held among multi-agency commanders and Victoria Police led to the decision to establish a Level 3 ICC in Dandenong to manage the incident as a Class 1 emergency.

IMT resourcing at Dandenong ICC included three deputy ICs and operations officers to cover each of the respective metropolitan areas. In addition, CFA strike teams worked with VICSES in sectors, with six divisional control points activated to support the response.

At 2.30pm, wind gusts in excess of 120km/h peaked in the Dandenong and Yarra Valley, with other areas across Melbourne receiving wind gusts in excess of 90km/h.

Emergency services received calls reporting a number of incidents caused by fallen trees, including several people trapped in damaged buildings and a person killed by a large tree falling in their front yard. A number of emergency services vehicles were damaged and responders injured by trees.

A Red Flag Warning was issued by the incident controller to all emergency services in the field, followed by a Safety Alert for falling trees being issued by the state response controller.

In the days after the windstorm, local councils worked with emergency services to help communities without power due to physical damage to lines and transformers. Community information flyers were posted at common meeting places (eg general stores, libraries, council halls) and residential door knocking was carried out by VICSES and CFA volunteers.

In total, emergency services received 3,616 Requests for Assistance (RFAs) over a three-day period, with a multi-agency response provided by VICSES, CFA, FFMVic (DELWP and Parks Victoria) and MFB to manage the huge peak.

Some key lessons identified include:

- Resource planning across the emergency management sector needs to occur collaboratively with an ‘all hazards, all agencies’ approach to ensure a high level of readiness is maintained for high periods of predicted severe weather.
- Inter-agency operability and collaboration was very strong and worked well between emergency management agencies and local government for the wind storm event. Strong relationships need to be maintained and continue to be built across the sector, with SOPs developed for incorporating a multi-agency approach to an incident with a large span of control.
- Emergency services agencies should ensure their members and relevant staff are aware of the dynamic risk assessment steps and processes and, if necessary (JSOP 8.02), organise refresher messaging or training in relevant safe systems of work used in conjunction with that assessment.
- Hazardous trees awareness programs should be delivered in a multi-agency setting, to help first responders in severe weather incidents.
LEARNING FROM EXPERIENCE

Widespread floods – Hume Region, spring 2016

Emergency management agencies responded to incidents statewide caused by relentless rain, flooding and severe storms, which collectively caused significant property and road damage.

North East Region experienced a high level of responses because of floods and storms from late July into September, with flooding in the Ovens, King and Kiewa and Goulburn Broken systems. In early October the state saw further rainfall that led to significant floods of the Ovens, King and Murray rivers.1

Following sustained activity and activations from July to September, ICCs were established in Benalla, Wodonga and Shepparton. Fatigue management and capacity to fill roles were issues with this sustained activity (particularly for Hume SES personnel), including deployments to other regions and interstate when demand locally was already very high.

When ICCs were established, SES IMT and regional control team members were supplemented with many IMT members from partner agencies including FFMVic, CFA, MFB, EMV, DHHS, DEDJTR, Victoria Police, municipalities, and North East and Goulburn Broken catchment management authorities.

What worked well?

• Although SES is the control agency for floods, IMTs had effective integration of many personnel from other agencies in IMT roles they may not traditionally fill. These roles included IC, operations and planning.
• In anticipation of the flood activity moving downstream, there was an effective strategic transition plan for escalation of IMTs from Level 2 to 3 while other IMTs downscaled.
• The focus on connection with community groups was critical. Community members had mobilised as part of the response and it was essential to understand community involvement and establish relationships between the IMT and these community groups.
• Consequence management was at the forefront of decision making by engaging specialists such as flood analysts, local government and Agriculture Victoria. By using newer technology, photos obtained from social media added to the field intelligence work undertaken by agency personnel. The use of unmanned aerial vehicles (UAVs) further enhanced the understanding of the impact.
• The intelligence section operated at both incident and regional level and assisted with effective decision making. EM-COP was used successfully at multiple locations, which again assisted with building a common operating picture.

What could we improve?

• Where personnel are working in key roles they are not familiar with such as IC for hazards, they still need to develop hazard-specific expertise or know where to obtain this knowledge.
• Guidelines for the use of EM-COP would ensure that the incident rooms are used in a consistent way. In some cases, there were multiple EM-COP rooms in place for the same event/issue.
• More detailed training is required in the intelligence role.
• The emergency management sector needs to consider how to best use social media intelligence at incident and regional level.
• Allow more time for IMTs to get established and understand the key issues when transitioning control to neighbouring ICCs.
• Ensure continuous information about potential water releases by the (federal) water authorities is provided to IMTs and RCTs so the potential impacts of water level rises can be assessed.

What would you do next time?

• SES will be briefing Level 3 ICs in Hume Region on hazard-specific aspects of flood and storm response to better prepare them for these IMT roles.
• SES NE region is developing a database of where to find information about local flood planning, community engagement (local knowledge) and locations of resources related to flood response to share with other agencies.
• Develop principles for how action-focused community groups get involved and establish productive and collaborative relationships with IMTs.
• Recognise that all communities are different and develop a community engagement plan early in the escalation phase of a significant incident.

Conclusion

The 2016 spring flooding in Hume Region was widespread and was the culmination of several months of increased activity due to storms and floods in the region. The emergency management arrangements served the region well. More agencies were involved in IMTs than ever before. The community was actively engaged in the response and there was a sense of significant improvement since the last major floods in the region. This also assisted with the transition to locally-led recovery. However, challenges remain in keeping up with social media at incident level and ensuring that the intelligence section provides quality input for decision making.

1VICSES Final Report North East Victoria Severe Weather Event from July To October 2016
LEARNING FROM EXPERIENCE

Tanker burn under

On 21 November 2016, a CFA tanker was destroyed as crews battled to control a crop fire near Swan Hill in Victoria’s north-west. The blaze was brought under control in the afternoon after burning in open country with strong, erratic winds. More than 30 crews battled the fire on the ground, supported by aircraft.

A four-person crew on a district spare tanker (that was located in the Swan Hill station as a temporary replacement) was engaged in suppressing a fire south of Swan Hill in a heavy wheat crop which burnt approximately 322 hectares.

The fire had spread from a crop north of Parsons Road, crossed the road and continued to spread south in a very heavy wheat crop up to one metre tall. The fuel load and type resulted in the truck’s radiator becoming blocked with straw, chaff and grain.

To mitigate this problem, tankers on scene were required to have their radiators cleared of the wheat every time they refilled with water.

Chaff and seed caught in the engine radiator of the spare tanker caused the engine to overheat. When this issue was discovered, the crew tilted the cab and cleared the radiator before continuing.

After one-and-a-half hours operating on the fireground, the crew of the spare tanker noticed fire breaking away from a section of the western flank which had re-ignited. They travelled across burnt ground to halt the spread of the breakaway and crossed a section of burning edge to head it off. The crew noticed the low water warning light occasionally beep and flash, but did not see or hear any indication in the cab of low water warning.

With the suppression effort progressing well and much of the fire contained, the crew noticed spot fires following the path of the tanker. Black smoke was issuing from the right rear wheels, and the driver stopped the tanker with the fire about 10-15 metres away to his right, and issued the first mayday call.

Attempting unsuccessfully to extinguish the burning section of the tanker from the deck with the short deck hose, the crew noticed extreme heat rising from the right-hand side of the tanker and realised the tanker was burning intensely. Under the impending threat of the breakaway fire bearing down on them and the toxicity of the dense smoke surrounding the tanker from both crop and burning tyres, the crew abandoned the tanker and moved to safer ground.

They used a portable radio to make a second mayday call, which was then heard by the incident controller and a DELWP crew leader. A helicopter pilot with a full load of water heard the radio communication and helped by making a water drop.

What worked well?
• Heat shield worked well.
• An early request for DMO support by the incident controller when fighting fire in a crop.
• The key principles of SOP 9.15 Mayday Radio Procedure were followed, resulting in the effective movement of the crew to safety.

What could we improve?
• Increasing awareness of the issue of fine fuel accumulating under responding vehicles.
• The need to operate from burnt ground as far as practical.
• The need to have contingency plans in case tankers become untenable, and move to burnt ground for safety. Anchor points must be established.
• Maintain radio discipline at rapidly-developing fires, especially if a mayday is transmitted.
• Familiarisation with standard and spare vehicles when located at your station is vital.
• Conducting quick vehicle checks when stand-in tankers are located at your station.
• Understanding the mechanics of the crew protection system.
• SOP 9.32 Entrapment Procedures, especially sections 3.3 to 4, must be practised in exercise drills as this may save your life.

Conclusion
Training on the basics of tanker operation, crew safety spray operation and the need for the crew to all maintain constant situational awareness are vital links that will help ensure efficient and safe firefighting in grassland and crop broadacre fires. It’s vital we reinforce the fundamentals of firefighting with tankers in grass fuels. Annual group exercises should be used to practise burnover drills, radio procedures, grassfire tactics and vehicle familiarisation, as these may save your life.
**LEARNING FROM EXPERIENCE**

**Deployment to Tropical Cyclone Debbie**

Tropical Cyclone Debbie, a category four cyclone, made landfall on the central Queensland coast, near Airlie Beach, around midday on 28 March 2017. From 29 to 31 March 2017, the weather system generated significant heavy rain and major flooding causing impacts to the heavily-populated areas of South East Queensland and Northern NSW.

As at 1 April 2017, Queensland SES had received around 25,700 calls for help. The Queensland Government had completed 4,660 Rapid Damage Assessments, predominantly in the Proserpine, Airlie Beach and Bowen regions.

Based on a request from Queensland authorities, response personnel were deployed to Queensland on 28 March 2017. Two deployments of recovery personnel were deployed to Queensland from 9 April and 22 April 2017 respectively to support recovery activity. This was the largest mobilisation of recovery personnel from multiple jurisdictions in our history and the first time a Victorian recovery deployment had been managed through the Interstate and International Liaison Unit (IILU) in the State Control Centre.

Feedback collected through the online deployment survey and operational debriefs indicated that the deployment was a very worthwhile experience for personnel. The Victorian arrangements were reported to be well managed, executed in a timely manner and fulfilled the service requirements of the initial request from Queensland.

However, there were a number of areas for improvement identified, particularly in relation to the level of information provided prior and during the deployment. It is important to clarify expectations for the deployment as early as possible (taking into consideration the usual time pressures), provide as much information as possible about the host state’s arrangements and minimise confusion about the equivalence of roles between jurisdictions.

In preparation for further deployments, there is the opportunity to have a national discussion to mature interstate resource sharing and to further improve Victoria’s interstate liaison unit processes and arrangements to support all interstate response and recovery deployments.

Personnel identified a number of lessons learned from the deployment, including:

- the value of being open to any opportunities and having individual resilience by being aware of personal limits
- the importance of flexibility, adaptability and ‘going with the flow’, particularly when things are not going to plan
- insight into the structure of Queensland’s emergency management arrangements and the relationship between the various organisations
- the benefit of seeing how other agencies work under pressure and greater understanding of processes of emergency management in other jurisdictions
- great opportunities to learn and identify processes that could be applied in Victoria.

**LEARNING FROM THE SEASON**

Each year, operational personnel across the state conduct assurance activities (eg real-time monitoring and evaluation, debriefing and review activities) to capture observations from incidents. We also collect individual observations, which are used to inform debrief planning and identify statewide trends. It’s important to use lessons learned from these activities to create change and improvement. EM-LEARN describes the model that Victoria is implementing to support the identifying and learning of lessons (https://www.emv.vic.gov.au/how-we-help/reviews-and-lessons-management/lessons-management-framework-em-learn).

The State Review Team (SRT) is Victoria’s governance group that provides guidance and advice on assurance activities and the identification of statewide/multi-agency lessons. Throughout the year, the SRT analyses data from assurance activities and individual observations to identify areas to sustain and improve, and communicates these areas in the Emergency Management Operational Review (https://www.emv.vic.gov.au/how-we-help/reviews-and-lessons-management/emergency-management-operational-reviews).

The Emergency Management Operational Review provides an overview and narrative outlining the broad spectrum of emergency management activities undertaken across the sector before, during and after emergencies. The review also includes a selection of case studies and an update on the themes and insights that highlight good practice, and changes and improvements as part of the two-year cycle of learning and improvement.

Resources are available to the sector via the EM-COP Library (Reviews-Lessons) to support conducting assurance activities. Anyone can submit observations through EM-Share (previously Observation Sharing Centre) on the EM-COP Desktop. If you have any queries, please contact your agency’s State Review Team representative (contact list available EM-COP Library > Reviews-Lessons > Contacts) or email sccvic.srt@scc.vic.gov.au.
RAISED BED CROPPING AND FIREFIGHTING

Raised bed cropping was first developed in the Wingel area of District 7. Although it’s not as common as it used to be, it presents driving difficulties if not seen because of the crop density and height. What looks like a flat paddock may contain a series of ruts that could prove dangerous to tankers and crews.

First responders should be aware that it may not be initially obvious that raised bed cropping is being used in a particular paddock. Local knowledge and observation will help identify paddocks with raised-bed crops.

Driving into a raised bed crop to attack a fast-moving crop fire will certainly be difficult, and vehicles should always endeavour to travel along the raised beds, rather than across them.

A dynamic risk assessment of the conditions should always be conducted, and consideration may be given to not driving into the paddock at all.

AIRCRAFT AND AVIATION

Aircraft are an effective tool to assist in achieving first attack success on the fireground if used early, efficiently and effectively. Below are a few simple guidelines to use when working with them.

- Determine on turnout if an aircraft is responding. (Aircraft can only be dispatched by predetermined dispatch (PDD) or through request to the RDO).
- Decide whether you require an aircraft based on fire location, current weather, fuels, predicted fire spread, further information, smoke column, etc. Don't wait until your first attack fails before calling an aircraft. Likewise, don't request or accept an aircraft if it's not required and thus limiting its availability to fires that may require it.
- Establish your fireground channel so that aircraft can communicate safely and effectively with ground crews. If this channel becomes too busy, allocate another channel (command) to ensure clear communication with aircraft.
- Ensure you communicate with ground crews and advise of firebombing aircraft working in the area of the fire. Ground crews don’t need to leave the area, just stay a safe distance away from the drop area during firebombing operations. The Air Attack Supervisor (AAS) can give information about a safe distance if required.
- Ensure you are using your aircraft in the most effective area of the fire that requires work. When the fire is contained with sufficient resources on the ground to control it, release your aircraft as soon as possible.

TRAFFIC MANAGEMENT AT EMERGENCIES

For extended firebombing operations or when multiple aircraft are operating at your fire, the incident controller must ensure an AAS is responded to assist with air-to-ground coordination of firebombing aircraft. The AAS will become the sole communicator between firebombing aircraft and ground resources, thus easing the workload on the incident controller.

The workload for firebombing pilots and accompanying AASs can be very heavy, so there is a limit to the information they can pass to the fireground. If you require detailed fire-specific information such as fireline location, fire spread rates, locating spot fires, asset threat levels, possible control lines and water points, the incident controller should request an air observer aircraft to undertake this role.

A recently-formed Traffic Flow Working Group (TFWG) has been established with representation from multiple agencies to consider the consequences of road closures and traffic disruption resulting from emergency response activities. The TFWG remit is to consider best-practice options and minimise the impact on the community arising from emergencies.
Where traffic is brought to a standstill or gridlock occurs, safety can become an issue for those caught in the congestion due to weather or the existing emergency event, and priority should be given to restoring flow at the earliest opportunity.

Inadvertent traffic disruption is identified as a contributing-yet-easily-rectifiable factor. To prevent this, responders need to consider the placement of vehicles when attending incidents so they don’t cause unnecessary and unintended road blockages. However, it’s also understood that vehicle placement may be dictated by other factors such as water access for fire trucks, hazmat incidents or to provide protection to responders.

Traffic management and the placement of vehicles should be a priority agenda item for discussion at EMTs at all levels as a matter of course. Notably, as of 1 July 2017, Road Rule 79A of the Road Safety Road Rules 2017 came into effect, requiring road users to travel at 40km/h or slower when passing stationary or slow-moving police, emergency, enforcement or escort vehicles with flashing lights and/or sounding an alarm, to provide safer workplaces for emergency responders.

The TFWG has taken a number of proactive measures to reduce the effect of road closures, most notably reviewing and updating existing road diversion plans. This work is being undertaken by VicRoads in collaboration with Victoria Police. Once completed, they will ensure the plans are readily accessible for first responders, providing timely implementation to minimise the impact of road closures. To provide suggestions or otherwise contribute to the TFWG email: traffic-flow-work-group-oic@police.vic.gov.au

**AGENCY ONLINE AVAILABILITY SYSTEMS**

In May 2016, the State Control Team (SCT) endorsed the Standard Resource Management System (SRMS) project to identify systems and processes that would enable the emergency management sector to comply with the Inspector General Emergency Management (IGEM) recommendation 1 from Wye River – Jamieson Track Fire Report.

Phase 1 was implemented in November 2017 to roll out the use of the Incident Resource Information System (IRIS) for the management and reporting of deployed personnel at all Level 2 and Level 3 incidents at ICC/RCC/SCC.

Phase 2 of the project is to implement a process to capture resource availability from multi-agency IMT personnel and the ability to report on key IMT roles by mid-2017. In some instances, it will replace manual processes (eg discrete spread sheets and other tools) used by various divisions or agencies

Phase 3 will update appropriate resource management systems to include personnel attributes, roles, capabilities and rostering information across the agencies.

Initial data from all agencies has been loaded into SRMS systems with potential for automatic uploading of information from agencies.

Further communications and user training for personnel across the state in IRIS and use of agency availability systems is planned to support the roll-out.

**EARLY RECOVERY – THE BASIS FOR LONG-TERM WELLBEING**

The very first training Red Cross emergency service volunteers are given is three letters long – PFA. Psychological first aid is the basis of all the work Red Cross does as a community-focused emergency management organisation. In the early recovery stages, this support provides the framework for the whole journey.

Red Cross volunteers develop a deep understanding of what PFA means through their training and then, more importantly, their experience in the field at house fires, large-scale disasters and exercises within the sector.

The sooner people have access to the right support following an emergency, the better they seem to cope with the recovery – however long it takes.

Many of the community members Red Cross works with say that first conversation they had with a Red Cross PFA volunteer was the first time they felt heard, understood and validated. And in situations where the overwhelming feelings for most are of a lack of control, feeling misunderstood and often totally ignored, we cannot underestimate the impact of well-delivered PFA.

**HEALTH, HEAT STRESS AND INJURY PREVENTION**

Coming into the fire season, it’s important to consider your personal health, including hydration levels, as a part of your preparedness for responding to incidents in order to reduce the risk of injury, dehydration and/or heat-related illnesses.

Proper preparation for work on the fireground should include a check-up with your doctor before the fire season, as well as a healthy diet and adequate hydration. Physical fitness and weight management will also help to reduce the risk of heat illness and promote effective performance on the fireground.
Hydration
The risk of dehydration and heat-related illnesses is increased by:
• being overweight and physically inactive
• consuming alcohol or diuretics such as caffeine
• consuming a diet high in saturated fat
• some medications and medical conditions.

To reduce your risk of dehydration and heat illnesses, you should aim to drink at least two litres of water throughout the day, every day, while also maintaining a healthy diet with plenty of fruit and vegetables to ensure electrolyte levels are maintained. Sweat loss from physical activity and/or exposure to heat may trigger the need for an electrolyte replacement product to further manage electrolyte levels. Use the ‘What colour is your urine?’ chart as a guide for water and electrolyte replacement consumption (https://cfaonline.cfa.vic.gov.au/mycfa/Show?pageId=publicDisplayDoc&docId=005419). For every 600ml of electrolyte replacement drink you should consume 1200ml of water.

Heat stress
At an incident, active rehabilitation strategies should be implemented to further reduce the risk of heat-related illnesses. These strategies include:
• task rotation
• requesting a rehab unit
• seeking shade
• removing or loosening excess clothing
• lower arm cooling
• continued hydration.

CFA health monitoring and rehabilitation teams (HMT)
CFA now has 16 rehabilitation brigades and 14 health monitoring teams (HMT) in brigades across the state. These teams consist of brigade members who have been trained in management of heat stress and exposure to smoke. Some teams also include nurses, paramedics and doctors who joined the brigades specially to work with rehab units.

The HMT/rehab units are located at Mildura, Golden Square, Yellagib, Wodonga, Mooroopna, Smythesdale, Rochester, Wonthaggi, Dandenong, Yallourn North, Paynesville, Wangaratta, Mernda, Geelong and CFA HQ (HMT only).

On days of high temperatures, structure fires, hazmat incidents (long duration or hot days), incident controllers should request a rehab unit to assist in the management of members to reduce the incidence of heat stress. A rehab unit can be requested through VicFire. HMT members are also members of the rehab units and may be part of the crew that responds to your request.

Health teams have been trained to assess members for smoke exposure and hydration levels and have specialist equipment to conduct these assessments.

BUSHFIRE/HEAT HEALTH OPERATIONS
Ambulance Victoria has reviewed its Emergency Response Plan to help prepare for, respond to and recover from complex and/or mass casualty incidents. It is designed to allow AV to respond to any major incident, while minimising the impact to business-as-usual. The AV Emergency Response Plan is escalated typically four to six times per day across Victoria. The most frequent escalations are for road traffic accidents, house fires and complex medical incidents. During the warmer months, AV is on alert for grass/bushfire operations and for heat-related health incidents. Together with DHHS, AV has developed a thunderstorm asthma sub plan to cater for this health emergency.

When confronted with a forecast for high fire danger or increased risk of heat health issues, AV will prepare by:
• escalating the AV Emergency Response Plan
• stand up the AV Emergency Operations Centre
• prepare a Health Incident Action Plan
• deploy health commanders or liaison officers to control centres
• pre-position resources as required by the hazard
• brief the operational workforce.

If AV is required to respond in-field to support bushfire operations, ambulance resources will be responded according to the number of patients and their injuries. AV will also respond an incident health commander, even if there are no injuries, to liaise with the incident controller or forward commander. The incident health commander coordinates the health response, which may include patients injured by the hazard, firefighters requiring health monitoring, and people relocated or evacuated due to the hazard.

AV may also deploy specialist resources to support the incident response. These resources include Helicopter Emergency Medical Service (HEMS), wilderness response paramedics, 4WD-trained paramedics and various vehicles supporting those resources. The incident health commander is required to report to and receive information from the emergency management team.
VICTORIAN FIRE RISK REGISTER – BUSHFIRES
The Victorian Fire Risk Register – Bushfire (VFRR-B) is Victoria’s first consistent process to identify assets at risk from bushfire. Since commencing implementation in 2009, the VFRR-B has had input from more than 160 agencies with responsibility for local fire management planning across 66 municipalities, alpine resorts and French Island. The participation of local experts has contributed to over 13,000 assets mapped and the level of bushfire risk assessed, to inform and enhance decision making related to bushfire planning and preparedness.

VFRR-B’s development over the years has seen an increase and variation in how the data is used.

Did you know the VFRR-B:
• supports and informs Municipal Fire Management Plans
• supports targeted service delivery of CFA education programs
• informed the establishment of neighbourhood safer places (NSP), targeted properties, community information guides and local response plans
• supports agencies, government departments and businesses to prioritise treatments to manage risk.
• informs consequence management including evacuation and asset protection during an incident.

The VFRR-B data layer can be found on EM-COP and the risk information can be used during incidents to help establish an informed response.

During the 2014 Grampians fires, the incident controller used the VFRR-B layer with Phoenix Rapid Fire Prediction to predict the fire’s impact. Properties with the highest exposure to bushfire were prioritised for evacuation by Victoria Police. Those properties had received a home bushfire advice visit and were aware of their risk. For more information contact the Risk intelligence Team: riskintelligence@cfa.vic.gov.au

FIRE SCENE PRESERVATION
The actions and observations of the Incident Controller and the initial responding firefighters are critical to the success of the subsequent investigation into the origin and cause of fires.

The following key points will help firefighters carry out the correct observations and actions to protect, preserve and record the fire scene.

En route to the fire
• Note the number and colour of smoke columns.
• Observe and record details of vehicles or motorbikes leaving the area along with any people in the area.
• Note if barriers have been placed to prevent the fire brigade’s access or if gates are open that are normally closed.

Fire suppression
• On arrival, note the position of the firefront, flanks and backing edge. This will help establish the area of origin. Note this area by identifying particular trees, street signs or other features.
• Don’t use straight water jets or drive fire trucks across the suspected area of origin.

Protect the area of origin
• Cordon off this designated area by placing witches hats or scene tape.
• Do not drag hose lines through this area.
• Secure the area to prevent fire trucks, firefighters and onlookers from entering. If appropriate, use a vehicle to block access or position personnel at the site to undertake this role.
• Leave in place any equipment, machinery, vehicle or items located in the area of origin which may have caused the fire. Protect any suspicious items, devices, tyre or foot prints located at the scene.
• Request for fire investigation to attend if the origin and cause of the fire cannot be determined or if suspicious circumstances exist. If the fire is thought to be suspicious, request Victoria Police to attend.
• Fire investigators will determine the origin, cause, path and impact of the fire with the findings recorded as part of the fire investigation report.

Recording the scene
• The incident controller is responsible to ensure that the appropriate agency is notified of the fire’s cause and the fire report is completed correctly.
• Information contained in fire reports is used by CFA’s Fire Investigation Section as part of the fire trend identification process and location mapping of suspicious fire ‘hot spots’ across the state.
VALIDATION OF TANKER CREW PROTECTION

Bushfire firefighting tanker vehicle entrapment and burnovers are life-threatening situations for firefighters. The most dangerous Australian tanker burnovers typically occur on a narrow track in a eucalyptus forest environment. The abundance of elevated and surface fuels between a trapped tanker and the firefront can allow for a sudden escalation of fire intensity associated with changes in slope or following a change of wind direction and/or strength.

Since the 1998 Linton bushfire, CFA has carried out research into and development of a variety of tanker crew protection methods. The research resulted in the installation of crew protection systems commencing in 2006 on new-build medium tankers and heavy tankers in the CFA fleet. A retro-fit crew protection system for all CFA medium and heavy tankers was completed on 1200 tankers prior to the 2013-14 fire season. Crew training, with a requirement of Minimum Skills and situational awareness has also been emphasised since 2000.

The CFA Bushfire Research Unit, in collaboration with the Commonwealth Scientific and Industrial Research Organisation (CSIRO) recently completed an experimental bushfire burn test to determine the survivability of crews in three differently-protected firefighting tankers in an entrapment burnover situation at Brucknell forest.

The experiment tested a medium tanker with current crew protection system, a polymer-gel-protected ultralight tanker and a Class A foam-protected ultralight tanker. The experimental test:
• validated the effectiveness of the crew protection system research and development of systems now installed on or medium and heavy CFA tankers
• provided encouraging results on the effectiveness of crew protection on ultralight vehicles provided by water-enhancing gel products.

CFA will continue the research and development of water-enhancing systems until it can confidently incorporate a validated system into the fleet.

Evidence-based tanker crew protection system improvements and bushfire situational awareness training continue to help make tanker-based firefighting crews safer on the fireground in the unexpected occurrence of a bushfire entrapment and burnover.

To watch a video of burnover research, go to https://www.youtube.com/watch?v=4ONQSjkRWi8&t=2s

GRASSFIRE BEHAVIOUR

Understanding the effect of grassland curing on fire behaviour is needed to accurately estimate a fire’s rate of spread.

One of the keys to understanding fire behaviour in grasslands is to know the annual growing cycle and, in particular, how grass curing affects the biomass available for combustion. Grass curing is the annual drying out of grass. As curing progresses, the fuel moisture content gradually decreases and the proportion and amount of dead material increases, raising the general flammability of grassland.

The proportion of dead fuel material in grassland is typically described as the curing percentage. Grass curing is understood to have a significant effect on fire behaviour in grasslands. In Australia, where grasslands cover approximately 75 per cent of the country, the degree of curing has been used as an input into the calculation of the grassland fire danger index (GFDI) and grassfire spread models.

A large field-based experimental burning program over a range of grassland fuel types was conducted to quantify the effect of curing on the rate of fire spread in partially cured grasslands. The experiments paired partially cured plots alongside artificially-fully-cured plots to observe and measure the difference in fire behaviour under the same weather conditions.

Experimental results found:
• grassfires will propagate at lower curing levels than anticipated
• current fire behaviour models under-predict the rate of fire spread in partially-cured grasslands.

These findings have been updated in fire behaviour analysts’ tools and will be incorporated in the new national Fire Danger Rating model.

There are three different examples of the paired experimental grassland burns:

Ballarat: https://youtu.be/poupSLpKCIw
Braidwood: https://youtu.be/EqobwYgL578
Wangaratta: https://youtu.be/QJ5SFjNIoC