STATEMENT FOR THE RECORD

CHIEF ART ACEVEDO
PRESIDENT
MAJOR CITIES CHIEFS ASSOCIATION

SUBCOMMITTEE ON EMERGENCY PREPAREDNESS, RESPONSE, & RECOVERY
COMMITTEE ON HOMELAND SECURITY
U.S. HOUSE OF REPRESENTATIVES

"20 YEARS AFTER 9/11: EXAMINING EMERGENCY COMMUNICATIONS"

OCTOBER 7, 2021

Chairwoman Demings…Raking Member Cammack…and Distinguished Members of the Subcommittee:

Thank you for the opportunity to submit this testimony for the record. In addition to being the Chief of Police in Miami, Florida, I also serve as President of the Major Cities Chiefs Association (MCCA). The MCCA is a professional association of Police Chiefs and Sheriffs representing the largest cities in the United States and Canada.

Last month, we commemorated the 20th anniversary of the 9/11 attacks. We must never forget those who lost their lives on that terrible day. We must continue to honor the brave first responders in New York, at the Pentagon, and in Shanksville who made the ultimate sacrifice to ensure others made it to safety. We must continue to support those heroes, who came from across the country, as they continue to battle health complications and other traumas stemming from their selfless actions during the response and recovery. Finally, we must remain vigilant as the threat environment facing the homeland becomes more complex, so the American people never again experience such tragedy.

Local law enforcement is the front-line response, whether it be a terrorist attack, natural disaster, or global pandemic. Effective communications play a critical role in coordinating and executing the public safety response to a given incident. In the aftermath of 9/11, deficient and non-interoperable public safety communications were identified as shortcomings that needed to be addressed. The 9/11 Commission found that:

> *The inability to communicate was a critical element at the World Trade Center, Pentagon, and Somerset County, Pennsylvania, crash sites…the occurrence of this problem at three very different sites is strong evidence that compatible and adequate communications among public safety organizations at the local, state, and federal levels remains an important problem*.[1]

While significant progress has been made to improve public safety communications over the last 20 years, there are still several outstanding issues. My testimony will provide a local law enforcement perspective on these remaining challenges and offer a few suggestions on how they may be addressed.

Next Generation 9-1-1

9-1-1 systems are critical infrastructure in every community. It is ingrained in us from a young age to dial those numbers if we ever find ourselves in an emergency. Millions of Americans every year depend on these systems to dispatch help in their time of need. Considering the importance of 9-1-1 systems, most people are surprised to learn they are underfunded and technologically inadequate. Many 9-1-1 systems throughout the country rely on decades-old landline technology—things like copper wires and conventional switches. One could reasonably argue that the smartphones we all carry in our pockets are more advanced and have more capabilities than some of the 9-1-1 systems public safety agencies currently operate.

[1] The National Commission on Terrorist Attacks Upon the United States, *The 9/11 Commission Report: Final Report of the National Commission on Terrorist Attacks Upon the United States*, July 24, 2004, pg. 397.

Upgrading our nation's 9-1-1 systems to Next Generation 9-1-1 (NG 9-1-1) systems is sorely need and long overdue. NG 9-1-1 will enable faster and more efficient emergency responses, make first responders and the communities they serve safer, and allow law enforcement and public safety professionals to better meet the needs and expectations of the tech-enabled, 21st Century American public. For example, NG 9-1-1 will enable dispatch centers to receive a variety of multimedia and other rich data from callers and seamlessly share it with first responders in the field. The benefits of this capability are endless. Live videos of a crime scene could help law enforcement more quickly identify where a suspect is located. Photos from a burning building can assist firefighters with determining what rescue equipment is needed. Health information sent from a smartphone or smartwatch can assist EMS and hospitals with preparing treatments before a patient is in their care. The ability to utilize advanced data is just one of NG 9-1-1's many benefits. Simply put, upgrading to NG 9-1-1 will save lives.

To help raise awareness and advocate for NG 9-1-1, approximately two years ago, the MCCA helped found the Public Safety Next Generation 9-1-1 Coalition. The Coalition consists of the leadership of many of America's major law enforcement, fire service, emergency medical services, labor unions, and public safety communications associations. The goal of the Coalition is to work with Congress and other key stakeholders to ensure the right policies are in place and secure the requisite resources to bring about a nationwide upgrade of existing 9-1-1 systems to next generation systems. As part of its efforts, the Coalition established a set of first principles. These principles must be incorporated into any NG 9-1-1 upgrade to ensure public safety professionals and the communities we serve can realize the full benefits of this technology. The Coalition's first principles are:

- NG 9-1-1 should be technologically and competitively neutral and use commonly accepted standards that do not lead to proprietary solutions that hamper interoperability, make mutual aid between agencies less effective, limit choices, or increase costs.
- Development of program requirements, grant guidance, application criteria, and rules regarding NG 9-1-1 grants should be guided by an advisory board of public safety practitioners and 9-1-1 professionals.
- NG 9-1-1 must be fully funded to ensure it is deployed throughout the country in an effective, innovative, and secure manner and to enable NG 9-1-1 implementation training nationwide.
- The process for allocating funds to localities should be efficient, federal overhead costs should be minimized, and grant conditions should not be onerous or extraneous and should be targeted to achieve important objectives including interoperability and sustainability.
- Cybersecurity of NG 9-1-1 systems should be a primary consideration.
- Incentives for increased efficiency of NG 9-1-1 functions, including through shared technology and regional collaboration, should be included.

While all the Coalition's first principles are important, I want to focus on interoperability. A lack of interoperability is one of the most significant flaws with current 9-1-1 systems, as 9-1-1 centers cannot quickly transfer calls to other centers. Instead, public safety communications professionals typically need to facilitate the transfer manually. As a result, the individual who called for help often needs to tell their story again to the dispatcher at the new center. Every second counts when

responding to an emergency, and the delays created by a lack of interoperability can be the difference between life and death.

Roughly 80% of 9-1-1 calls are now made from cell phones. In many instances, the 9-1-1 center that receives the call is based on the location of the cell tower that processed the call. It should be noted that while wireless carriers and device manufacturers have developed and implemented features to route calls based on the device's actual location, it is not always possible to direct calls via this method.[2] MCCA member agencies typically border multiple jurisdictions, which complicates the challenges related to interoperability. MCCA members can provide numerous examples of calls for service in their cities, especially near jurisdictional boundaries, being routed to 9-1-1 centers in neighboring areas. One member located near the state line has indicated that emergency calls are sometimes routed to a 9-1-1 center in another state.

The upgrade from landline to IP-based technology, known as ESInets, is the backbone of an NG9-1-1 upgrade. This is an important step but is not enough on its own to solve interoperability issues. As 9-1-1 systems are upgraded to NG 9-1-1, these new systems must be technologically and competitively neutral. NG 9-1-1 systems also must use commonly accepted standards and cannot rely on proprietary solutions. If we fail to do this, we risk ending up in a situation that shares many of the challenges public safety agencies are currently experiencing with land mobile radios. I will discuss those issues in greater detail later in my testimony.

Traditionally, 9-1-1 operations are a state and local function. Unfortunately, this has created a situation of "haves and have nots," where 9-1-1 system capabilities vary dramatically between states and communities. Given the immense public safety value, we must ensure that all of America, from the largest cities to the most rural counties, can upgrade to NG 9-1-1 systems as soon as possible. It will be tough to efficiently implement this upgrade nationwide without an investment of federal resources. The cost of this upgrade goes well beyond the infrastructure and technology NG 9-1-1 systems need to operate. There are also costs associated with other critical components, such as training dispatchers and other personnel on these new systems and implementing vital cybersecurity measures to ensure the systems cannot be taken offline by malicious actors. Federal assistance for NG 9-1-1 systems must be sufficient enough to address all aspects of the upgrade. Otherwise, it may further cement the status quo of "haves and have nots." It may also inhibit public safety from addressing all existing challenges with current 9-1-1 systems or fully capitalizing on the new capabilities NG 9-1-1 systems provide.

The Coalition worked closely with the House, Senate, and other stakeholders to secure funding for NG 9-1-1 in the reconciliation package that Congress is developing. These resources will be instrumental in ensuring that all communities have a secure, resilient, interoperable, and reliable way of receiving, processing, and responding to requests for emergency assistance. The MCCA strongly encourages all Members of Congress to support the NG 9-1-1 portion of this legislation.

Radio Interoperability

Land mobile two-way radios are law enforcement officers' primary communication tool. During calls for service, officers rely on their radios to stay connected and share and receive information

[2] Mark Reddish, "New Progress for Getting Wireless 9-1-1 Calls to the Right ECC, *APCO International*, September 26, 2019. < https://www.apcointl.org/2019/09/26/new-progress-for-getting-wireless-9-1-1-calls-to-the-right-ecc/>

with dispatch centers, command staff, and other officers in the field. The ability to communicate seamlessly helps ensure that the law enforcement response to an emergency is as effective and safe as possible for all parties involved.

While there are few issues with intra-agency communications, interagency communications can be complex, especially among agencies using conventional radio systems. Conventional radios use radio bands that are typically based on the user's operational needs. For example, police departments in metropolitan areas may use ultra-high frequency (UHF) radios due to UHF's ability to permeate buildings. However, departments in rural areas might use very high frequency (VHF) radios due to VHF's ability to transmit information over long distances. Conventional systems are not interoperable, as an agency using a UHF system cannot communicate with an agency utilizing a VHF system without deploying additional technology, often at great expense.

Considering these challenges, many MCCA member agencies have developed and implemented workarounds to facilitate interagency communications. These solutions do have some shortcomings that can impact their effectiveness. One workaround is to install patches that allow radio systems to take incoming communications from one band and rebroadcast them out on another band. However, for an officer to receive these communications, they must be in range of a radio tower or repeater that uses the same band as their radio. This may result in a loss of interoperability if the officer is outside of their usual area of operations.

The workarounds to achieve interoperability are also incredibly expensive, which limits how widely agencies can deploy them. For example, one MCCA member purchased dual-band radios that could utilize UHF and VHF but could only afford to put them in patrol cars. Therefore, these officers lose access to interoperable communications as soon as they leave their vehicles. While these kinds of solutions do represent some progress, they do not represent full interoperability. Despite the 9/11 Commission's recommendation, challenges related to interoperability have simply been patched, not solved.

The lack of interoperable communications can present several operational challenges whenever multiple agencies are responding to an incident. This is especially troubling for the MCCA, as our member agencies operate in major urban centers with numerous other law enforcement and public safety agencies. MCCA members work closely with these agencies to facilitate mutual aid requests and respond to incidents that cross jurisdictional boundaries. Furthermore, police often respond jointly with our fire department and EMS colleagues to traffic accidents, fires, and medical emergencies. The inability to easily communicate with each other adds yet another layer of complexity to these joint responses.

Public safety agencies would significantly benefit by moving from conventional to digital radio systems. Digital systems create efficiencies and allow more users to operate on fewer frequencies. Most importantly, the transition from conventional to digital systems provides a pathway to full interoperability. Despite this pathway, there are still several hurdles that need to be overcome. The current industry standard, P25, has produced a situation that lends itself to proprietary vendor solutions. Consequently, digital radio systems are often only interoperable if both parties use the same vendor. To communicate with systems developed by other vendors, agencies need to purchase special, expensive, technology called gateways.

There undoubtedly is a need for public safety, industry, the federal government, and other stakeholders to work together to address the shortcomings in the current standards. The MCCA stands ready to help advance these conversations. Any updated standards must eliminate proprietary solutions, which inhibit interoperability. They must also address emerging issues such as encryption. Currently, radio systems that use different encryption standards are not interoperable, even with a gateway. If systems used commonly accepted encryption standards, it would help eliminate this challenge.

Upgrading to digital radio systems requires significant resources, as it often necessitates a complete rebuild of the radio system. The costs include not only the radios themselves but also the purchase and installation of additional radio towers, repeaters, and other infrastructure. One MCCA member, located in a smaller jurisdiction, estimated that transitioning to a digital radio system would cost the agency $30 million. Most public safety agencies, especially law enforcement agencies, do not have this kind of funding available in today's budgetary environment. It will be nearly impossible to achieve full communications interoperability without assistance from the federal government. Congress should consider appropriating additional grant funding to assist state and local entities with upgrading their radios to digital systems.

Communications Resiliency

Emergencies communications, such as 9-1-1 calls, is one of the primary methods through which members of the public let police, firefighters, EMS, and other first responders know they need help. As such, the systems used to receive and manage these communications must be resilient and able to withstand all manner of threats, whether they be natural or manmade.

Unfortunately, just a few weeks ago, the impacts of Hurricane Ida made it abundantly clear that there is still work to do to harden and make our communications systems as resilient as possible. It was widely reported that the 9-1-1 center in New Orleans was offline for approximately 13 hours following the hurricane.[3] This outage was particularly devastating, considering the sheer number of people who needed assistance during this time. We commend our MCCA colleague, Superintendent Shaun Ferguson, and all the brave officers in the New Orleans Police Department for their efforts to continue to serve their community and aid those in need in the face of this extraordinary challenge.

The outage in New Orleans was attributed to outdated technology. As mentioned earlier, many communities across the United States still rely on landline technology to deliver 9-1-1 calls, which can be especially susceptible to some of the consequences of natural disasters, such as flooding and power outages. The move to NG 9-1-1, where requests for assistance are delivered via IP-based technology, would help alleviate this issue because it would be easier to route incoming calls to another 9-1-1 center. The events in New Orleans are just another example of why it is so important to upgrade our country's 9-1-1 systems to next generation systems as quickly as possible.

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[3] Todd C. Frankel, Aaron Gregg, and Drew Harwell, "911 calls after Ida went unanswered in New Orleans due to 'antiquated technology," *The Washington Post*, August 30, 2021. <https://www.washingtonpost.com/business/2021/08/30/orleans-ida-911-calls/>

Natural disasters are not the only threat that can test the resiliency of public safety communications systems. These systems must also contend with manmade threats, such as cyberattacks. Over the past decade, public safety agencies, including many MCCA members, have experienced increased ransomware, denial of service, and other types of cyberattacks. According to a compilation of publicly reported incidents, there have been 105 cyberattacks directed at public safety agencies in the last 24 months. Several of these attacks were directed at 9-1-1 services.[4] It is important to note this only includes publicly reported incidents, the actual number of attacks is likely much higher.

As law enforcement and other public safety agencies rely more and more on technology systems to carry out their missions, these attacks can have catastrophic effects. Agencies can be especially vulnerable if their technology systems are outdated, or their personnel are not adequately trained to mitigate cyber threats. These challenges can be exacerbated by public safety agencies' connections with more extensive municipal networks, which may be less secure and provide an alternative vector for attacks.

Public safety must continue to work tirelessly to mitigate cyber threats. One of the best defenses is to ensure that agency personnel are well educated and trained on good "cyber-hygiene." Congress can also take a few steps to help local governments defend themselves against cyberattacks. First, Congress must ensure the grant programs that help build local cyber capacity, such as the Homeland Security Grant Program, are fully funded. Congress should also continue to ensure agencies such as DHS's Cybersecurity and Infrastructure Security Agency (CISA) have the authorities and resources needed to continue programs and efforts designed to help local government agencies prevent and respond to cyberattacks.

Location Accuracy

When an individual places a 9-1-1 call, dispatchers can typically determine the caller's horizontal location (x and y-axis) using GPS coordinates that provide the longitude and latitude. While this directs law enforcement and other first responders to a place on the ground, it can be difficult for the dispatcher to determine the caller's vertical location (z-axis). The lack of accurate vertical location data presents an operational challenge, especially for MCCA member agencies, which operate in dense metropolitan areas and frequently respond to calls for service at multistory buildings. In a profession where seconds matter, the amount of time it takes to determine if the person who needs help is on the 5th floor or the 50th floor can have tragic consequences.

Progress is being made, albeit slowly, to improve location accuracy. In 2015, the Federal Communications Commission (FCC) adopted new rules that require wireless carriers to provide either vertical or dispatchable location information (floor level, room number, etc.) to help identify a 9-1-1 caller's specific location. To comply with the FCC's latest order on this topic, the *Sixth Report and Order*, carriers would have needed to provide this information for 9-1-1 calls originating in each of the top 25 U.S. markets by April 2021. However, they missed this deadline, and the FCC launched enforcement investigations shortly thereafter.[5]

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[4] Seculore Solutions, "Cyber Attack Archive," accessed on October 5, 2021. <https://www.seculore.com/resources/cyber-attack-archive>

[5] "FCC Secures Life-Saving Commitments from Wireless Carriers to Deliver 911 Vertical Location Information Nationwide Within Seven Day", *Federal Communications Commission,* June 3, 2021.

The FCC reached a settlement with the wireless carriers, and the carriers were given another year to comply with the FCC's rules. In addition, the carriers were required to immediately begin providing any available vertical location data.[6] Unfortunately, in many instances, 9-1-1 centers are either unable to receive this data, or the information is too inaccurate to use. Given the public safety benefits, we must continue to improve location accuracy as quickly as possible. As such, through its oversight efforts, Congress must ensure the FCC continues to work with all stakeholders to uphold the commitments and timelines laid out in the FCC's rules.

Communications Grant Funding

Public safety communication systems are very costly to develop, acquire, maintain, and upgrade. Given the current strain on local budgets, federal grants can provide critical resources for agencies looking to enhance their communications capabilities. There are numerous grant programs, including FEMA's Urban Area Security Initiative (UASI) and State Homeland Security Grant Program (SHSP), that can be used to fund communications projects. Nevertheless, it is the primary focus of few, if any, of these programs. As a result, communications projects may need to compete with other priorities and projects for grant dollars. UASI and SHSP are two relevant examples that demonstrate how even though a grant program can be used for emergency communications projects, several factors may impact how much of the funding is used for that purpose.

Each year, UASI and SHSP grantees are required to dedicate a certain percentage of funds to projects that meet the criteria outlined in the statute or the grant program's Notice of Funding Opportunity. The percentage of a recipient's award that must be dedicated to these obligations has continued to grow annually. For example, in FY 2020, grantees were required to commit 20% of their funding to National Priorities Areas, and in FY 2021, this requirement rose to 30%. Since emergency communications do not fall into any of the National Priority Areas, reducing the discretionary funding available for projects outside of these priorities may inhibit agencies' ability to fund communications projects using UASI or SHSP grants. While National Priorities Areas can help ensure limited grant funding is used as effectively, they must be developed in consultation with key stakeholders to ensure the priorities reflect the needs of grantees.

Further complicating matters is that the UASI and SHSP set aside that can be used for communications projects, the Law Enforcement Terrorism Prevention Activities (LETPA), has been weakened over the years. LETPA was initially a standalone grant program but stopped receiving funding in 2007. Now, it is a 25% carve-out for UASI and SHSP funds. The move from grant program to spending requirement reduced the available LETPA funding, thereby impacting the universe of LETPA funded projects. For example, funding for a fusion center and Chemical, Biological, Radiation, Nuclear, and Explosive response teams take up nearly all of one MCCA member's LETPA set aside every year. Strengthening LETPA, or restoring it to a standalone program, may increase the amount of funding available to public safety agencies for emergency communications projects.

< https://docs.fcc.gov/public/attachments/DOC-372980A1.pdf> *See also* Page 5 of the FCC Settlements with the wireless carriers, available here:
<https://www.fcc.gov/document/fcc-secures-911-vertical-location-commitments-wireless-carriers>

[6] *Ibid.*

Conclusion

Public safety communications are an integral part of law enforcement and other first responders' everyday operations and response to emergencies. While some progress has been made since the 9/11 Commission issued its recommendation regarding public safety communications nearly 20 years ago, there are still challenges that must be overcome, especially with respect to interoperability and our country's 9-1-1 systems. Federal assistance will almost certainly be needed if we are to address these issues quickly and efficiently. The MCCA stands ready to work with the Committee to address our members' public safety communications challenges.