# THE CHANGING REQUIREMENTS OF COMMUNICATIONS TECHNOLOGY FOR PUBLIC SAFETY



### **EXECUTIVE SUMMARY**

With the passage of the Middle Class Tax Relief and Job Creation Act of 2012, the U.S. government has created the First Responder Network Authority, or FirstNet. Reallocating the 10 MHz D Block spectrum to public safety, the act ensures the establishment of an interoperable nationwide public safety broadband network.

In light of this and other changes in our rapidly evolving industry, Motorola presents the results of our latest study on the use of next generation public safety technology. Examining the growing importance of data-centric wireless communications for agencies of all types and sizes, the survey was conducted in February 2012, following up a similar study fielded in 2010. The new study updates the plans and expectations public safety departments have for evolving technology, providing updated insights on the increasing role of high-speed wireless data communications. The survey has been determined to be statistically accurate to  $\pm 5\%$ .

Responses came from a wide range of public safety decision makers in a variety of public safety and public service departments. The growing significance of data communications is evident throughout. More than half of respondents are beginning to consider data communications to be at least as important as voice communications. Of respondents planning to invest in technology in the next five years, almost 70% planned on implementing public safety grade broadband technology including LTE networks, point-to-point backhaul systems and WiFi hotspots.

The study also revealed the increasing data access expectations of first responders. Respondents reported that almost 90% of their first responders expect to have data access during at least some incidents, with more than half expecting it to be available during every incident. The study also notes the rapidly increasing use of personal devices for public safety use, with almost 40% of officers using their own smartphones and tablets to gain real-time access to data applications such as e-mail, texting, records access and evidence gathering. Examined more closely in a recent Motorola survey of government and public safety decision makers, this trend is the subject of considerable debate, exemplified by respondents in the IT decision maker study doubting the efficacy and reliability of the use of consumer-grade mobile devices in mission critical environments.

The research also confirmed the importance of reliability in mission-critical wireless data communications. Although more than half the respondents indicated that they use a public carrier for their data access, that isn't what most would prefer. More than half of respondents indicated that they want the control and reliability of having their own private wireless data network, as opposed to leasing time from a public carrier where service quality and availability are out of their control and can negatively impact operations safety and effectiveness.



### WHO RESPONDED TO THE SURVEY?

Titles of respondents to the 2012 Motorola Public Safety study fall into four broad categories:

Survey respondents also identified significant influencers in the decisions to purchase next generation public safety technology:

- Command Staff
- City and County Officials
- IT Director/Manager
- CFO/Financial Administrator
- CIO/CTO

### **SURVEY HIGHLIGHTS**

Results of the 2012 Public Safety Industry Study present a current snapshot of how public safety agencies are planning to use next generation technology. The survey confirms the importance of reliable, real-time wireless voice and data communications in public safety environments. Despite perceived obstacles to implementing or upgrading their communications networks — such as lack of funding, unavailability of technology, lack of technical support and others — more than 65% of respondents note that they are planning to implement new communications technology in the next five years. When asked how prepared they were for implementing future technology, a little over half felt totally or somewhat prepared, with the remainder of respondents admitting they were not prepared or didn't really know.

To provide further insights into survey results, we have highlighted some of the most crucial questions and responses.

### **ABOUT THE RESPONDENTS SIZE OF DEPARTMENT** PREPAREDNESS FOR THE FUTURE Respondents represented public safety departments and agencies When asked how prepared their agencies are for implementing of a wide range of sizes. their next generation technology vision, less than 10% of respondents felt they were very prepared, although another 50% feel somewhat What is the size of your agency/department? prepared. More than 40% admitted they were not prepared or did not know if they were prepared or not. **EMPLOYEES** Based on your vision of the future of public safety communications, how would you assess your agency **20%** in terms of how prepared it is to achieve this vision? 50 EMPLOYEES 13% **EMPLOYEES** 47% **NOT PREPARED 37**% **EMPLOYEES SOMEWHAT** 5% **PREPARED OVER 750 50%** DON'T KNOW **EMPLOYEES** VERY PREPARED

# NEXT GENERATION TECHNOLOGY EXPECTATIONS VISUALIZING FUTURE PUBLIC SAFETY COMMUNICATIONS CAPABILITIES

In ranking the benefits they expect from next generation voice and data communications technology, respondents place most emphasis on intra-agency and government communications. Beyond this, it's significant to note that three of the next most common responses relate

specifically to high-speed data access and data applications in the field and in the command center. In addition, over 20% of respondents indicated that they share technology resources by managing both public safety and public service operations through a single command center.



# When thinking about the future of Public Safety Communications and the technology needed to support this, my agency/department...





Late at night in the parking lot of a 24-hour convenience store, a nurse is on the way to her shift at the local medical center when she is confronted by a pair of armed carjackers. They take her purse, with her wallet and car keys, then decide to abduct her, wrapping her in a blanket and locking her in the trunk of her car. Fortunately they did not search her pockets and she was able to conceal her cell phone. Rather than make a voice call and risk being overheard, she texts a message and vehicle description to 9-1-1, with the GPS providing her location. Dispatchers receive the text and immediately send out patrol units that quickly locate and stop the vehicle. The arrest is made and, thanks to courage, quick thinking and technology, the nurse is rescued.

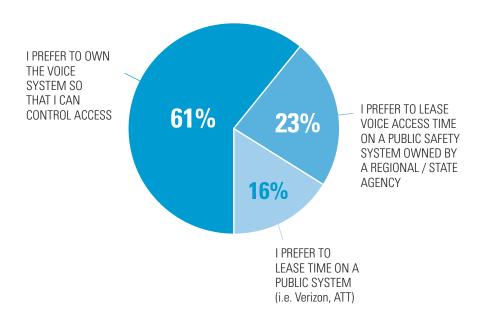
# CONTROL OF NEXT GENERATION PUBLIC SAFETY SYSTEMS ACCESS CONTROL IS KEY TO INCREASING EFFICIENCY AND SECURITY

In answering questions about their ideal level of control over both voice and data systems, a majority of respondents expressed a preference for owning their own systems rather than leasing them from other providers.

They expressed their belief that this will enable them to maximize access control, optimize reliability, improve security and increase cost effectiveness.

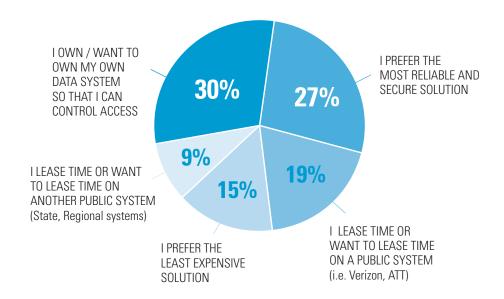


### What type of voice communication system control do you require?





### What type of data communication system control do you require?



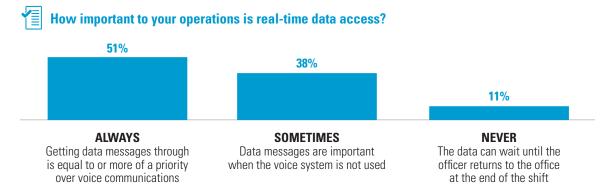


In the immediate aftermath of a Category 2 hurricane, the scene is chaotic. People are injured, houses are destroyed, power lines are down, roadways are blocked. As first responders race to bring the situation under control, communications are key. Public safety professionals must be able to communicate with each other and coordinate with neighboring agencies in real-time, with clear conversations and no delays. Unfortunately, with thousands of citizens all using public carrier service to check on loved ones, the system quickly becomes seriously overloaded and the public network becomes unavailable. But because the community owns a private LTE broadband data network. it experienced no service interruptions or delays, and rescue operations were successfully and safely expedited.

# MOBILE DATA ACCESS BECOMES MISSION-CRITICAL DATA ACCESS EXPECTATIONS OF FIRST RESPONDERS REMAIN HIGH

The study reveals that almost 90% of respondents agree that data communications are important to public safety operations, results that are virtually identical to the 2010 survey. More than half of them believe that real-time data

messaging is as important as voice communications. In addition, almost 90% report than their first responders now expect mobile data access to be available during incidents, with more than half expecting it to always be available.





# MOBILE DATA AVAILABILITY CHOOSING BETWEEN PUBLIC AND PRIVATE DATA SYSTEMS

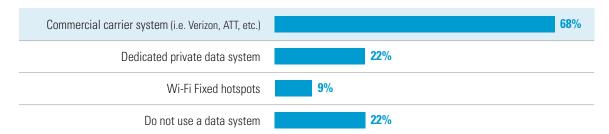
Although more than two-thirds of respondents indicated they currently lease space from a commercial carrier system, many would prefer to own their own private data systems such as a dedicated LTE broadband network. The reasons

are easy to understand. About 75% of respondents reported that they experience service interruptions with their public carrier network, and that those interruptions can and do affect their mission critical public safety operations.



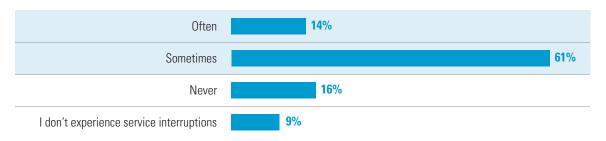
### What type of system or systems do you now use to send and receive wireless data?

(Please check all that apply.)





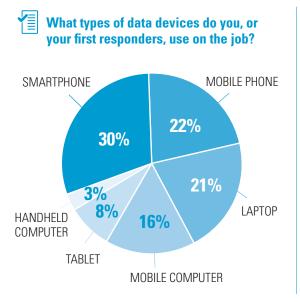
# If you experience service interruptions with your public carrier network, does it impact your public safety operations?

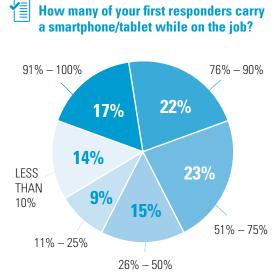


# **NEXT GENERATION MOBILE DEVICES**USE OF PERSONAL SMARTPHONES AND TABLET COMPUTERS IS RISING

As mobile data communications become more integral to agency operations, first responders and other public safety professionals are using a variety of devices for mobile access. The study revealed significant usage of personal consumer devices such as smartphones and tablet computers on the job. Over 60% of respondents reported that more than half of their first responders carry a smartphone or tablet, and that two-thirds of those are using their own personal devices for basic applications ranging from e-mail to texting to evidence documentation and database access.

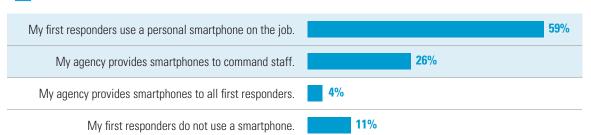
This burgeoning use of personal mobile devices on the job was examined in more detail in a recent Motorola CIO Survey in which respondents were asked about the use of consumer-grade devices in mission critical situations. Many of these respondents questioned the reliability of these devices, noting a preference for the use of ruggedized public safety grade handheld devices purpose-built to be reliable under even the most difficult and life-threatening circumstances.





### If you use a smartphone/tablet on the job, what types of applications do you use? (Please check all that apply.) 30% Email 30% Text Messages 14% Evidence gathering such as photos and video 11% Records / Database Access 4% First responder accountability 1% eCitation

### Who provides your first responders with a smartphone/tablet?



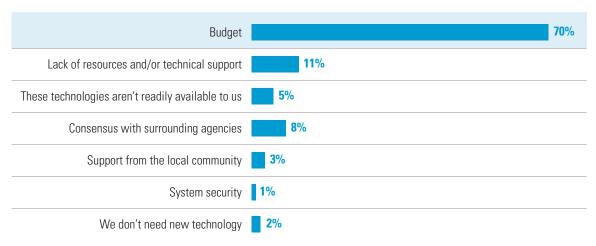
# TECHNOLOGY IMPLEMENTATION BARRIERS OBSTACLES TO ACHIEVING THE NEXT GENERATION TECHNOLOGY VISION

Although 98% of respondents agree that their department or agency needs next generation technology to achieve its goals, the survey revealed serious inhibitors and obstacles to overcome, with budget and resources being the most

important. Not surprisingly, 70% of respondents identified budgetary issues as a significant barrier to purchase and implementation. Somewhat surprisingly, this is down from 79% in the 2010 survey.



# What is the primary inhibitor to your agency achieving its vision of its next generation operations?



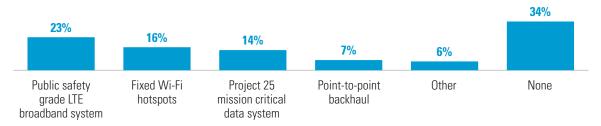
# DATA TECHNOLOGY GROWTH PLANS HIGH-SPEED DATA ACCESS IS A DRIVING FACTOR IN COMMUNICATIONS PLANNING

Despite these formidable obstacles, the study reports that over 65% of respondents plan to implement new data technology in the next five years. Of these, over 45% will

be implementing new data system technology, with almost half of those opting for a public safety grade LTE broadband system.



### What new data system technology do you plan to implement in the next 5 years? (Please check all that apply.)





In the mobile command center at a multiple-alarm fire scene, the incident commander views streaming video from a public safety helicopter hovering over the location. He notices that. as firefighters prepare to cut holes to vent the roof. they are going to cut in the wrong location that may put them in peril. The commander immediately communicates with the unit, advising them to move 50 feet to the right and then cut. The team moves and vents in the new spot, stopping the fire from progressing and enabling firefighters to contain and bring the fire under control more quickly and safely.

The 2012 Public Safety Industry Study reveals an industry in the midst of a technology revolution reinforced by the establishment of FirstNet, the national public safety broadband network. Agencies are recognizing the mission critical benefits of high-speed mobile data communications in protecting their communities and their first responders. As mobile data applications — from streaming video to real-time database access and much more — prove their worth on the streets, most public safety departments are planning to implement next generation high-speed data access systems into their environments.

The 2012 study is part of an ongoing Motorola research initiative to help identify and report on trends affecting communications technology in the public safety industry. For more information on planning and deploying a next generation public safety technology solution, talk with your Motorola representative or visit us on the web at **motorola.com/nextgen**.

Motorola, Inc. 1301 E. Algonquin Road, Schaumburg, Illinois 60196 U.S.A. 1-800-367-2346 motorola.com/nextgen

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