Dr. Brian Fontes
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Responses to Questions for the Record
Public Safety Communications in the United States

The Honorable Russ Fulcher

1. Do you face any reception or data send/receive interruptions or delays due to the inability of wireless and broadband providers from deploying equipment on federal lands that may be adjacent to state, local, or private lands in more rural areas?

ANSWER:

Within 9-1-1, interruptions of service are not atypical. It is the magnitude of the interruptions or service outages by carriers and broadband providers that matter. The Federal Communications Commission (FCC) has rules in place with outages that need to be reported to the agency. This requirement is based on the number of wireless customer and length of time of the outage. Daily, there may be small, short-service disruptions, and there can be many causes of those small disruptions, *e.g.*, weather, electrical connection interruption, and these interruptions can be measured in seconds. Again, longer and more widespread disruptions are reported to the FCC.

Deploying communications equipment on federal land or even adjacent to federal lands has been a debated issue for decades since there are competing interests, those seeking to maintain the natural beauty of an area, and those that place the safety and security of those using federal lands as a reason for siting antennae. Putting that debate aside, what matters is the ability to communicate with 9-1-1 and other public safety services. There are steps that can be taken to improve the likelihood of public safety services and hopefully mitigate service disruptions. These include:

- Investment in redundant communications systems servicing 9-1-1systems.

- Funding the transition to Next Generation 9-1-1 will enable 9-1-1 centers to move calls and data to other 9-1-1 centers if the initial 9-1-1 center experiences a service disruption.

- The FCC can permit increased communication power limits in rural areas and areas adjacent to federal lands to provide better wireless service geographic coverage.

2. Have you heard of problems due to the inability to locate towers, generating stations, or other equipment that are causing such interruptions or delays?

ANSWER:

As long as there has been cellular (now wireless) service there has been opposition to the siting of towers. Tower companies have worked with communities to disguise towers (*e.g.*, trees) and blend towers into existing structures. None the less, the debate associated with tower placement continues. Many towers that provide commercial services also provide co-location ability for public safety radio and fixed wireless services. Thus, both the public and public safety services benefit from the placement of towers and supporting power sources.

For temporary/deployable sites during disaster events, government agencies are generally good partners as they have incentives to restore and maintain service for their own emergency management efforts and their citizens. All major wireless carriers have response teams that can issue deployables upon request. For purposes of deploying permanent sites and backup generators, wireless carriers could speak more directly to their experiences in navigating various zoning and other siting restrictions, but I've heard anecdotes about challenges in this area.

The Honorable Robert Menendez

1. In New Jersey, Superstorm Sandy showed us how fragile communications systems can be during disasters. As natural disasters continue to become more frequent and severe, resilient, multi-layered public safety networks are essential for keeping Americans safe. I'd like to explore this issue further.

 2.   Dr. Fontes, how can Congress best ensure the resiliency of public safety networks? And during emergencies, what role do connected vehicle technologies such as OnStar play in keeping residents safe when traditional systems go down?

ANSWER:

Congress can ensure there is funding available to transition from legacy 9-1-1 systems to Next Generation 9-1-1 (NG9-1-1) systems. This funding is essential to provide continuity of 9-1-1 service. If a 9-1-1 center is down, then those who can call 9-1-1 will have those calls routed automatically to another 9-1-1 center that is still fully functioning. This is something that the old, legacy 9-1-1 system cannot do. We have seen the benefit of NG9-1-1 in the hurricane ravaged area of western North Carolina after Hurricane Helene.

We communicate in a data-driven world today, and 9-1-1 is largely still tethered to voice communications and are incapable to utilizing data callers could send with their wireless devices. Especially during emergencies, voice, video and data (comprising information-rich 9-1-1 calls) can provide greater safety, more targeted responses, and crucial information targeted to the caller and location-specific situations, *e.g.,* road and bridge washouts, destroyed buildings and infrastructure. Simply put, we need to ensure the next generation of 9-1-1 is funded and upgraded to 21st century technology – capable of communicating in a voice and data driven world.

Public safety users, such as emergency responders, not only rely on their own stand-alone radio systems in some areas, but also rely heavily on commercial wireless networks, such as Verizon Frontline, AT&T FirstNet, and T-Mobile's T-Priority. Policies that promote resiliency of commercial networks, for example through tower siting policies that allow the use of backup power, overlapping site coverage, and reliable fiber backhaul, will inevitably redound to the benefit of public safety.

Regarding connected vehicle technologies, many of these technologies, such as OnStar, provide connectivity using regular cellular networks. This means that, if wireless networks are down, connected vehicle technology also would not be available. Connected cars are likely to have a Global Positioning System (GPS) connection, which provides the location of the automobile, but transmission of the vehicle location to the 9-1-1 center would also require the availability of wireless networks. Advanced Automatic Collision Notification (AACN) is a connected vehicle technology that can provide GPS location and hundreds of other data points – such as number of

passengers, airbag deployment, crash severity indicators, presence of fire, impact details, seatbelt status and the number of occupants using seat sensors, vehicle type, post-crash conditions, e.g. roll-over, multiple impacts and vehicle data regarding fuel type (gas vs. electric). This information allows field responders to know the situation before arriving on the scene and prepare the appropriate response. Importantly, this connectivity and information may provide faster dispatch and more appropriate response. Again, such services are dependent on wireless connectivity.

Until now, post-collision data applications have been delivered to 9-1-1 centers "over the top," meaning outside the normal 9-1-1 call flow and workflow. Soon, with the advent of NG9-1-1, this AACN data can be delivered to 9-1-1 centers natively in the 9-1-1 environment and through the 9-1-1 workflow. This means that 9-1-1 telecommunicators will not be required to interact with a separate application to use AACN data. NENA and APCO have jointly developed standards for the delivery of AACN, and NHTSA is actively engaging with both automotive manufacturers and the 9-1-1 community to improve AACN to 9-1-1. Earlier this year, Toyota announced a partnership with Intrado (the largest U.S. provider of 9-1-1 technology) to bring AACN directly to 9-1-1 centers over NG9-1-1 infrastructure.