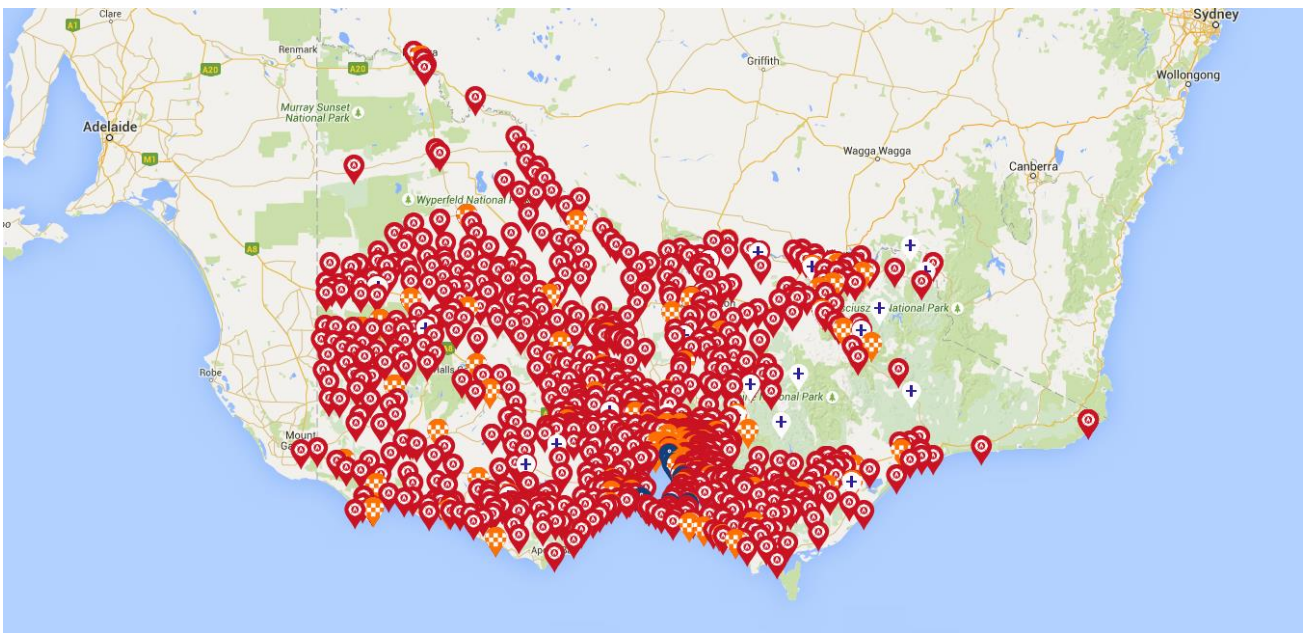


Submission for:

## Fire Services Review

# BART in Action

By Emerg Solutions Pty Ltd



**THE FIRE FIGHTER'S FRIEND**

Wednesday, 23 September 2015

Level 2, 420 Burwood Hwy Wantirna South





# Executive Summary

Emerg Solutions welcomes the opportunity to present a submission for the Fire Services Review.

We are a Melbourne-based software development company that currently provides a free service to all emergency services volunteers in Victoria. Our fully integrated software system 'BART' (Broadcast Alert Response Technology) has been designed to help CFA volunteers respond faster, communicate better and work smarter within their communities.

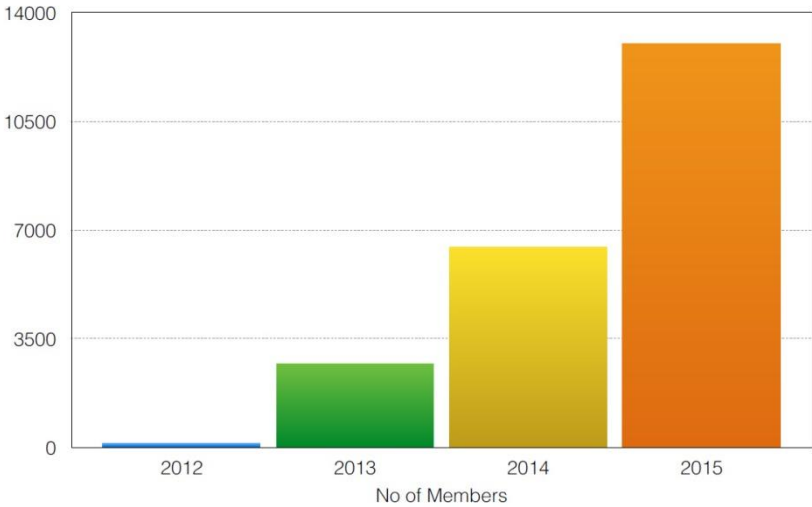
BART has been developed over the past three years with the basic concept successfully tested as part of the emergency services system at the G8 and G20 Summit meetings in Canada in 2010.

The BART system is capable of contributing to stronger community resilience, through the banding together of the different emergency services, support groups, families and entire communities across multiple districts.

Through the use of current and familiar technology, BART can improve the safety of CFA volunteers, eliminate any waste of time and resources, improve workplace culture and strengthen relationships between crew members. In addition, BART can also facilitate interoperability between the different agencies as well as between different regions and communities. BART can provide the lead agencies in Melbourne, as well as EM COP, with information to incidents during minor or major emergencies.

BART has been adopted by more than 13,000 members of various emergency services across 1,200 different groups (largely CFA units), with this number growing by 400-500 users per month. It's a robust solution that has been proven capable of coping with heavy usage during periods such as flooding, severe storms, search and rescue events, bushfires, road crash events and many other emergency situations.

Number of BART Members





Despite this, the wider acceptance of BART by Victorian emergency services has been hindered by:

- A preference by some senior emergency management personnel to use IT systems being developed overseas, despite the availability of locally developed systems such as BART that are already operating and are world leading.
- An unwillingness to accept that new technologies like BART can be a valuable, low-cost supplement to Victoria's older technology; the emergency communications pager system.
- A claim that Victoria's emergency services lack sufficient government funding to support a state-wide trial of BART – particularly during the coming fire season.
- A reluctance to provide a direct data feed from the Emergency Services Telecommunications Authority (ESTA) to the BART system, which would further enhance the speed and reliability of BART services.
- The non-adoption of a requested proposal from VisionStream by ESTA to include BART as a backup to the existing pager system in January 2015.

In combination, these factors have prevented members of the CFA particularly, along with other emergency service units, from benefitting from the full potential the BART system can offer.

We submit that Victoria's emergency services would benefit from an official full scale, state-wide trial of BART during the coming fire season.

Best regards,

**Jan Wandek FCPA**

Managing Director

P (03) 9264 8888 F (03) 9264 8800 E [jan.wandek@emerg.com.au](mailto:jan.wandek@emerg.com.au)

[www.emerg.com.au](http://www.emerg.com.au)



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# Introduction

BART is a software solution that is used by more than 13,000 emergency service personnel in Victoria and other states.

The key purpose of BART is to assist with incident turnouts using current technologies, enabling real-time communication. It is an integrated mobile app and web-based incident turnout system that offers significantly improved situational awareness over other traditional methods of communication.

Designed specifically for quick-response teams, BART has established a strong following by CFA volunteers here in Victoria as well as a range of other emergency services agencies across Australia.

Some organisations that are currently using BART include:

- Country Fire Authority (CFA Volunteers)
- Department of Environment, Land, Water & Planning (DELWP)
- Victoria State Emergency Service (SES)
- Australian Volunteer Coast Guard (AVCG)
- Ambulance Victoria (Members of Rural CERT Teams)
- West Australia Department of Fire and Emergency Services (DFES)





## **EQUIPPED AND FIRE-READY**

BART provides an essential supplement to the current pager system. By capturing the same data feeds from ESTA and processing them using a carefully crafted software system, BART is able to project a bigger and more detailed picture of the incident at hand.

Equipping volunteers with BART as a supplement for their pagers gives them access to a number of valuable enhancements. In addition to the standard messages as communicated with a pager, BART's inbuilt features assist with earlier preparation, stronger communication and better situational awareness.

## **MAPPING**

GIS locations are extracted straight from the message and used to pin point the incident location on an interactive map. Maps within BART can be loaded with additional data sets, including fire hydrant locations, water points, air fields, helicopter landing pads or any number of custom map points.

In addition, users can toggle between various map terrains and view traffic conditions to get a better picture of the situation at hand.

Routing between the local headquarters (LHQ) and the incident, as well as individual routing from current location to LHQ along with their estimated time of arrival is also communicated through BART. Members can also share their locations with one another.

## **ATTENDANCE**

When new alerts or messages come through the BART system, members have the option of responding directly through the web or smartphone applications. This gives operational crew a real-time indication of who is able to attend a particular incident, as well as their current location and estimated arrival time.

When a member is set up within the system their skill set and qualifications are entered, allowing operational staff to effectively distribute resources and make specific requests for volunteers with certain skills.



## TWO-WAY COMMUNICATION

BART encourages two-way communication between management and their crews. By utilising every day technology like smartphones, tablets and computers, a consistent picture can be shared amongst members in a natural manner that fits in with current culture.

Communication through BART can be as simple as tapping the 'accept' (green) or 'decline' (red) buttons within the smartphone app, or as detailed as an 'in-app discussion'.

Regular day to day communication between crew members helps strengthen relationships, enabling better cooperation in the field. The benefit of stronger communication can also be seen through better planning and smoother operations.

## PROTECTING COMMUNITIES

BART is able to play a significant role in creating **resilient communities**. Through the sharing of information and better communication amongst different groups within the community, BART can help anticipate risk, limit impact and increase recovery times.

Resilient communities are not only prepared to help prevent or minimize the loss or damage to life, property, and the environment, but they also have the ability to quickly return citizens to work, reopen businesses, and restore other essential services needed for a full and timely economic recovery.

## INTEROPERABILITY

Currently here in Victoria, BART is used as an easy way for fire fighters to communicate between different brigades, units and agencies. This significantly deepens the resource pool when dealing with various emergencies.

If a strategy for interoperability between the CFA and MFB was initiated by government, BART can provide an easy and cost effective way for the different agencies to communicate.





## **WORKPLACE CULTURE**

Feedback from CFA volunteers indicates that BART has helped to improve the communication and cooperation between management, operations, office and technical staff, volunteers 'on call' and field crews.

From incident response management right through to training and social events, brigades that are using BART have experienced improved teamwork and participation on a number of different levels.

BART encourages a culture, which merges everyday life and volunteering duties through the use of natural and non-confrontational communication. Through the BART system, members are able to 'stay in touch', even when they're not on call.

## **SUPPORT FOR VOLUNTEERS**

By establishing a closer relationship between regional support managers, active and non-active crew members, retired fire fighters, families and communities, a stronger support unit can be achieved.

Through better communication, a number of benefits can be seen including:

- More information can be passed on from older members to younger members
- Disaster management becomes safer, the closer volunteers pull together as a group
- Volunteers will receive greater recognition for their services within the community
- Time and resources can be saved through better planning and accountability
- Closer communities are more likely to have better resource pools
- Community engagement can mean more successful fundraising events



## **SAFETY**

BART provides the brigade members real time information on who is attending, giving the brigade management information as to qualifications of the members attending before the Appliance/ Vehicle leaves the station. Therefore, the safety of volunteer fire fighters is an integral feature of BART.

Other safety issues reported to us are:

- Better trained volunteers
- Better relationships with older members means knowledge is passed down
- Better information means better leadership and decisions
- Strengthened communication means no member will have to go without their crew (on a virtual level)
- Where one member goes, the support of the whole crew is behind them

## **BACKGROUND**

The BART Emergency Management Platform was developed through direct consultation with Victorian Country Fire Authority volunteers to offer a quick and effective method of communication and access to information, pertinent to their operations.

Since its inception in 2012, BART has seen a number of advancements in functionality, usability and popularity.

## **COMMUNITY CONSULTATION**

Feedback and ideas from CFA volunteers have come in many forms, where the most popular sources have been via:

- Website forum discussions
- Social media
- Focus groups
- Direct conversations with crew members
- District-based forums
- Surveys



The most recent survey conducted for the Australian Productivity Commission (Public Safety Mobile Broadband) has been our most comprehensive to date, where information was gathered on various issues including:

- Attitudes towards BART
- Day to day usage
- Favoured features
- How easy it is to use
- What features would users like to see in the future

The survey data showed that:

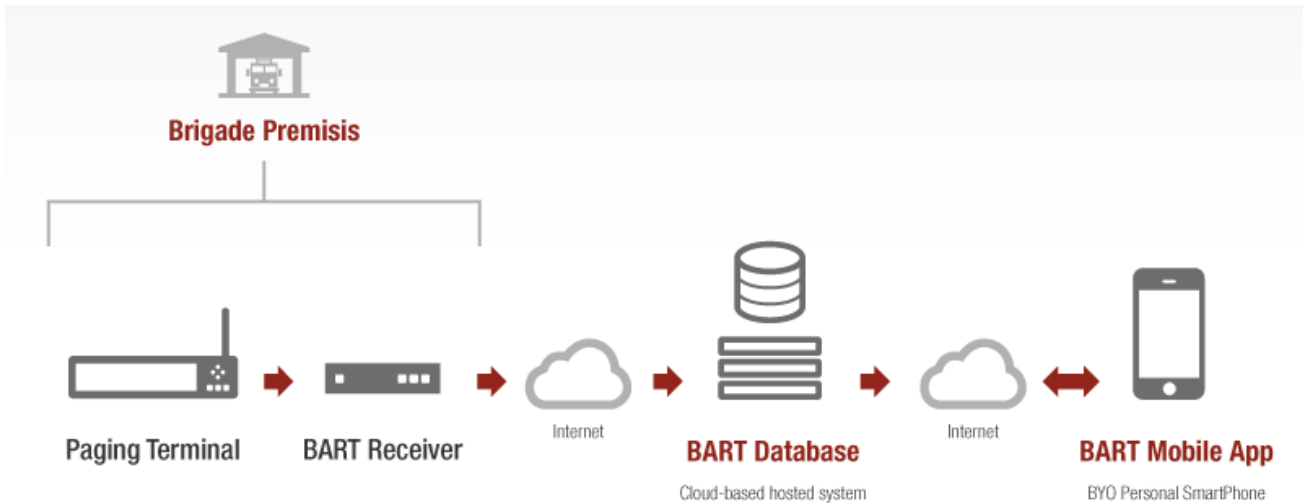
- BART helps save lives and property
- BART helps improve turnout times
- BART is an important supplement to the existing pager system
- More education is needed for those who wish to use BART to its full extent
- There are no other similar systems that CFA volunteers are currently using
- BART would be more effective in brigades if everyone used the system
- An inconsistent message is being communicated from leadership groups as to 'if', 'how' or 'why' BART should or shouldn't be used by volunteers

*(To view the results of our survey, please see our appendices at the end of the document)*

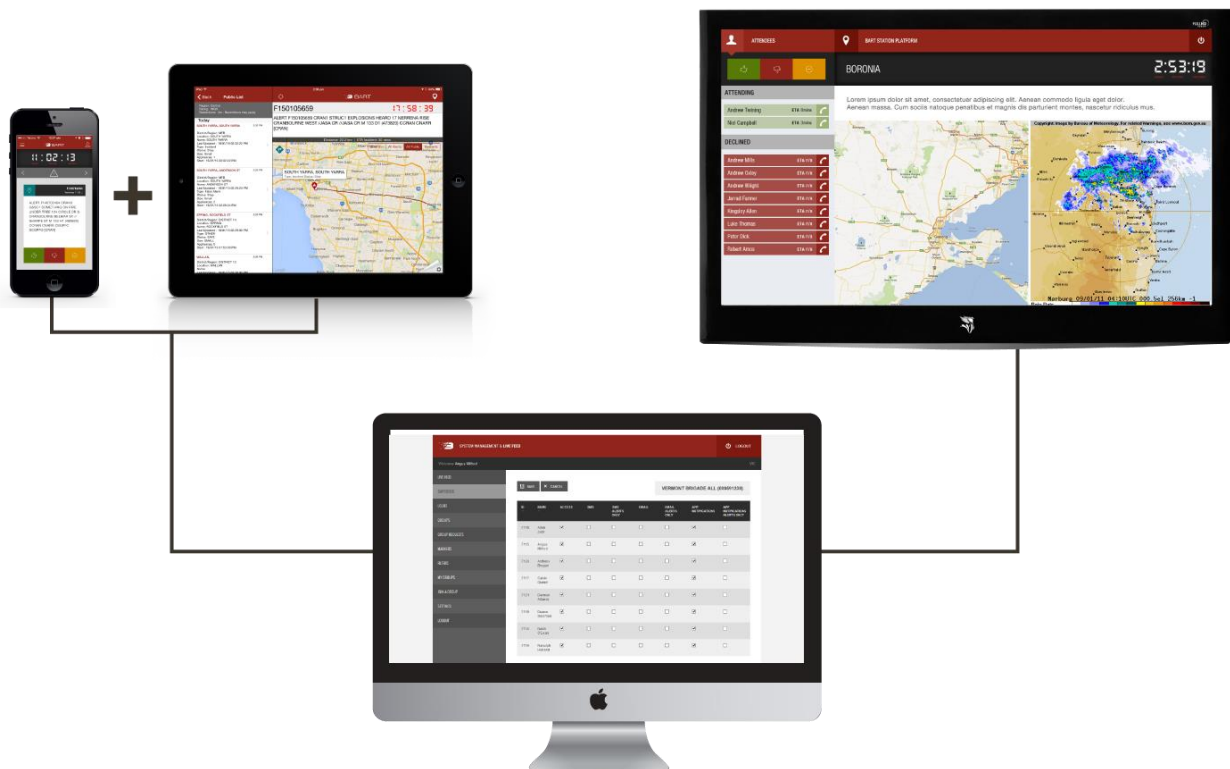


# BART Explained

BART takes an existing data feed from a CAD system, processes it through a database and projects selected information into a number of graphical interfaces.



BART operates with all major mobile devices, as well as a web-based application for administration and a simplified 'read only' version for control centres.

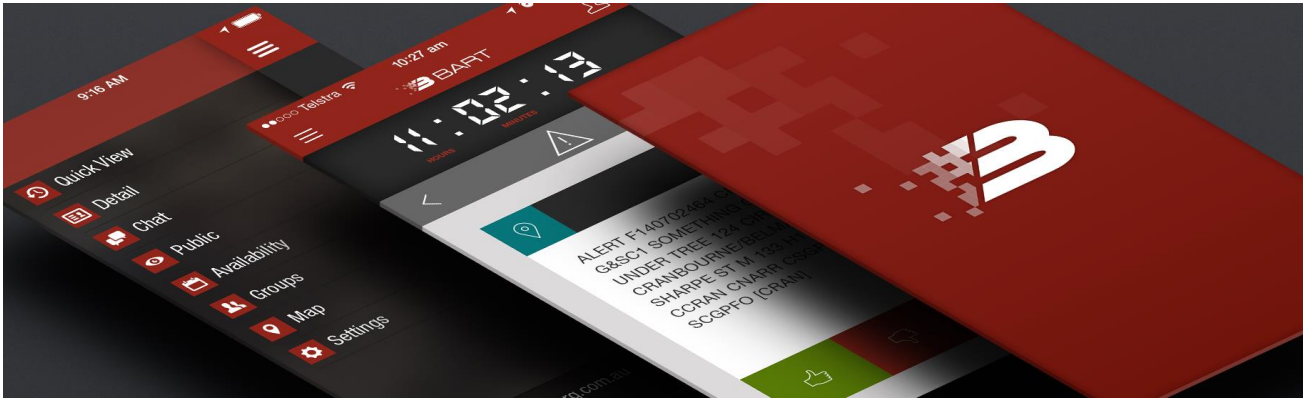


(Top Left: Smartphone + tablet devices, Top Right: Station Platform, Bottom Centre: System Management)



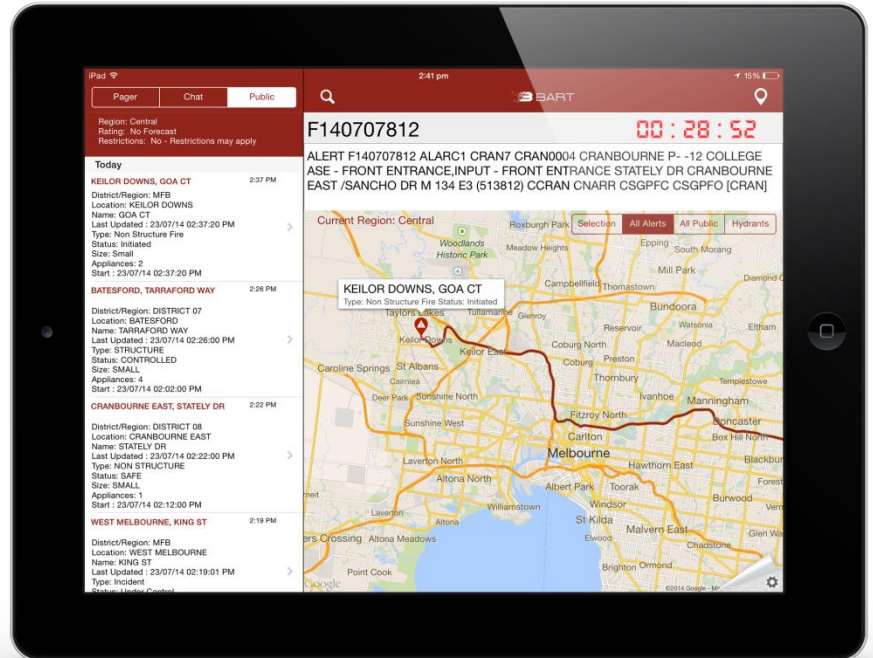
## SMARTPHONE + TABLET APPLICATIONS

The BART smartphone and tablet applications can be used anywhere at any time. Members simply download and install the application for their specific device, and login to view the data allowed through their assigned permissions.



Utilising a mobile phone application has been extremely effective due to the current culture of frequent smartphone usage. You can't go far within the community without seeing people looking down at their phone or tablet. A direct result of this culture is the likelihood that members will have their smartphone on them at all times.

The smartphone and tablet applications are currently being used as a supplement to the existing pager network. These apps have been especially useful for newer and younger volunteers who haven't yet been issued pagers, older members who may have given their pager to a more active member and those brigades who have limited pager supplies due to restricted budgets.



At times where a pager may have been forgotten or for brigades that have a shortage of pagers, a system like BART can offer an effective backup solution.



## SMARTPHONE INTERFACE

The smartphone and tablet applications have been purpose-built with an innovative graphical interface, which facilitates a solid end-user experience.

The user interface has been designed to encourage ease of use by minimising perceived choices, which in turn makes the decision making process quicker and easier for non-technical users.



*(Smartphone application interface)*



## HOW THE SMARTPHONE APP WORKS

In its simplest form, BART works by funnelling a data feed through to the application (smartphone, tablet or web-app).

Once the message or alert is received via push notification, email or SMS, members then can then indicate their attendance intentions straight off the app. This provides a clear overview of who can or can't attend along with their skills and qualifications, their current location and their estimated time of arrival at the headquarters of the emergency services unit.



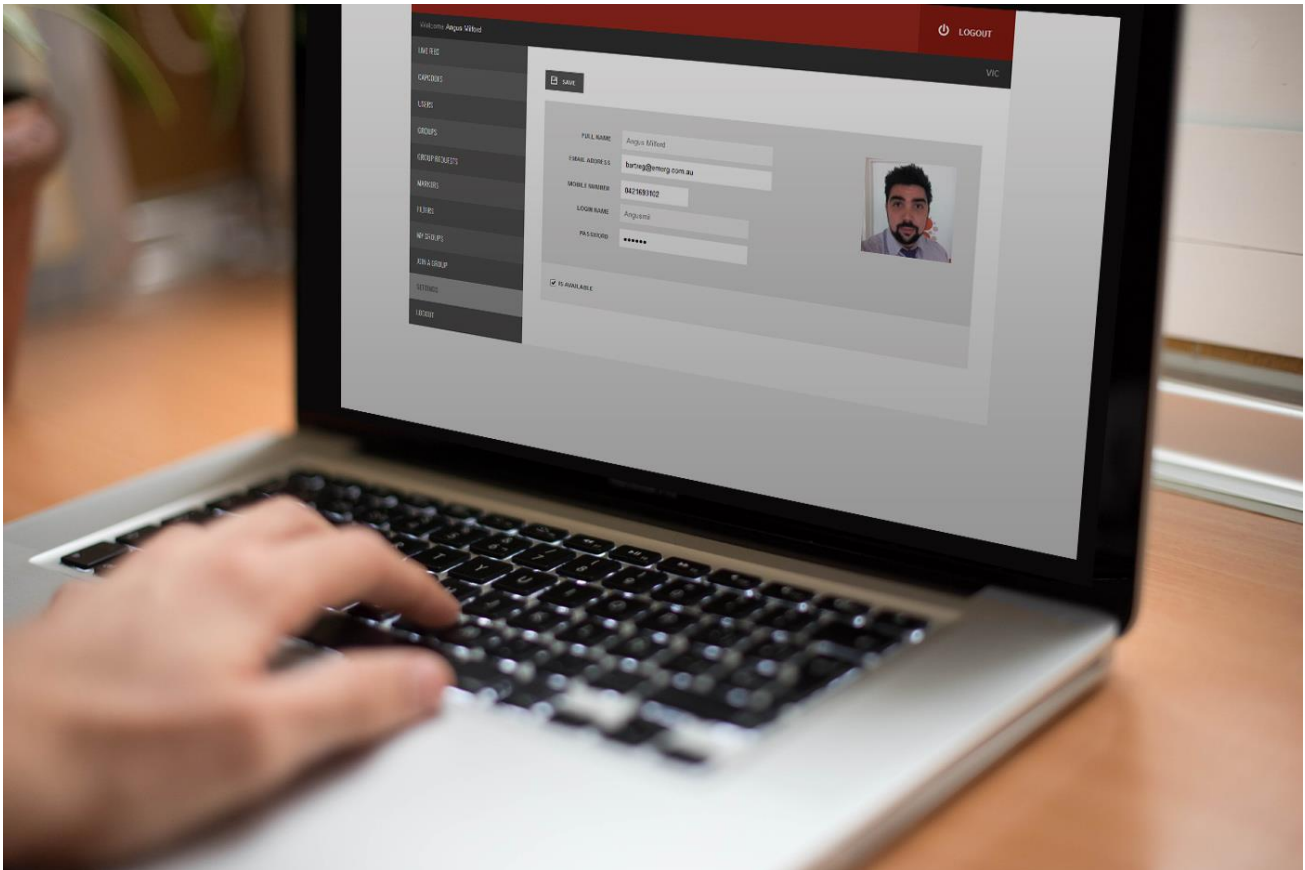
*(Message is passed through to the BART application and is accessed by members)*

BART offers a whole host of features that have been designed to help CFA members work better, safer and smarter than ever before. For a full list of BART features, please see the [Features & Benefits](#) section of this document.

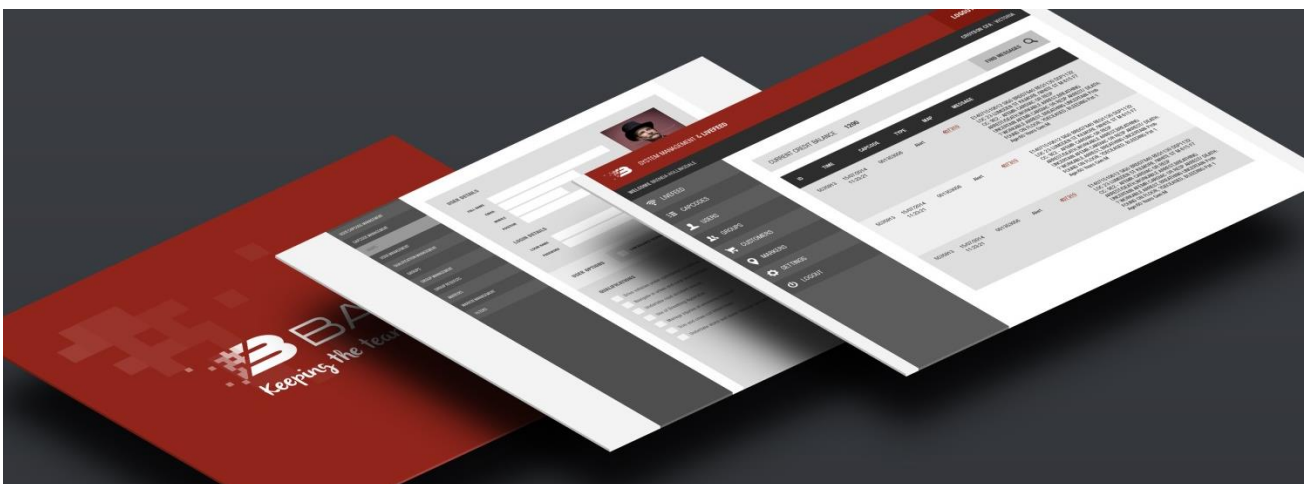


## SYSTEM MANAGEMENT

BART System Management is a web-based application that lets captains or administrators take full control of their crews. They can assign specific feeds, create and delete groups, add markers for maps and edit account privileges and information for specific team members.



In addition to the administrative features, the System Management web application gives users access to all alerts and messages relevant to their crew in real-time.



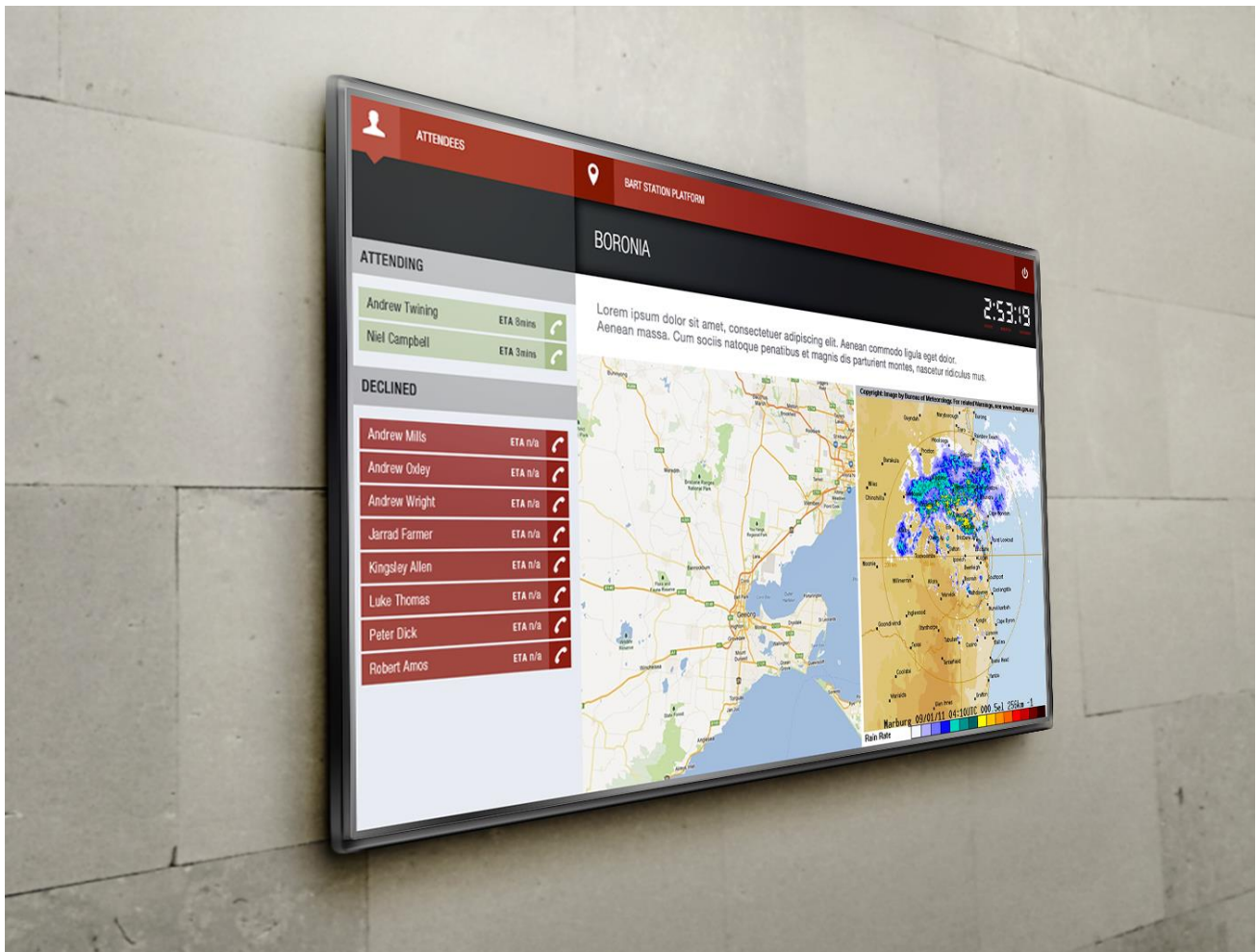




## STATION PLATFORM

Situational awareness is the key to effective emergency management. The BART station platform provides for a Geo-enabled common operating picture, which empowers users to make the best decisions at the right times.

Real-time visibility of incidents, teams and resources allows for accurate situational intelligence of any emergency situation.



To use the BART Station Platform, stations need a computer or laptop with access to the internet and a computer monitor or television screen. Many stations find that a wall mounted television monitor is the most effective setup, with some opting for multiple screens.



## FEATURES & BENEFITS

### DATA FEEDS

Approved users are able to receive their EAS pager messages directly through the BART system, which can be accessed with their smartphones, tablets, laptops or desktop computers.

BART is compatible with a whole range of data feeds. The system has successfully been integrated with BOM weather feeds, CFA and other RSS feeds, VisiCAD integration feed, Integraph integration feed and GIS data feeds.

BART also can be integrated with EM COP to provide intelligence during any local, regional or state wide emergencies

### TEXT TO VOICE

BART utilises text-to-voice as a means for alerts and messages to be read out automatically through the system. This frees up users from reading messages on the go, and is especially useful in a control centre environment.



### ALERTS AND NOTIFICATIONS

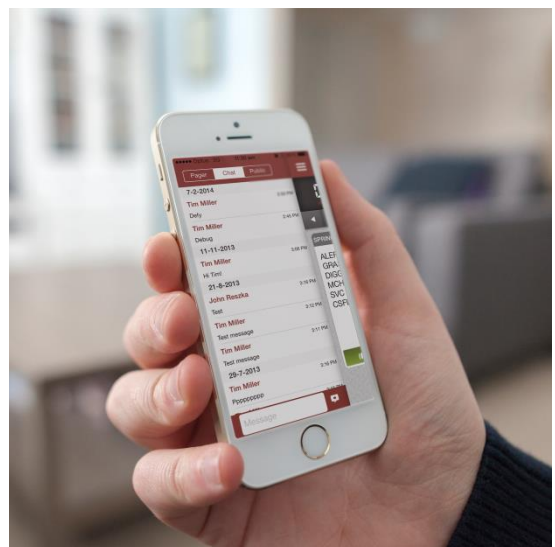
Users are able to send and receive alerts and notifications through SMS messages, Push notifications, or via email.

### REAL TIME COMMUNICATION

BART allows you to oversee all conversations and responses as they happen, which enables the most educated management decisions to be made; without delay.

### MINIMISATION OF SINGLE POINT OF FAILURE

BART has been installed on a redundant server infrastructure using SQL server clustering technologies over multiple locations, whilst using replicated SAN storage solutions.



This provides a high level of availability with redundancy to minimise a single point of failure.



## MAPPING & GEO-LOCATION

Geo-location serves many purposes within BART by providing enhanced spatial awareness for members traveling to the station, those already waiting at the station and management or operational crews.

### BOM Radar Imagery & RSS Feeds

The Bureau of Meteorology radar weather map feed gives real-time updates from within the BART system.

This provides users with a valuable insight into changing weather conditions, which can help members prepare ahead of time.

### Mapping Display Options

Users can choose between standard, hybrid, satellite or terrain displays, giving them superior insight into the fastest and safest travel routes.

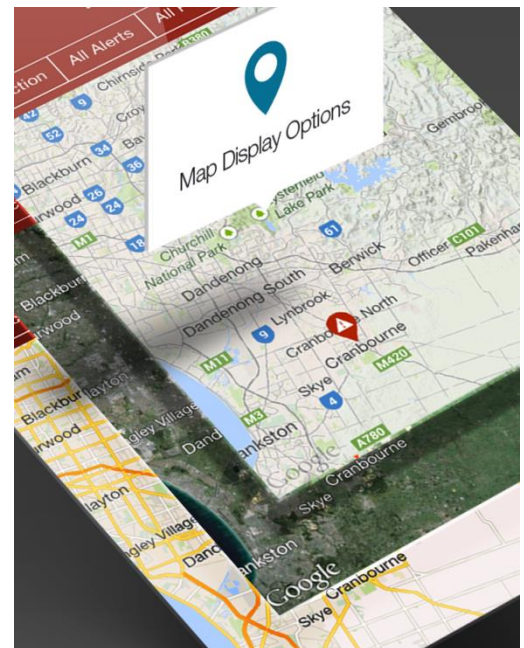
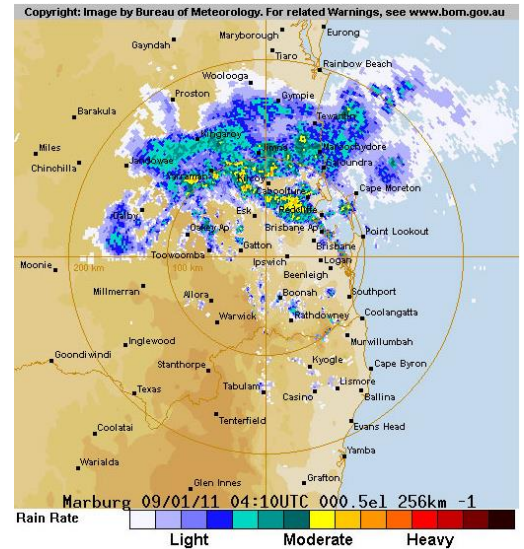
### Geo-coding of Incident Locations

Geo-coding allows the exact longitude and latitude of incident locations to be identified and displayed. The map marker's location is based on the actual incident address, which is extracted from the incident message.

The incident location provides members with an instant overview of distance and terrain types between the incident and brigade headquarters.

### Reverse Geo-coding of Grid References

Reverse geo-coding allows us to take the 6-digit grid reference provided in the incident message, and display the grid reference location on a map. This helps volunteers to get an instant feel for the incident location before referring to their map books.





## ETA via Geo-location

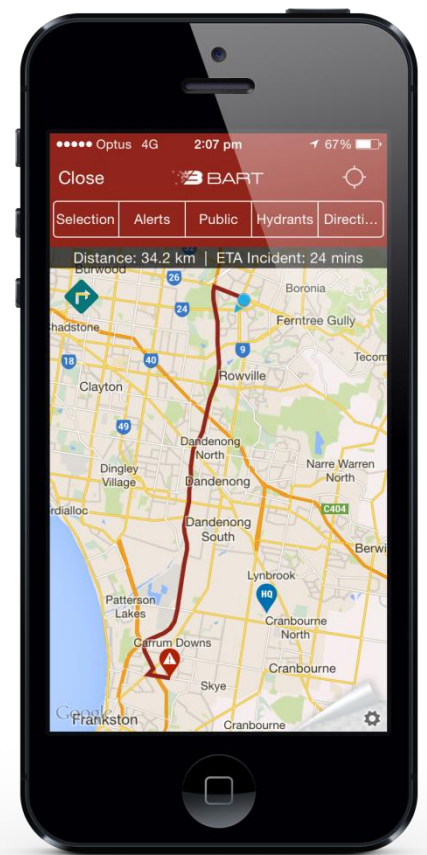
Utilising geo-location, users are able to see the estimated time of arrival (ETA) of other members to their LHQ (local headquarters) after an attendance button (accept or decline) has been pressed. This gives members and operational staff a realistic idea of how far away their team members are, which allows for better preparation.

## Polyline Incident Routing

BART offers multiple routing options through the use of polylines. Members can choose routes from their current location to the:

- Incident location
- Local Headquarters (LHQ)
- Incident via LHQ

Additional information including traffic congestion and estimated time of arrival (ETA) can also be determined through this feature.

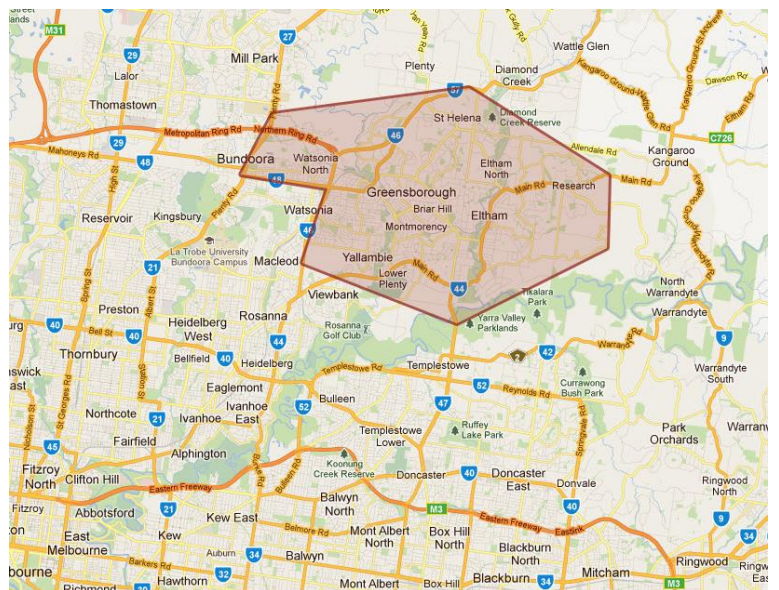


## Geo-fencing

A Geo-fence is a virtual perimeter for a real-world geographic area.

The public information feed that BART offers by default operates by using geo-fencing. By determining a user's region through geo-fencing, the system can provide the most relevant region data.

Members are able to see incidents across the whole region (and neighbouring regions), allowing them to see how likely it is for them to be called for duty.





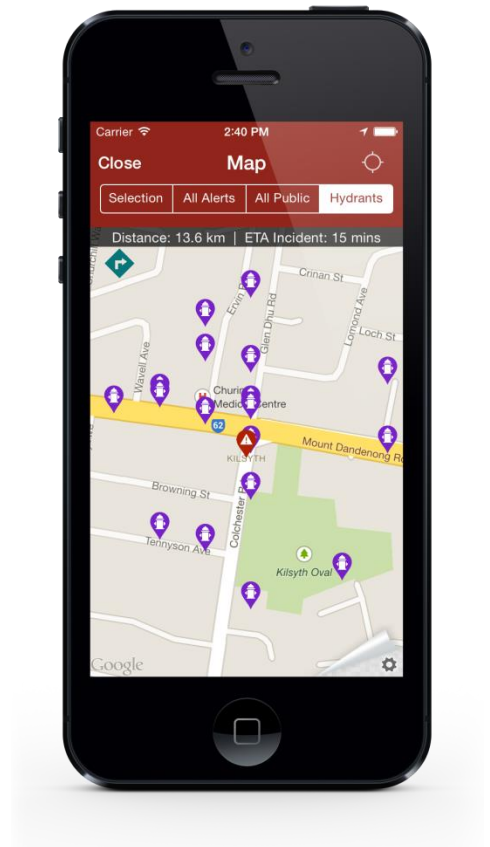
## Data Sets

BART can integrate with any number of mapping data sets, allowing users to toggle between different layers of information. This allows members to instantly locate a range of incident-critical resources.

BART caters for all types of public and private information feeds.

Data feeds can include:

- Road hazards
- Current Weather and forecasts
- Flood maps
- Disaster zones
- Emergency Shelters
- Hurricane evacuation routes
- Bush (forest) Fire warnings
- Storm reports



## Crowd Sourced Data

Individual units/brigades are able to add their own locations and markers to their maps, which can be seen by other users within their group.

Future system updates will allow members to collect and share data relating to the location and condition of fire hydrants and other important infrastructure.

## MEMBERSHIP PERMISSIONS

### Administrators

BART members with administrator permissions are able to log in and use the smartphone and tablet apps as normal. The difference in permissions can be seen only in the System Management web application.

In System Management, members are able to view and edit the capcodes that are assigned for their group(s). Administrators are able to control the access levels of other members within their group, as well as the types of notifications they are sent. I.e. SMS, email, or push notification.

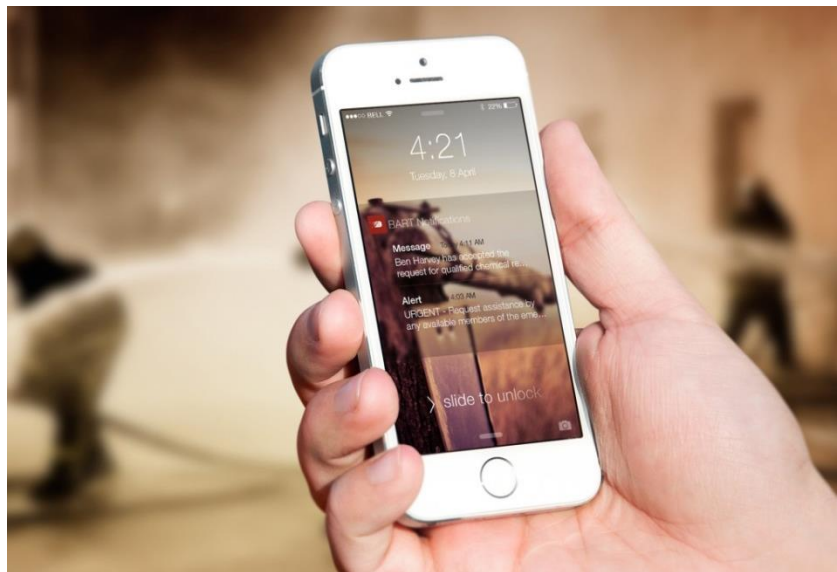
Administrators are also able to add and edit user information for other members within their group(s), add or edit map markers and add or edit filters based on incident type.



## Standard Members

Standard BART members only have access to select areas of the System Management, where they can only see their latest message feed and edit their own user details.

Standard BART members have full access to interact with other members via the smartphone and tablet applications.



## Observer Accounts

Observer accounts are provided for those who can benefit from the information feed, yet don't have the need to interact with other members.

Those people who would be appropriate for observer accounts could include trainees, volunteers within the community and CFA office members.

## ROSTERING

Members can set their projected availability, giving management teams the opportunity to foresee possible shortfalls in personnel and act accordingly.

## GROUPS & TEAMS

### Groups

BART allows users to be members of multiple groups, across several different agencies. This encourages interoperability between the various emergency services, offering an integrated approach to emergency management.

### Strike Teams

Strike teams can be set up within groups to allow for fast, targeted deployment. By utilising BART's qualification list, administrators are able to quickly and effectively select strike team members based on their specific skill sets.



## TURNOUT DASHBOARD

BART records the time elapsed since a message has been sent out, as well as the time that each member has responded with 'accept', 'decline' or 'other'.

Using the systems Message Timer in association with the member's response, we can provide the CAD Dispatch Centre or Leading Agencies with a real-time overview of what's happening at a brigade level across the whole state.

Below is an example of the Turnout Dashboard, showing a list of the most recent incidents and an overview of the attendance from the relevant brigades. Triggers have been put in place, which alerts the officers in the control centre if the alert message hasn't been responded to within the required time frame.

BART TURNOUT DASHBOARD							
AREA	CODE	MESSAGE	👍	👎	🗨️	MEMBERS	TIME ELAPSED
ROCKINGHAM	F141100026	ALERT F141100026 CRAN3 G&SC1 UNDEFINED FIRE 25 FILOMENA CT CRANBOURNE NORTH/ GABRIELLA CT M 129 K9 (495835) CCRAN CNARR CSGPFC CSGPRO [CRAN]	0	0	0	15	0:05:09
EAST KIMBERLEY	F141100026	ALERT F141100026 CRAN3 G&SC1 UNDEFINED FIRE 25 FILOMENA CT CRANBOURNE NORTH/ GABRIELLA CT M 129 K9 (495835) CCRAN CNARR CSGPFC CSGPRO [CRAN]	0	0	11	12	0:04:25
KALGOORLIE	F141100026	ALERT F141100026 CRAN3 G&SC1 UNDEFINED FIRE 25 FILOMENA CT CRANBOURNE NORTH/ GABRIELLA CT M 129 K9 (495835) CCRAN CNARR CSGPFC CSGPRO [CRAN]	0	0	2	16	0:02:17
PORT HEDLAND	F141100026	ALERT F141100026 CRAN3 G&SC1 UNDEFINED FIRE 25 FILOMENA CT CRANBOURNE NORTH/ GABRIELLA CT M 129 K9 (495835) CCRAN CNARR CSGPFC CSGPRO [CRAN]	8	5	0	13	0:01:48
WOOROLOO	F141100026	ALERT F141100026 CRAN3 G&SC1 UNDEFINED FIRE 25 FILOMENA CT CRANBOURNE NORTH/ GABRIELLA CT M 129 K9 (495835) CCRAN CNARR CSGPFC CSGPRO [CRAN]	8	5	2	16	0:03:06
TENTERDEN	F141100026	ALERT F141100026 CRAN3 G&SC1 UNDEFINED FIRE 25 FILOMENA CT CRANBOURNE NORTH/ GABRIELLA CT M 129 K9 (495835) CCRAN CNARR CSGPFC CSGPRO [CRAN]	8	5	2	18	0:02:19
DWELLINGUP	F141100026	ALERT F141100026 CRAN3 G&SC1 UNDEFINED FIRE 25 FILOMENA CT CRANBOURNE NORTH/ GABRIELLA CT M 129 K9 (495835) CCRAN CNARR CSGPFC CSGPRO [CRAN]	2	2	6	19	0:04:49
KALAMUNDA	F141100026	ALERT F141100026 CRAN3 G&SC1 UNDEFINED FIRE 25 FILOMENA CT CRANBOURNE NORTH/ GABRIELLA CT M 129 K9 (495835) CCRAN CNARR CSGPFC CSGPRO [CRAN]	6	5	2	13	0:01:55



## TECHNOLOGY

The BART backend application server is developed using Microsoft .Net framework, which is installed onto Microsoft Windows server Operating systems. The data storage is contained on a Microsoft SQL Server Database.

### The System includes the following parts:

- All sent messages are first stored into a queue before sending, this ensures an asynchronous process in sending messages, which can provide for prioritization, data integrity and provides for a continuous messaging service, which can be audited for speed and reliability.
- Queued messages are then send using multiple redundant backend messaging services for email, SMS and push-notifications. These services and queue are then monitored by independent services which checks for queue level and uptime.
- A Web application front end to provide for administration facilities, end-user messaging and incident management facilities.
- Native iPhone, iPad, Android and Windows Phone applications provide for system end user facilities for mobile users, which can be used to send and receive messages.
- Authentication is handled using an independent database and service to handle the authentication across multiple environments. This provides for a common application gateway for independent environments so that the single application can be used to connect to multiple privately hosted messaging systems.
- The authentication server can be physically installed remotely from the application server as authentication is done via web service API. This enables the authentication services to be installed closer to the Network directory services for Single sign on. BART has the facility for users to be authenticated by Active Directory.
- All remote 'server-to-server' and 'server-to-client' communication is handled using web services over HTTP or secure HTTPS protocols.







## **PERFORMANCE**

BART requires a data feed that is generated through the Emergency Services Telecommunications Authority (ESTA). Currently the feed is first transmitted through the Emergency Alerting System (ESA), then passed onto a paging terminal, and then passed through to our BART receiver. Without access to a direct feed from ESTA, BART users will always experience some form of lag.

The timeliness and reliability of BART would be significantly improved a direct feed was provided from ESTA.

## **ROBUSTNESS**

Funding from the Victorian Government would allow members to utilise an additional feature of BART, which is the extra safeguard offered through SMS.

By default, BART utilises 'Push Notifications' to alert members of new events or messages. Push Notifications require an internet connection, where members who might be out in more remote locations experience issues.

For areas where coverage is particularly bad, SMS alerts are a way of making sure vital information is received on time. Unfortunately most CFA brigades don't have the budget for SMS credits, where the people that need them the most are the most likely to miss out.

If funding was provided for rural CFA brigades, SMS can help give members with communication issues a better chance of receiving important information.

## **EDUCATION & TRAINING**

The Victorian Government's funding of BART would enable better training, resources and support for members.

As part of its continuing development program, Emerg has recently upgraded the BART website, which provides users with an area for documentation, frequently asked questions and a discussion forum. Even with these new resources however, members are still not receiving enough education to allow them to get the best out of the system.

The development of a training schedule for both administrators and standard users will provide everyone with the knowledge they need to get the most out of BART.



# Into the Future

BART is representative of the expanding recognition that everyday technology can be harnessed to make our lives easier. Through the streamlining of communication specifically for emergency services workers, the benefits can be experienced by entire communities.

## **USABILITY**

The BART system has been carefully crafted with the end user experience in mind at every step of the way. It was designed in a way that allows anyone to use it, regardless of age, equipment or technical ability.

Although the people who don't own a smartphone are becoming far and few between, volunteers who don't have access to one can still receive updates via email or SMS.

## **STABILITY**

BART has been operating 24/7 for over two years. During this time the system has endured a number of 'high stress' events, which have proven BART to be a reliable resource during times of extreme use.

## **SYSTEM GROWTH**

By marrying up the ideas of the volunteers with the technological possibilities, we have and will continue to innovate and improve BART.

By refining the system to meet the wants and needs of emergency services personnel, we're able to contribute to effective incident management that could potentially save lives and property.

## **ECONOMIC GROWTH**

BART is a system that can be used universally by emergency services personnel throughout the world. Interest for the system has spread across Australia, and has seen BART gain international attention also.

The suggested full-scale trial of BART throughout Victoria during the coming fire season would help publicise BART as a global solution, which would in turn help stimulate significant growth in Victoria's IT industry and the Victorian economy.



## **SCALABILITY**

BART has the ability to scale from a brigade level to a corporate management level, and right through to a federal operations level. Information can be shared from the ground up, where the data can be grouped and assessed for high level reporting and planning.

The system has been designed with performance and scalability in mind and currently accepts data feeds from multiple sources. System resilience includes secondary paging terminals to guarantee 100% message uptake.

The database has been designed with the same principles used to develop previous systems by Emerg Solutions ensuring that BART will be highly scalable and can handle massive increases in data. This enables the system to accept unlimited users with no reduction in performance. Cloud hosting enables the system to be setup with replication as required.



# Who are we?

## HISTORY OF EMERG

Emerg has a history spanning more than 30 years working with state and local government in a variety of projects including websites, Smartphone applications and software solutions.

The company began operating within the Australian technology industry in the early 1980s, where it has since established itself as an internationally esteemed software development company.



Emerg is involved in all forms of Smartphone application development, web design and development, graphic design, software development and website hosting. Our wide ranging skill set allows us to offer elite software solutions, which regularly exceed client expectations.

## COMPANY VALUES

### ENVIRONMENTAL SUSTAINABILITY

Emerg recognises the importance of protecting our planet, and has made substantial moves to minimise the impact of the business processes.

Our commitment to environmental protection, preservation and sustainability is executed in the form of purchasing policy, waste reduction, recycling, paperless office and supplier selection.





# Appendices

1. APCPSMB - A P C-Public-Safety-Mobile-Broadband.pdf
2. BART-Survey2015-Highlights.pdf
3. APCPSMB - BART\_Survey\_Data\_Q01.pdf
4. APCPSMB - BART\_Survey\_Data\_Q02.pdf
5. APCPSMB - BART\_Survey\_Data\_Q03.pdf
6. APCPSMB - BART\_Survey\_Data\_Q04.pdf
7. APCPSMB - BART\_Survey\_Data\_Q05.pdf
8. APCPSMB - BART\_Survey\_Data\_Q06.pdf
9. APCPSMB - BART\_Survey\_Data\_Q07.pdf
10. APCPSMB - BART\_Survey\_Data\_Q08.pdf
11. APCPSMB - BART\_Survey\_Data\_Q09.pdf
12. APCPSMB - BART\_Survey\_Data\_Q10.pdf
13. BART-Testimonials.pdf
14. SIBA-award.pdf
15. SIBA-AwardLetter.pdf
16. BART-KeepingTheTeamTogether.pdf
17. Warracknabeal-Herald Article.png
18. BART-UsageVictoria2015.pdf