



**WHEN EVERY SECOND COUNTS:
INTELLIGENT TECHNOLOGY
SPARKS SAFER AND FASTER
FIRE RESPONSE**

**IMPROVE FIREGROUND SAFETY AND
EFFICIENCY WITH CLEAR, RELIABLE AND
INTELLIGENT COMMUNICATIONS**

MEETING INCREASING FIREFIGHTER DEMANDS

From command to the front line, your firefighters put their lives on the line every single day. Yet, they are under constant stress and pressure from a lack of critical personnel, resources and funding to be their best.

A shocking 65 percent of departments lack basic tools such as water-resistant radios for their firefighters, and 39 percent of all fire departments do not have enough personal alert safety system (PASS) devices to equip all personnel on shift, according to the 2010 National Fire Protection Association (NFPA) Needs Assessment Survey. Meanwhile, accountability remains a challenge on the fireground – and thus continues to be a major safety concern.

To address these challenges, you need purpose-built equipment that delivers clear, reliable voice and data communications both indoors and out. You need better information about the situation and incident surroundings to enable greater safety and effectiveness. And you need a platform that enables seamless integration of intelligence into every single response.

HELPING FIGHT FIRES SINCE 1941

We understand that you want your department to respond faster, extend their situational awareness further, and collaborate better – to ultimately achieve better outcomes. At Motorola, we have worked over 75 years with fire and rescue services across the world to continuously meet your evolving technology needs. From planning, to funding, to deployment and beyond, we are honored to provide you with the mission critical communications your job demands and we take pride in continuing to develop these comprehensive, leading-edge technologies with you as our trusted partner.

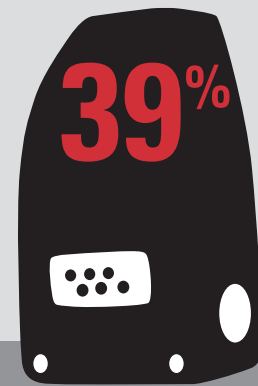
AN INTELLIGENT APPROACH TO FIREFIGHTING

Intelligent communication platforms give firefighters the ability to access actionable information both on the way to and on the scene of an incident. Always available voice and data keeps them connected, while situationally aware applications get them to their destination safer and faster. Integrated dispatch tools deliver relevant information from the incident to the palms of their hands before arrival, and once on the scene, they can avoid injuries armed with telemetry sensors that monitor location, equipment statuses and environmental conditions.

Through our work with customers and partners like yourself, we are innovating these technologies that are helping firefighters respond more effectively while keeping them safer.



**OF FIREFIGHTERS LACK
WATER-RESISTANT RADIOS²**



**OF ALL FIRE
DEPARTMENTS
DO NOT HAVE
ENOUGH
PASS DEVICES
TO EQUIP
ALL PERSONNEL
ON SHIFT²**



**OF ALL FIREFIGHTER FATALITIES
OCCUR FROM STRESS OR
OVEREXERTION³**



BETTER INTELLIGENCE LEADS TO BETTER OUTCOMES

When it comes to fighting fires, having clearer, more reliable communications for better situational awareness can be the difference between life and death. Real-time access to equipment statuses and personnel locations – indoor and out, mean better decisions that lead to better outcomes – outcomes that improve fireground safety and the safety of the communities you serve.

CONNECT WITH THE CITY

Technology allows your department to tap into your best source of intelligence – the city itself – to obtain invaluable insight and efficiency. Video feeds from security cameras next to a burning building can be accessed to give firefighters eyes on the ground before they even arrive at the incident scene. Building plans can give insight into the best entry into a building. Social media communications can give firefighters up-to-date developments from bystanders providing additional insights and information.

PROCEED WITH INTELLIGENCE

The right technology solutions allow your personnel to proceed with intelligence – and respond faster and more effectively when lives are on the line. For instance, fire station automation and alerting gets

firefighters to the scene faster and safer, thanks to the text-to-speech relay of relevant incident information, automated bay door openings, and the delivery of incident location information. While on the way to the scene, radio talkgroups are automatically changed to the appropriate incident talkgroup as they enter a geofence. Firefighters also continue to receive valuable incident information such as building floor plans, hydrant locations and real-time video over broadband networks to LTE devices to help better determine what immediate action to take upon arrival.

Once on scene, purpose built radios paired with next-generation integrated technologies are relied on for clear and always available communication but also to monitor firefighter locations, environmental conditions and equipment statuses – and automatically notify incident command when a firefighter might be in danger. Every step a firefighter takes is visually mapped in 3D for accurate location tracking inside a burning building, aiding in ensuring all firefighters are accounted for throughout the response. Meanwhile, real-time video streams from cameras and drones provide a 360 degree view of the incident scene.



**“THE RADIO IS THE MOST RELIED UPON
PIECE OF EQUIPMENT A FIREFIGHTER HAS
AT THEIR DISPOSAL.”**

- Lt. Dave Hudik, City of Elgin Fire Department



INTUITIVE EQUIPMENT THAT DOES NOT DISTRACT

MANAGE THE COMPLEXITY

Technology is more complex than ever before, so delivering a superior user experience – along with the highest levels of reliability and security – is critical. In today's world of abundant data, those on the fireground can quickly become overwhelmed with unnecessary information.

Technology that helps your personnel stay focused on the response – instead of distracting from it – is a priority .

Take advantage of a platform that is not only reliable, but expertly designed to turn the flood of information available today into a seamless flow of critical intelligence delivered via an integrated, intuitive experience. Experience technologies that keep your firefighters safe with only the push of a button – or better yet don't require user interaction at all. Ensure seamless operation throughout your response with a partner that can manage the complexity with you.



**"WE HAD PEOPLE WHO HAD TO
LEARN JUST BY US SAYING, 'HERE'S
YOUR RADIO.' FOR THOSE PEOPLE
TO BE ABLE TO PICK THE RADIO UP
OUT OF A CHARGER AND BE ABLE
TO OPERATE IT, THAT WAS HUGE."**

- Rusty Griffith, Assistant Chief of Planning,
Magnolia Volunteer Fire Department
(In response to an APX™ Radio deployment
amidst a wildfire outbreak)

KEEPING BAD SITUATIONS FROM TURNING WORSE

When a call comes in, technology should immediately begin delivering the right intelligence to the relevant personnel for a faster response and ultimately a safer outcome.



4:30 p.m.

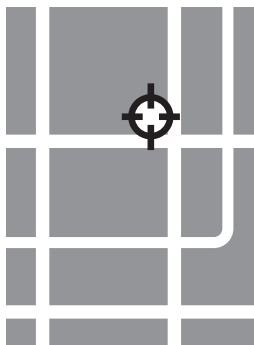


FIREFIGHTER INTELLIGENCE

Dispatch alerts the nearest fire station to a call. Mapping information and dispatch details are automatically displayed on the station's incident display board. Doors on the station automatically open for exit and appliances such as the stove are automatically shut off.



4:32 p.m.



Firefighters are automatically routed to the incident scene via the mapping display in their emergency vehicle. On the way to the scene, firefighters receive intelligence from video feeds near the incident as well as information on hydrant statuses and building plans on their mobile devices.



4:39 p.m.



Firefighters arrive at the scene and enter the building to search for individuals trapped inside, armed with radios as well as sensors monitoring their equipment statuses and their exact location.

INCIDENT COMMAND INTELLIGENCE

Dispatch begins sending relevant incident data such as location, records, video feeds and premise/hazard information to the commander's handheld device.

Incident command is automatically routed to the incident scene via the mapping display in the command vehicle. On the way to the scene, they receive additional intelligence from video feeds near the incident as well as information on hydrant statuses and building plans on their mobile devices. Incident command is also able to see in real time the units which are responding to the incident and their estimated time of arrival.

Incident command receives real-time statuses from firefighters and can view firefighters' exact location on a 3D map on a mobile computer. The commander also gets a 360 degree view of the building from a deployed drone. Noting an emergency has been initiated from an immobile radio the, incident command calls for a PAR check.

ENABLED WITH THE RIGHT INFORMATION TO MAKE THE BEST DECISIONS FIREFIGHTERS TOOK CONTROL OF THE SITUATION FOR THE BEST POSSIBLE OUTCOME.



4:40 p.m.



FIREFIGHTER INTELLIGENCE

All on-scene personnel respond by hitting the push-to-talk button on their radio – except one. A man-down alert is sent to incident command.



4:45 p.m.



The extraction team heads directly to the location of the fallen firefighter. Not a second is wasted.



4:48 p.m.



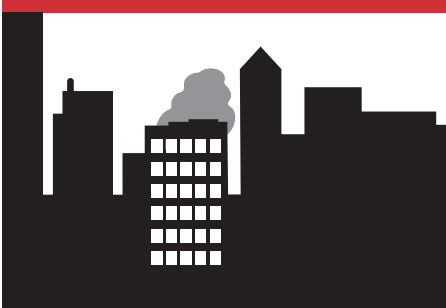
The Rapid Intervention Crew brings out the fallen firefighter. And efforts are focused on fighting the fire after clearly hearing incident command's orders.

INCIDENT COMMAND INTELLIGENCE

Incident command issues an emergency alert and sends in a Rapid Intervention Crew to extract fallen firefighter based on his mapped location within the building.

Incident command breathes a sigh of relief as a quick look at his mobile device shows that the fallen firefighter's tank still has air – and that the extraction team has reached him.

Incident command has an emergency medical team waiting to help – and using WAVE they are able to contact a cardiologist via the doctor's mobile phone, asking him to standby for consultation if needed.



5:01 p.m.



FIREFIGHTER INTELLIGENCE

The fire is extinguished without spreading to adjacent buildings.

INCIDENT COMMAND INTELLIGENCE

The fire is extinguished without spreading to adjacent buildings.

SMART SOLUTIONS THAT IMPROVE SAFETY AND RESPONSE

Motorola fireground technologies are purpose-built to deliver intelligent, reliable communications with clear voice and real-time data to help your firefighters respond and prepare for the unexpected.

ENABLING SAFER OPERATIONS WITH THE CONNECTED FIREFIGHTER

With a purpose-built design for the firefighting community, the APX XE series radios and accessories deliver the clearest audio in the industry, allowing firefighters to hear even in the most chaotic of conditions. Furthermore the APX XE line facilitates interagency collaboration by providing instant, interoperable voice and data communications across agencies and networks in accordance with the P25 standard.

Meanwhile, location tracking, equipment telemetry sensors and live streaming video cameras in the incident area, keep your firefighters safe by enabling monitoring of air tank levels and fire conditions from incident command. Designed with user experience in mind, Motorola technologies are non-intrusive and intuitive to operate, offering a seamless flow of critical intelligence across users and devices.

GIVING INCIDENT COMMAND THE INFORMATION THEY NEED

In addition to monitoring each firefighter's location, and equipment statuses, incident command can also perform robust accountability functions to aid in personnel monitoring. Motorola's APX Personnel Accountability Application roll call function operates via a PTT button press acknowledgment rather than a verbal check-in — and can immediately trigger an alarm if a firefighter does not respond. This eliminates the need for manual reporting and drastically reduces PAR cycle time.

Furthermore incident management applications on a tablet like the MCC 7100 IP Dispatch Console and the Intelligent Data Portal (IDP) provide, customizable views to resources in the field giving incident command better situational awareness and incident coordination capabilities.

DELIVERING FASTER RESPONSE WITH FIRE STATION AUTOMATION AND ALERTING

Motorola's MACH Alert Fire Station Automation and Alerting enables faster response by delivering automated incident-specific station alerts pushed directly from dispatch to responding fire stations. These alerts not only deliver relevant response information but also interact with fire station infrastructure to update the station's incident board and to automate tasks such as turning off stoves, opening doors and shutting off lights. Best-in-class text-to-speech technology allows both audio and data communications so that information can be delivered in the most actionable format to ultimately reduce turnout time and minimize stress.

USING SMART PUBLIC SAFETY SOLUTIONS FOR BETTER OUTCOMES

The Public Safety Experience (PSX) provides responding personnel with relevant and contextual intelligence necessary for a more effective response. While traveling to the incident scene, Motorola's PremierOne™ Mobile provides routing information for firefighters. Real Time Video Intelligence (RTVI) gives them access to live incident video from drones or nearby building cameras and Intelligence Operators convey reported incident details and records such as floor plans or hydrant locations to enable a more intelligent, real-time response.

**“SOME OF THE RADIOS WERE ON NONSTOP FOR SEVEN DAYS.
WE WOULD NOT HAVE BEEN ABLE TO DO THAT WITH OUR
PREVIOUS EQUIPMENT.”**

-Rusty Griffith, Assistant Chief of Planning, Magnolia Volunteer Fire Department

THE RIGHT FIREFIGHTING PARTNER HELPS YOU HIT THE GROUND RUNNING – AND STAY ON TRACK

When it comes to fighting fires and improving emergency response, each organization's needs are different. That's why it is critical for your organization to have a carefully designed plan that lets you stay focused on your job, fighting fires. Your technology solutions should go above and beyond your needs today – but easily adapt to meet your needs in the future.

Motorola Solutions has worked with fire departments across the globe to develop reliable communications networks, purpose-built devices and integrated solutions to meet your unique needs. We partner with you from the funding and design stage all the way through to network deployment and management. We even provide services to help you maximize technology benefit and value, assisting you in each phase of your technology's lifecycle and enabling you to offload the risks inherent in managing your complex networks and device fleet.

Our world-class operations centers, service response teams and technology support specialists can provide the resources you need to deploy and manage highly secure and exceedingly reliable technologies that keep mission critical operations running smooth. The result? Technology that delivers maximum value 24/7.



TRIAL BY FIRE FOR MOTOROLA'S ASTRO® 25 RADIOS IN TEXAS

When a major wildfire broke out in Magnolia, Texas, the Volunteer Fire Department had just received a new shipment of Motorola APX 7000XE radios. However, 80 percent of the firefighters had not yet been trained on how to use the radios. So Motorola radios were about to receive a trial by fire – literally.

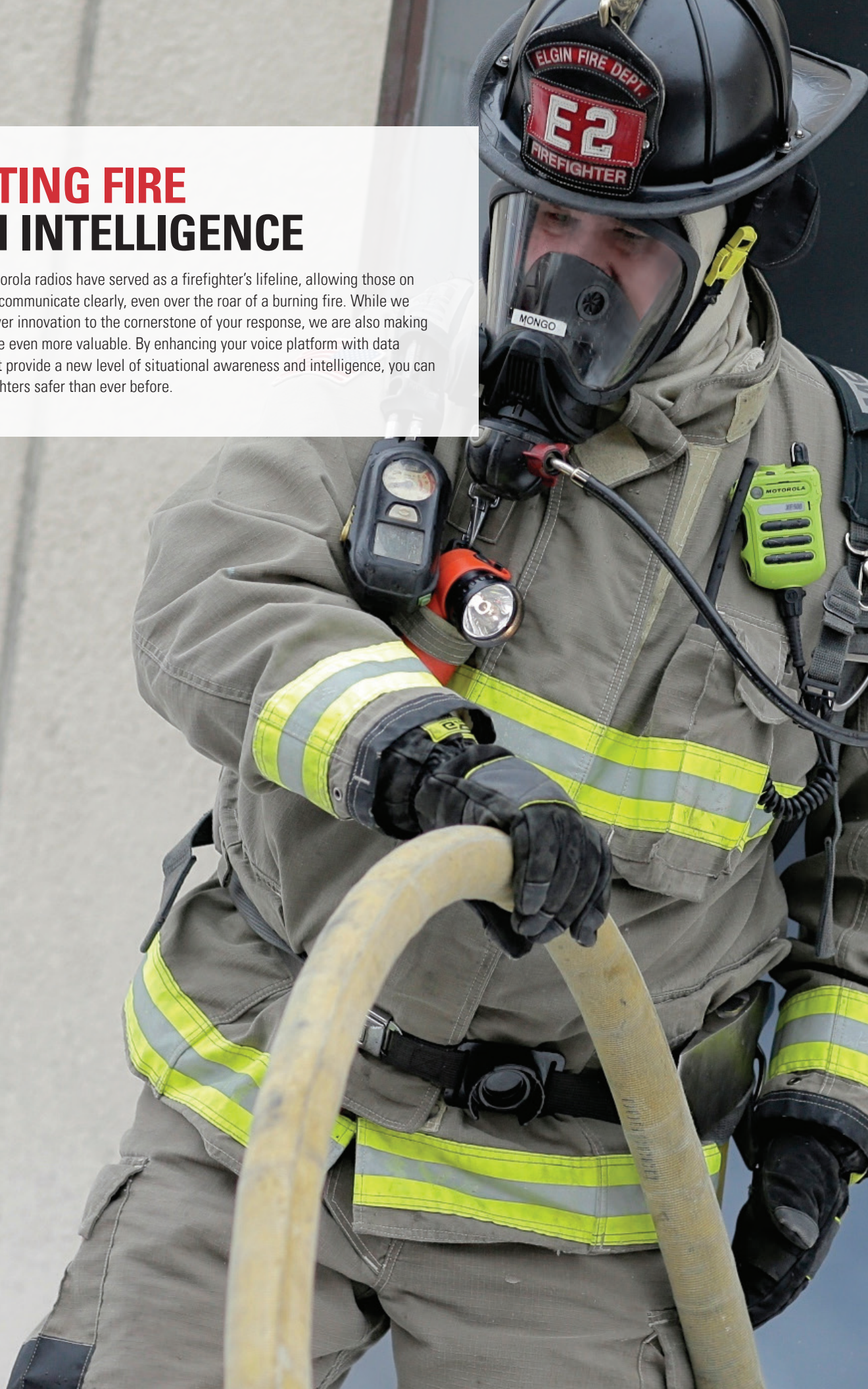
The APX 7000XE radios were deployed quickly as firefighters from across the region – and across the country – poured in to help contain the fast-growing blaze. Personnel from close to 100 different organizations used the radios' inherently intuitive controls with little difficulty, despite having no training or experience with the radios. Interagency communications were seamless, as the radios were able to switch from VHF to 800 MHz talk groups instantly and effortlessly over the regional TxWARN network.

"Being able to switch from a VHF channel to an 800 MHz talk group with the turn of a knob is amazing," says Rusty Griffith, assistant chief of planning at the Magnolia Volunteer Fire Department. "[The Motorola APX 7000XE] has the volume to be heard when you put it in your coat pocket. This is a firefighter's radio."

After seven days of exhausting interagency effort, the wildfire was under control. Although the fire destroyed over 20,000 acres and 76 houses, firefighters saved 10,000 homes and countless acres without losing a single human life.

FIGHTING FIRE WITH INTELLIGENCE

Since 1941, Motorola radios have served as a firefighter's lifeline, allowing those on the front line to communicate clearly, even over the roar of a burning fire. While we continue to deliver innovation to the cornerstone of your response, we are also making that radio lifeline even more valuable. By enhancing your voice platform with data applications that provide a new level of situational awareness and intelligence, you can keep your firefighters safer than ever before.



APX EXTREME SERIES RADIOS AND ACCESSORIES

Working together with firefighters around the world, we designed the APX Extreme Series; a complete portfolio of ergonomically advanced, ultra-rugged radios and accessories that is safe, easy and efficient to use. With over eighty years of experience in ergonomics, design and technology for public safety, the APX XE Series is the culmination of cross-disciplines and user input.

Firefighters said they wanted extreme features including a larger display, exaggerated control knobs, and best-in-class audio. The APX 8000XE brings together not only these requirements, but also the integration of all-band capability for seamless communications with surrounding municipalities, WiFi® for programming flexibility, a 3-watt speaker, 3 integrated microphones and Adaptive Audio Engine to produce loud and clear audio in any environment.

Designed to be used in the firefighter's extreme environment, the XE500 RSM is submersible in water and can withstand heat exposure of up to 500°F for 5 minutes. Enhanced controls with an exaggerated channel knob provides the confidence to wear the radio under the turnout coat. The strategic placement of 5 integrated microphones with an Adaptive Audio Engine allows full flexibility to wear the XE500 RSM in any orientation while suppressing environmental noise for loud clear audio.

APX PERSONNEL ACCOUNTABILITY APPLICATION

Motorola's APX Personnel Accountability Application is designed to effectively organize the information available to incident command to provide a cohesive report to improve responder safety. The application supports immediate evacuation alerting, may-day assistance and a roll call application that allows incident command to account for personnel via a PTT button press acknowledgment rather than a verbal check-in – all sent through the APX radio. The result: Improved speed and efficiency of PAR checks, emergency alerts and more.

COMMANDCENTRAL INFORM

Motorola's CommandCentral Inform gathers location-based information from existing databases, organizes it and maps it using layers

to pinpoint the location of people, resources, events, alerts and developing situations. This cloud-based mobile application integrates data from disparate public safety systems and third-party applications to provide incident command with critical information for improved decision-making and streamlined multi-agency collaboration.

MCC 7100 IP DISPATCH CONSOLE

The MCC 7100 Console uses wired or wireless networks to establish Project 25 (P25) encrypted voice communications with trunked and conventional radios, when and where it is needed. Being deployable on a tablet, it allows for quick expansion of mobile work force communications for on-the-spot coordination during special events, for disaster management, in back-up facilities and to increase temporary dispatch capacity.



MCD 5000 DESKSET

Designed as a flexible communication option to radio users, the MCD 5000 Deskset helps to keep you connected to your firefighters on the front line from anywhere within your IP network infrastructure. With IP technology, you have the flexibility to quickly install desksets where you need them using your IP network infrastructure. And you can easily expand communication capabilities throughout your organization for increased safety, awareness and coordination.

MACH ALERT FIRE STATION ALERTING AND AUTOMATION

MACH Alert is a full-featured fire station alerting and automation (FSAA) solution designed to provide state-of-the-art functionality and reliability within the fire and medical alerting process. Motorola's proven, intelligent design gives dispatchers the tools to get first responders on the road faster than ever before – while reducing stress and keeping their focus on the response.

MOTOBIDGE

In emergencies, there's no time for responders to worry about their technology. They need to communicate seamlessly across multiple agencies and jurisdictions to mount an effective joint response. MOTOBIDGE is a scalable, cost-effective IP-based solution for quickly establishing communications between disparate systems in support of emergency response and day-to-day operations. Systems that support the P25 standard, as well as other technologies, can be linked together for interoperable communications.

MINITOR VI PAGER

When you really need to stay in touch – whether during an urban incident or a wildland fire – a pager is an excellent solution. Motorola's Minitor VI is simple, rugged and reliable – and built for the realities of first responders. With up to 16 minutes of voice recording and capable of customizable call alerts, you can be prepared to react quickly in times of emergency.

LEX L10

When the mission is not putting out fires, the LEX L10 Mission Critical LTE Handheld provides optimal coverage on both 3G/4G Commercial and Public Safety LTE networks. Seamless connectivity and coverage for data sharing is increasingly critical in operations. Equipped with telephony and WAVE PTT capabilities allow you to quickly connect with radio and phone users when away from the station.



SOURCES:

1. 2010 NFPA Needs Assessment survey
2. USFA Firefighters Fatalities Report 2013

To learn more about how Motorola's intelligent fireground solutions can increase firefighter and community safety, visit us on the web at motorolasolutions.com/fireems.

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