NG911

NEXT GENERATION 911
FOR FIRE SERVICE LEADERS

A GUIDE FOR FIRE OFFICIALS

5 WAYS NG911 CAN SUPPORT THE FIRE SERVICE MISSION

ALSO IN THIS ISSUE:

Understanding Next Generation 911 | NG911 for the Fire Service
Transitioning to NG911 in Massachusetts | Resources

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ON THE COVER: An important part of the mission of the Orange County Fire Authority is to improve fire and EMS services through the implementation of emerging technologies.

911 SYSTEM AT A CROSSROADS

In 1957, the fire services served as the catalyst for a nationwide emergency telephone system in the United States when the International Association of Fire Chiefs advocated for a single, three-digit emergency number to report fires. Ten years later, that vision became reality when the President's Commission Report agreed with the IAFC in recommending a universal number for reaching both police and fire services in public emergencies. Today, 50 years later, 911 is how most people access public safety in an emergency.

Since the creation of the universal emergency number, 911 has served as the critical bridge between those in need and the fire service. The role that telecommunicators and the 911 system play in providing situational awareness is essential to keeping our firefighters safe, sending the appropriate resources and ensuring we have the best possible information to fulfill our mission of protecting public life and property.

But the way the public communicates has radically changed and 911 systems nationwide have not evolved at the same pace. Nearly 80% of American adults now use smartphones and mobile devices to manage nearly every aspect of daily life, including making 911 emergency calls. Those devices also have the ability to send other critical information about an incident, such as text messages, photos and videos. However, while consumers have rich digital data at their fingertips, 911 telecommunicators are still limited to a largely voice-centric world.

The nation's 911 system is at a crossroads. After years of supporting outdated technologies for the benefit of the public good, telecommunications companies in the future may no longer be able to support the legacy phone systems upon which many 911 systems are built. To fundamentally change and improve emergency communications, the 911 system urgently needs to upgrade to Next Generation 911.

NG911 provides many things today's 911 system cannot.

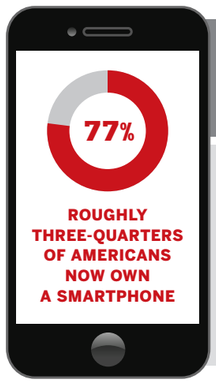
NG911 provides many things today's 911 system cannot. This necessary upgrade adapts 911 call centers to digital technologies and harnesses breakthrough innovations for improved public safety.

THE BENEFITS WILL BE TRANSFORMATIONAL AS NG911 EVOLVES. IT WILL:

- Create a core framework that will enable 911 to help fire services use enhanced digital applications such as mapping and more accurate caller location;
- Facilitate the transfer of digital data from bystanders or sensors at the scene, including audio and video, photos and texts; data from medical devices, car sensors at crash scenes and building alarms;
- Improve emergency communication through redundancy and call overload backup;
- Provide the connection from the public to dispatch, which will augment the information shared by fire, law enforcement and EMS over broadband networks such as FirstNet that are being rolled out across the nation.

Although FirstNet and NG911 are separate efforts, they result in two parts of one whole: our nation's public safety communications system. Public safety organizations, technology companies and government agencies must cooperate to ensure that both systems are implemented and work together to dramatically improve our ability to keep communities and first responders safe.

Just as the fire service played a key role in the inception of 911 more than half a century ago, we have an opportunity to encourage national and local leaders to make changes needed to ensure 911 systems meet the expectations of the public and first responders. ■



ADAPTING PUBLIC SAFETY COMMUNICATIONS TO MODERN TECHNOLOGIES

Adapting the U.S. emergency communication system to be responsive to smartphones is a pressing safety issue, and migration to an IP-enabled system is essential to meet the public's expectation of public safety systems.

SOURCE: Pew Research Center, November 2016

Chief Gary McCarraher
Fire Chief, Franklin Fire Department, Franklin, MA
Chairman of the IAFC Communications Committee

NG911 enables greater situational awareness leading to improved safety for first responders.

UNDERSTANDING NEXT GENERATION 911

Get the facts on NG911 and learn why advancing emergency communications will change the future of the fire service

What is Next Generation 911 (NG911)?
NG911 is new technology that allows the public to share richer, more detailed data—such as videos, images and texts—with 911 call centers. It also enhances the ability of 911 call centers to communicate with each other and improves system resiliency.

Why do we need NG911?
NG911 modernizes 911 infrastructure to accommodate how people communicate today—largely through mobile and digital devices. NG911 allows the public to send digital data to 911 call centers, or public-safety answering points (PSAPs), and lets the PSAPs receive data from other transmitting devices such as wearable medical devices, car computers and building alarms. NG911 enables faster network communication and call load sharing between PSAPs. In mass casualty incidents or natural disasters—when the PSAP becomes overwhelmed by calls—NG911 allows for calls to be automatically transferred and processed by another available 911 call center.

Why is NG911 important for fire services?
For fire professionals, NG911 has wide-reaching applications. Modern buildings increasingly are outfitted with digitally connected alarms, sensors and video monitors. With NG911, these networked devices can transmit valuable information to PSAPs about the scene where a fire is detected. The data includes real-time temperatures, sprinkler use, blocked exits, carbon monoxide levels and other hazards. The information then can be sent to responders, helping them make more informed decisions at the scene.

Fire protection engineers like Casey Grant, Executive Director of the Fire Protection Research Foundation at the National Fire Protection Association, view NG911's ability to handle rich data as vital for the dangerous job of firefighting. "During an emergency event, seconds matter," Grant says. "You have to make correct decisions with the right amount and quality of data."

More information means first responders are safer thanks to improved situational awareness. Grant says that the data from NG911 also is important for post-incident investigations.

"Firefighters do wonder, 'if I can do it on my cell phone, why can't we do it on 911?'" says Fire Chief Gary McCarraher, Chair of International Association of Fire Chiefs' Communications Committee. "Consumer technology is light years ahead of where we are."

Put another way: "Fourteen-year-olds in America have better technology than public responders," says Chief Jeff Johnson, CEO of the Western Fire Chiefs Association and former Vice Chair of the FirstNet Board of Directors.

What is FirstNet and why do we need both NG911 and FirstNet?
FirstNet is a wireless nationwide network that gives public safety officials a dedicated network for communicating with one another in the field, and allows them to receive important digital information from PSAPs.

Through the FirstNet network, emergency dispatchers can securely share critical information about the scene of an incident, such as building layouts, potential injuries, photos, videos and real-time updates, including information provided by the public to PSAPs via NG911. FirstNet ensures that first responder teams can still communicate with each other when public communication channels are overloaded. Explains Johnson, "The FirstNet spectrum is so large that it can hold hundreds of simultaneous communications without clogging a network."

Together, NG911 and FirstNet are two parts of one emergency communication system that moves public safety technology into the digital age. They complement each other and, when coordinated, will enable the exchange of rich data between and among the public, 911 and first responders.

What's the difference between the systems?
You have likely heard of FirstNet because it was created with government oversight and was initially funded by Congress. It's a dedicated public safety broadband network, built by AT&T, that allows for local, regional and nationwide communication among responders.

You may not have heard of NG911 because it's being implemented independently by states, regional authorities, counties and municipalities. NG911 technology is based on software systems running on hardwired, high-speed managed networks. This technology inter-connects PSAPs with systems that are able to deliver improved location accuracy, caller information, and data related to a location, such as sensors or alarms. The NG911 infrastructure enhances dispatchers' ability to receive 911 calls from mobile phones and devices, as well as receive text messages and faster, more accurate caller location information.

Once NG911 is implemented, firefighters and other emergency service providers will reap more benefits from FirstNet. NG911 is the other half of the equation because it allows the public to send relevant data to call centers and enables firefighters to have access to this data to make mission-critical decisions.

How soon will NG911 be upgraded in my community?
The progress for implementing NG911 varies nationwide. Some states have not yet begun planning, while others are in progress and some, like Vermont, Maine, Massachusetts and Indiana, have completed the initial transition to NG911. ■

NG911 FOR THE FIRE SERVICE

How Fire Departments Benefit from Next Generation 911

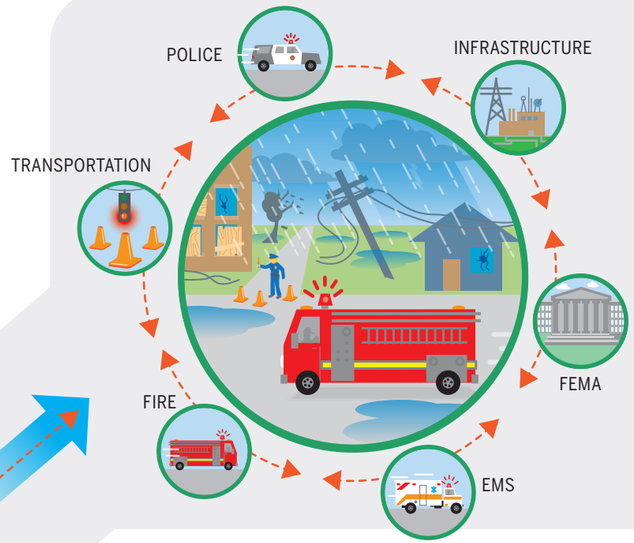
Next Generation 911-related technologies will provide new opportunities to keep firefighters and communities safer. The following scenarios provide a non-technical depiction of how new technologies will provide information leaders need to ensure safe, efficient and effective responses to a variety of incidents.

More Accurate Scene Information

NG911 will allow dispatchers to receive videos and photos from victims and bystanders at the scene, providing more vital pre-arrival information. Environmental conditions – such as area density – and other details such as smoke color and structure involvement will help identify the appropriate response.

Improved Firefighter Safety

New and emerging technologies in the NG911 environment will provide information to improve firefighter safety. Dispatch can access building sensors and video feeds, helping to identify hazardous materials or potential victim location. Other technologies will provide more precise caller, responder and resource location accuracy.



Redundancy & Multi-Agency Interoperability

During a natural disaster or other large-scale emergency, the NG911 system protects against call overload by re-routing calls, texts and data to alternative call centers. The system also allows for better coordination with first responders, allowing for better coordination between other emergency services and agencies.

Accurate Pre-Arrival Data

Monitoring technology worn by patients may automatically alert 911 within seconds of a medical event. Pre-arrival responder access to time-sensitive patient and incident information will help improve patient outcomes and survival.

Better Crash Data

Telematics, now integrated into many vehicles, notify 911 with precise location information and crucial details like speed at impact, airbag deployment, number of occupants, seatbelt use and more. This data, available at dispatch, helps fire services prepare appropriate equipment and provides medics key information to plan for transport to the appropriate hospital or trauma center.

NG911 will improve firefighter safety in various ways.

5 WAYS NG911 CAN IMPROVE YOUR DEPARTMENT

The potential benefits of an NG911 system are significant—from safer firefighters to better service for your community

Chief Brian Fennessy is impatient to see antiquated 911 systems upgraded. NG911 is not available yet in Southern California where he heads the Orange County Fire Authority. But Fennessy has experienced first hand the urgent need to support emergency responders with 21st century technology.

He's spent years battling worst-case scenarios, from earthquakes to urban blazes to raging wildfires. As the former San Diego Fire Chief, Fennessy faced the third most destructive wildfire in California history back in 2003. It quickly spread into the city with a deadly toll: 14 civilians—many killed trying to flee in their cars—and one firefighter; 2,820 destroyed structures and almost 280,000 burned acres.

Most of the destruction occurred in the first 12 hours when the overloaded 911 call center went down. Even Fennessy couldn't get through to dispatch. "Nobody was able to communicate by radio, all you got was a tone. There was no real cellular communication," recalls Fennessy. "People in its path were not warned."

He believes that NG911 could help transform emergency response.

Simply put, NG911 means upgrading technology across the United States from the decades-old telephony-based 911 service to a system that allows improved, internet protocol (IP)-based communication between citizens and first responders.

NG911 will improve response times when calls are transferred from other referring agencies, because a caller's location is automatically matched to the appropriate 911 call center, or public-safety answering point (PSAP), serving that area—limiting delays and misdirected calls.

It includes the ability to provide additional information—such as critical medical data—about a caller to dispatchers, allows for texting directly with 911 telecommunicators, and adopting digital and mobile innovations such as smart sensor data transmitted from buildings. It's a faster, better and more cost-effective system that helps limit property loss and save lives.

"If you have NG911, you can transfer information—video, photos, schematics—sent in real time to multiple agencies," explains Charles Werner, a member of the National Council on Public Safety UAS and retired Charlottesville, Virginia, fire chief.

"I do think it will revolutionize emergency response," adds Fennessy, "by enhancing information... and making higher-quality decisions so we're sending the right level of resources."

Here are some of the major benefits firefighter leaders and their services can expect by moving to NG911:

1 IMPROVING FIREFIGHTER SAFETY

With NG911, a 911 "call" will take very different forms: Staff at PSAPs—911 call centers—will be able to receive, process and store text, pictures and videos from citizens. Even better, that information can be quickly relayed to firefighters and other responders, giving them more precise information, including the potential for improved location accuracy. Many of these improvements are in the future. And turning the future into reality requires NG911.

NG911 will most significantly improve firefighter safety through increased situational awareness. It creates a digital infrastructure to receive and transmit a variety of rich information. For example, streaming back real-time information from building sensors from a high-rise on fire about where people are trapped. These locations can be mapped and shared in an emergency operation or dispatch center and simultaneously shared with those on site.

"The single most important thing we're trying to achieve is the location of firefighters in an event. Currently, all we have is a verbal mayday," explains Chief Werner. When NG911 can receive accurate location data from sensors in the

> **"The key is to avoid overwhelming responders by sorting, prioritizing and providing only data that local fire companies need."**
>
> —**Casey Grant,** *Executive Director at the Fire Protection Research Foundation, the research affiliate of the National Fire Protection Association*

field, he says, "We'd know who's closest to assist the firefighter and save a life. A mayday to a fire chief is the worst experience of their career."

NG911 could also facilitate the dispatch center to send maps, videos or alarm sensor data. "As a fire responder, wouldn't it be nice to be able to see exactly what's going on with the alarm system on my iPad while I'm en route?" says retired Fire Chief Jeffrey Johnson, CEO of the Western Fire Chiefs Association and former Vice Chairman of the FirstNet Board of Directors. "NG911 (connected to a wireless network) will provide a greater set of tools that can enhance our situational awareness so we can make better decisions pre-arrival." In rural areas, improved information for firefighters working alone increases their safety. And dispatchers can provide more efficient backup.

In the future, NG911 will allow dispatchers to share intelligence from other responders about a dangerous situation over FirstNet (See page 2 to learn how NG911 and FirstNet will work together). Dispatchers can share and contribute digital information to improve situational awareness for responders in the field.

2 ENHANCING LOCATION ACCURACY

More than 75 percent of all 911 calls are made on cell phones instead of landlines. In some areas, traditional PSAPs aren't directly answering mobile calls. They're routed to state police or other PSAPs miles away that have to determine a caller's location and the nature of the emergency and then transfer the call once or twice to reach the correct local dispatcher.

With NG911 and improved location accuracy, PSAPs can zero in on a caller's location—especially wireless callers—faster and more accurately so firefighters can quickly find them. "They say a fire doubles every 30 seconds. If someone is trapped in a fire, every second matters," says Fire Captain Rob Reardon. He heads the NG911 regional call center in Duxbury, Massachusetts, where mobile calls are answered directly, potentially saving minutes.

The upgraded emergency response system also supports better public service in a natural disaster or other emergency. Overloaded NG911 call centers will automatically re-route calls to other PSAPs, avoiding lost calls or the chance of callers receiving a busy signal.

When Hurricane Irene struck Vermont, its second-busiest call center was evacuated. Instead of unanswered 911 calls, PSAPs located out of the storm's path answered those calls, resulting in little disruption from the caller's perspective. "The system was able to distribute the load throughout Vermont, meaning every 911 call was answered swiftly," says Jim Lipinski, former Enhanced 911 IT manager for Vermont, one of the first U.S. states with a statewide NG911 system.

3 DELIVERING HELP, FASTER

The year before Indiana began the transition to NG911, a citizen dialing 911 waited 23 to 27 seconds for the call to be routed to a 911 operator. With NG911, that's now less than three seconds, according to Mark Grady, founder of INdigital Telecom, which provides NG911 technology to the state. Grady notes that in an emergency, "If you're waiting for someone to take a call, things can go sideways on you pretty quick."

Texting to 911 is another potentially life-saving benefit. When individuals can't make calls or speak without endangering themselves, they can text for help. Although texting to 911 is available in some areas, it will be an available feature with NG911 upgrades. For individuals with special needs, texting is a critical benefit. The deaf and hard-of-hearing, the mentally disabled, the physically disabled and senior citizens can text 911 from their phones without extra devices, such as teletype-writer (TTY) devices.

4 MAKING FIRE OPERATIONS SMARTER

Lifesaving information beaming directly to a firefighter's heads-up display...

Location sensors tracking fire, police and EMS during an active shooter incident...

Fire alarm cameras showing where residents are trapped...

A number of innovative technologies like these are in development and some are already in use. All hold the promise of making firefighting smarter by tackling two of the major challenges faced by fire personnel: not knowing what they're walking into and not having clear communication on the ground.

Drones can transform situational awareness in fast-moving disasters by streaming 360-degree views in real time. During the 2017 Northern California wildfires, units were dispatched to destroyed subdivisions. With drones, "Dispatch can see where you can do the most good with limited resources," says Werner, whose organization helps fire departments implement drone programs.

Remote control sensors also can provide real-time video updates even before responders arrive on the scene. In the future, sensors built into an assisted living facility's smoke alarm can activate an infrared camera during a fire, transmitting verified data directly to an NG911 PSAP instead of first alerting a security company. "The 911 telecommunicator will not just get a data alert, but also a video feed on their screen showing what's happening inside the building," explains retired Deputy Fire Chief Barry Luke, Deputy Executive Director of the National Public Safety Telecommunications Council.

Smart data holds the promise to "revolutionize firefighting," says Casey Grant, Executive Director at the Fire Protection Research Foundation, the research affiliate of the National Fire Protection Association. Grant stresses that the key is to avoid overwhelming responders by "sorting, prioritizing and providing only data that local fire companies need."

All of this rich data from digital tools and applications requires both upgrading NG911—so that dispatch can re-

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>
> —**Chief Brian Fennessy,** *Fire Chief, Orange County Fire Authority*

ceive the information—and deploying a dedicated public safety broadband network to share it with first responders over their dedicated nationwide wireless network.

5 SAVING COSTS WHILE SAVING LIVES

Upgrading to NG911 is not inexpensive, but over time, agencies could save money through efficiencies. Vermont realized significant savings by rerouting 911 calls from a PSAP taking less than one percent of the state's calls. The reason: two or more NG911-connected call centers can distribute calls across a state or even across state lines. It's easier, faster and more cost-effective to share improvements from the upgrade such as shared, centralized call handling equipment or computer-aided dispatch. At the same time, communities preserve local control.

For some fire chiefs, local control means deciding to join a regional call center. In Whitman, Massachusetts, Chief Timothy Grenno found that using a centralized 911 call center freed up a firefighter working dispatch. Instead of five firefighters, he says, "Now we're going out the door with six firefighters assigned to two apparatus."

Then there are the incalculable costs of a saved life. "The key is keeping resources available for genuine emergencies," says Chief Fennessy. "And NG911 helps accomplish that." ■

CASE STUDY

TRANSITIONING TO NG911 IN MASSACHUSETTS

Massachusetts offers a look at the future with its roll out of NG911

In a state with harsh winter weather, the clock was ticking down on upgrading Massachusetts' 911 system. Not just because its old, copper wire infrastructure was designed for landlines and couldn't directly receive mobile calls, texts or images or take advantage of digital innovations. The wiring was sensitive to moisture, making 911 unreliable during annual blizzards and flooding. And support for legacy, wire-based systems was diminishing.

"If we lose the copper infrastructure, how do callers get through? That's what NG911 does," says Franklin Fire Chief Gary McCarraher.

In late 2017, Massachusetts completed its statewide rollout of NG911 to almost 240 call centers or public-safety answering points (PSAPs)—the equipment, database and fiber network. The public couldn't see the immediate benefits, but they were significant.

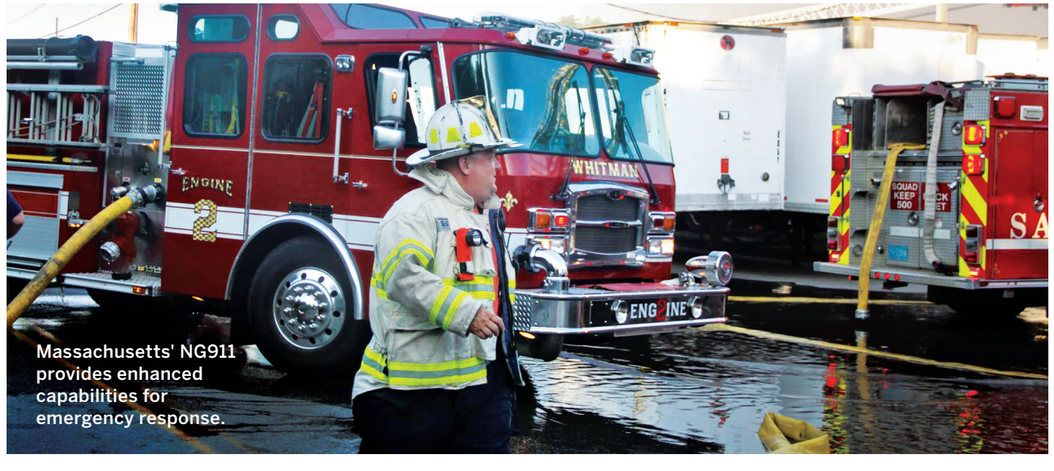
The network is more stable and provides the capability to deliver a more precise location for callers, speeding emergency response. It backs up swamped PSAPs by rerouting calls, allows dispatchers to receive mobile calls directly and, by the end of the year, will allow for receiving texts from citizens.

"It's frustrating to see only about 50 percent of states moving forward," says McCarraher, who tracks NG911 progress nationally in his role as chair of the International Association of Fire Chiefs' communications committee. He points to two major obstacles: funding and whether or not it's a priority.

When a 23-inch snowstorm hit Franklin, half the community lost power, but NG911 stayed up. "We still could access the 911 system," says McCarraher. "There was no need to worry about downed phone lines."

The backbone of the Massachusetts system involved a major undertaking: geographic mapping of the entire state to more exactly identify a caller's location. The feature can potentially shave critical minutes off response time.

"If Mrs. Smith from New York saw a house fire and didn't know she was in Whitman, it took longer to figure out where she was," explains Whitman Fire Chief Timothy Grenno. When the wireless carrier provides a precise location, he says "NG911's state-of-the-art mapping ties into dispatch and pinpoints where she is."



Massachusetts' NG911 provides enhanced capabilities for emergency response.

The full potential of NG911 won't be realized until dispatchers can receive video, photos and rich digital data from the public, dramatically improving emergency response.

To gain the full benefits of NG911, the towns of Plympton, Halifax and Rochester opted to join a regional call center in Duxbury. The gains include freeing up firefighters doubling as dispatchers, reducing costs by eliminating redundant systems and providing professionally trained dispatchers.

At Duxbury, dispatchers aim to turn around a call in 10 seconds. "The real first responders are the dispatchers. They're the first link in the chain of survival," says Fire Captain Rob Reardon who oversees the Duxbury center.

While each state may differ, Massachusetts' goal is to centralize all 911 services by moving local PSAPs to regional centers to centralize dispatching where it makes sense in order to share costs, increase efficiencies, and provide better services. But many towns want to retain local control. "The basic thinking is that a station should never go dark and that's made the process more difficult," explains Normand Fournier, Deputy Director of the Massachusetts' 911 department. "We believe they'll have a better level of service." Even state financial incentives haven't spurred buy-in, highlighting a common implementation challenge: overcoming opposition to change.

Reardon was an early supporter, pushing the state to select Duxbury as the NG911 pilot for regional call centers. He was frustrated that "people weren't getting the help they needed quick enough." At town forums, he touts the benefits.

A key one: directly answering mobile calls. Although Boston and other major cities are answering calls directly, the majority of NG911 PSAPs continue routing mobile calls to the state police, which then must determine the location and transfer calls to the correct local dispatcher. Reardon's pitch to local departments: "We're one-stop shopping. No transfers when someone isn't breathing."

The full potential of NG911 won't be realized until dispatchers can receive video, photos and rich digital data from the public, dramatically improving emergency response. Although the base technology is in place, Fournier estimates it could take years to establish the required standards and protocols for securely transferring such rich digital data from the public over the network.

Throughout a three-year implementation, Massachusetts worked systematically to ensure that NG911 was ready to go live.

The state had a head start on challenges that stall upgrades elsewhere. Instead of having to wait for counties and municipalities to raise funds and move forward with the network, the small state used its existing statewide 911 platform to upgrade the system. It was financed by a surcharge on telephone bills. It also benefitted from tech-savvy customers who supported improvements—Massachusetts is a technology hub and home to innovators like MIT.

The state's implementation strategy called for taking small steps in favor of big leaps, contributing to its success.

FOURNIER OFFERS THREE MAJOR PIECES OF ADVICE TO STATES PREPARING FOR THEIR NG911 UPGRADE

- Test the system through pilot programs and in realistic settings to detect flaws;
- Invest in the extensive training of dispatchers;
- Hire an independent security vendor to perform either a scan or evaluate the security of the NG911 system.

The training program involved 5,200 dispatchers across Massachusetts. Learning how to expertly navigate new software after an NG911 upgrade has more on the line than mastering the usual software program. Says Fournier, "Here you could lose a life if you do something wrong. It's not like correcting an error on a spreadsheet." ■

NG911 RESOURCES

HERE ARE SOME RESOURCES TO HELP YOU LEARN MORE ABOUT NG911

NATIONAL 911 PROGRAM
911.gov

DEPARTMENT OF HOMELAND SECURITY (DHS) OFFICE OF EMERGENCY COMMUNICATIONS (OEC)
dhs.gov/office-emergency-communications

FCC'S TFOPA REPORT
https://transition.fcc.gov/pshs/911/TFOPA/TFOPA_ WG2_ Supplemental_Report-120216.pdf

FEDERAL COMMUNICATIONS COMMISSION (FCC)
fcc.gov

FIRSTNET FIRST RESPONDER NETWORK AUTHORITY
firstnet.gov

INDUSTRY COUNCIL FOR EMERGENCY RESPONSE TECHNOLOGY (iCERT)
theindustrycouncil.org

INTELLIGENT TRANSPORTATION SYSTEMS JOINT PROGRAM OFFICE (ITS JPO)
its.dot.gov/research_archives/ng911/index.htm

INTERNATIONAL ASSOCIATION OF CHIEFS OF POLICE (IACP)
theiacp.org

INTERNATIONAL ASSOCIATION OF FIRE CHIEFS (IAFC)
iafc.org

INTERNATIONAL ASSOCIATION OF FIREFIGHTERS (IAFF)
iaff.org

NATIONAL ASSOCIATION OF STATE 911 ADMINISTRATORS (NASNA)
nasna911.org

NATIONAL ASSOCIATION OF STATE CIOS (NASCIO)
nascio.org

NATIONAL ASSOCIATION OF STATE EMS OFFICIALS (NASEMSO)
nasemso.org

NATIONAL CONGRESS OF STATE LEGISLATORS (NCSL)
ncsl.org

NATIONAL EMERGENCY NUMBER ASSOCIATION (NENA)
nena.org

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
nfpa.org

NATIONAL PUBLIC SAFETY TELECOMMUNICATIONS COUNCIL (NPSTC)
npstc.org

NATIONAL VOLUNTEER FIRE COUNCIL (NVFC)
nvfc.org

NG911 NOW COALITION
ng911now.org

NIST'S PUBLIC SAFETY COMMUNICATIONS RESEARCH PROGRAM (PSCR)
https://www.nist.gov/ctl/pscr/about-pscr

PUBLIC SAFETY TECHNOLOGY ALLIANCE (PSTA)
pstalliance.org

SAFER BUILDINGS COALITION
saferbuildings.org

THE NATIONAL SHERIFFS' ASSOCIATION (NSA)
sheriffs.org

TRANSPORTATION SAFETY ADVANCEMENT GROUP (TSAG) REPORT
www.tsag-its.org/products/ng-9-1-1-whats-next/

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