



U.S. HOUSE OF REPRESENTATIVES  
COMMITTEE ON ENERGY AND COMMERCE

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March 27, 2017

TO: Members, Subcommittee on Communications and Technology

FROM: Committee Majority Staff

RE: Hearing on “Realizing Nationwide Next-Generation 911.”

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**I. INTRODUCTION**

The Subcommittee on Communications and Technology will hold a hearing on Wednesday, March 29, 2017, at 10:00 a.m. in 2123 Rayburn House Office Building entitled “Realizing Nationwide Next-Generation 911.” The hearing will examine the progress in the deployment of Next Generation 911 (NG911) in the United States.

**II. WITNESSES**

One panel of witnesses will testify:

- Trey Forgety, Director of Governmental Affairs, National Emergency Number Association;
- Barry Ritter, ENP, Executive Director, Statewide 911 Board, State of Indiana;
- Walt Magnussen, Director, Internet2 Technology Evaluation Center, Texas A&M University;
- Mary A. Boyd, Vice-President, Regulatory, Policy and External Affairs, West Safety Services; and
- Steve Souder, Maryland Emergency Number (9-1-1) Systems Board, Former Director, Fairfax County 9-1-1.

**III. BACKGROUND**

On January 12, 1968, “911” was designated as a universal emergency number by AT&T, the dominant telephone service provider in the United States.<sup>1</sup> Prior to that time, people called “0” for an operator in times of an emergency. It was not until the Wireless Communications and Public Safety Act of 1999 that “911” was established as the official nationwide emergency call number.<sup>2</sup>

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<sup>1</sup> In 1967, the President’s Commission on Law Enforcement and Administration of Justice issued a report recommending, among other things that “a single police telephone number should be established, at least within a metropolitan area and eventually over the entire United States. . . .” See *The Challenge of Crime In A Free Society*, A Report By The President’s Commission On Law Enforcement And Administration of Justice, p. 254, available at <https://www.ncjrs.gov/pdffiles1/nij/42.pdf>.

<sup>2</sup> Pub. L. No. 106-81, 113 Stat. 1286.

The architecture of “Basic 911” as this service is known, is based on the wireline, analog, circuit-switched technologies of the legacy public switched telephone network (PSTN). A 911 voice call is routed from the service provider’s switch to an emergency call center or “Public Safety Answering Point” (PSAP) using telephone trunk lines dedicated to such calls. Beginning in the mid-1970s, Basic 911 was “enhanced” as developments in technology permitted the introduction of location data. The architecture of Enhanced 911 permitted the PSAP to identify the physical address associated with the telephone number of the caller. The evolution in the 911 system capabilities from basic service to the enhanced service marked the beginning of the evolutionary track of 911 service – an evolution in which the ability to locate the caller with increasing accuracy stood as a defining issue.

With the emergence of wireless telephone service in the 1990s, new technologies were needed to adapt 911 systems to the mobile nature of cellular service. The Federal Communications Commission (FCC) took action in 1996 to address these developments by adopting a staged implementation of location accuracy requirements for wireless carriers.<sup>3</sup>

The introduction of Voice-over-IP (VoIP) – an Internet-based service that permits voice calls using a broadband connection instead of a traditional landline telephone – presented similar challenges. VoIP service can be nomadic – used from virtually any internet connection – which makes it a combination of the mobility of wireless and the fixed nature of wireline. The FCC adopted rules requiring providers of interconnected VoIP telephone services – those that connect to the telephone network – to meet certain location information obligations to provide enhanced 911.<sup>4</sup>

Significantly, while 911 services were evolving, so were communications networks. The new Internet protocol-based networks provide all the same functions as the legacy networks they are replacing, but they also provide a host of new capabilities. In the context of 911 service, these capabilities allow the general public to make a call – voice, text, or video – from any wired, wireless, or IP-based device. And they allow PSAPs to transfer this information among other PSAPS and emergency organizations. In an acknowledgement of this transition and the implications for existing 911 services dependent on the legacy technology, the “NextGen 911 System Initiative” was launched in 2004 to facilitate the design of an IP-based next generation infrastructure for the delivery of 911 services.<sup>5</sup>

Congress has been active to facilitate the transition to NG911. The Enhance 911 Act of 2004 created the E911 Implementation Coordination Office (ICO), an office jointly administered by the National Telecommunications and Information Administration (NTIA) and the National Highway Transportation Safety Administration (NHTSA) to assist state and local authorities.<sup>6</sup> The ICO also administers a grant program for the implementation and operation of 911 services. The NET 911 Act, enacted in 2008, directed the ICO to develop a national migration plan for the transition of 911 to an IP-enabled 911 network.<sup>7</sup>

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<sup>3</sup> *Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems*, CC Docket No. 94-102, Report and Order and Further Notice of Proposed Rulemaking, 11 FCC Rcd 18676 (1996).

<sup>4</sup> *IP-Enabled Services, E911 Requirements for IP-enabled Service Providers*, WC Docket Nos. WC Docket No. 04-36, 05-196, First Report and Order and Notice of Proposed Rulemaking, 20 FCC Rcd 10245 (2005).

<sup>5</sup> See generally [https://www.its.dot.gov/research\\_archives/ng911/index.htm](https://www.its.dot.gov/research_archives/ng911/index.htm).

<sup>6</sup> Ensuring Needed Help Arrives Near Callers Employing 911 Act of 2004, Pub.L.108-498, §§ 104, 158(b)(1); 118 Stat.3987-3988; 47 U.S.C. §§ 901, 942.

<sup>7</sup> New and Emerging Technologies 911 Improvement Act of 2008, Pub. L. No. 110-283, 122 Stat. 2620 (2008).

Most recently, the NG911 Advancement Act, passed as part of the Middle Class Tax Relief and Job Creation Act of 2012,<sup>8</sup> reestablished the ICO and established a matching grant program for the implementation of 911 services, including NG911. The Act also required the ICO to provide Congress with a cost study that “analyzes and determines detailed costs for specific Next Generation 911 service requirements and specifications.”<sup>9</sup> In addition, the Act directed the FCC to submit recommendations regarding the legal and regulatory framework for the development of NG911 services and the transition from legacy to NG911 networks.<sup>10</sup>

#### IV. DISCUSSION

It has been nearly two decades since efforts to transition to NG911 began. Over the course of this period, significant effort and resources have been committed to the transition. According to the National 911 Program’s 2016 National 911 Progress Report, “progress is being made.”<sup>11</sup>

- Of the 46 states providing data, 20 report that a statewide NG911 plan has been adopted;<sup>12</sup>
- 19 report that a Statewide Request for Proposal has been released;<sup>13</sup>
- 17 report statewide installation and testing;<sup>14</sup> and,
- Of the states reporting operational NG911 systems – 12 of 45 maintain a NG911 system that is operational in 100 percent of the state.<sup>15</sup>

However, several barriers remain to the realization of nationwide NG911.

#### **Funding**

While it is understood that the costs of the transition to NG911 are significant, an authoritative comprehensive cost study has not been produced to date.<sup>16</sup> Congress directed the ICO to submit a cost study within one year of the passage of the NG911 Advancement Act in 2012, but no such study has been submitted, despite bipartisan concerns over the previous administration’s delay.<sup>17</sup>

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<sup>8</sup> Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96, 126 Stat. 156, Sections 6503-6509; 47 U.S.C. §§ 942, 1471-1473 (2012).

<sup>9</sup> *Id.* at § 6508.

<sup>10</sup> *Id.* at § 6509.

<sup>11</sup> 2016 National 911 Progress Report at 3, available at <https://www.911.gov/pdf/National-911-Program-2016-ProfileDatabaseProgressReport-120516.pdf>. (National 911 Progress Report). All 57 states and territories were invited to participate in the 2016 data collection effort.

<sup>12</sup> *Id.*

<sup>13</sup> *Id.*

<sup>14</sup> *Id.*

<sup>15</sup> National 911 Progress Report at 3.

<sup>16</sup> In 2011 the FCC released a cost study of the network connectivity and call routing portion of the nationwide NG911 network. The FCC estimated a cost \$2.68 billion over 10 years to provide the broadband connectivity to PSAPs based on the number of PSAPs at that time of the study and \$1.44 billion if PSAPs consolidated and opted for hosted solutions. See White Paper: A Next Generation Cost Study: A Basis for Public Funding Essential to Bringing a Nationwide Next Generation 911 Network to America’s Communications Users and First Responders, available at [https://apps.fcc.gov/edocs\\_public/attachmatch/DOC-309744A1.pdf](https://apps.fcc.gov/edocs_public/attachmatch/DOC-309744A1.pdf).

<sup>17</sup> ICO’s disbursement of \$115 million in grant funding for NG911 implementation also stalled. See Letter from the Honorable Greg Walden, Chairman, Subcommittee on Communications and Technology, Energy and Commerce Committee, United States House of Representatives, The Honorable Anna G. Eshoo, Co-Chair, Congressional NextGen 9-1-1 Caucus, United States House of Representatives, The Honorable John Shimkus, Co-Chair, Congressional NextGen 9-1-

911 service is primarily funded at the state and local level, generally through monthly line item charges on wireline and wireless bills. In 2015, \$2.63 billion was collected by the states through these charges.<sup>18</sup> Unfortunately, a number of states have diverted these funds for other purposes. There is also strong support among stakeholders to bring this practice to an end as it undermines the provision and upgrade of 911 services and threatens the implementation of NG911 nationwide. According to the FCC, over \$220 million, or approximately 8.4 percent of the total collected, was diverted for purposes other than 911.<sup>19</sup>

While additional funding comes from state appropriations and federal grants, the consensus among stakeholders is that current funding levels are inadequate and the existing funding mechanisms need to be updated.<sup>20</sup> These recommendations include eliminating funding inconsistencies between states, within states, and between voice delivery networks – landline, wireless, VoIP and prepaid. For example, prepaid wireless service is not uniformly assessed 911 surcharges. It has been observed that eliminating such inconsistencies could increase funding in many states.<sup>21</sup>

### **Governance**

The primary authority over PSAPs lies with state and local authorities. As a result, oversight and decision-making is diffuse. Some have observed that the transition to NG911 will be achieved more quickly and cost-effectively where decision-making and oversight authority are focused at the state level as opposed to the local level.<sup>22</sup> At least one expert has concluded that “[w]ithin each state there must be one entity that holds overall authority and responsibility for the planning and implementation of an NG911 network.”<sup>23</sup> Estimates are that only about half of the states have established state-level 911 boards or similar entities.<sup>24</sup>

### **Network Security**

Because it is based on an IP-enabled networked architecture, NG911 networks are vulnerable to cyber attacks, including denial of service attacks. Accordingly, the deployment of NG911 demands the most current and evolving cyber security protections. While steps have been taken through the release of a comprehensive cyber security standard by National Emergency Number Association

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1 Caucus, United States House of Representatives to The Honorable Lawrence E. Strickling, Assistant Secretary, National Telecommunications and Information Administration, United States Department of Commerce and The Honorable Dr. Mark Rosekind, Administrator, National Highway Traffic Safety Administration, September 29, 2016, *available at* [https://energycommerce.house.gov/sites/republicans.energycommerce.house.gov/files/documents/114/letters/20160929NTI ANHTSA.pdf](https://energycommerce.house.gov/sites/republicans.energycommerce.house.gov/files/documents/114/letters/20160929NTI%20ANHTSA.pdf).

18 *Eighth Annual Report To Congress On State Collection And Distribution Of 911 And Enhanced 911 Fees and Charges*, Federal Communications Commission, December 30, 2016, at 3, *available at* [https://apps.fcc.gov/edocs\\_public/attachmatch/DA-17-61A2.pdf](https://apps.fcc.gov/edocs_public/attachmatch/DA-17-61A2.pdf).

19 *Id.*

20 *See Legal and Regulatory Framework for Next Generation 911 Services*, Report to Congress and Recommendations, Federal Communications Commission, at 33 *available at* <https://www.fcc.gov/document/legal-and-regulatory-framework-ng911-services-report-congress> (FCC Report).

21 *See The Status of NG911 Deployment in the United States*, at 26 *available at* <https://www.theindustrycouncil.org/publications/iCERTReportontheStatusofNG911DeploymentintheUnitedStates.pdf>.

22 FCC Report at 22.

23 *See The Status of NG911 Deployment in the United States* at 20.

24 FCC Report at 22.

(NENA),<sup>25</sup> the FCC has recognized that “additional work is required to ensure that NG911 traffic is authenticated and encrypted, and its integrity protected.”<sup>26</sup>

### **Regulatory Barriers**

State and local regulations that contemplate legacy circuit-switched services have also been identified as barriers to NG911 transition.<sup>27</sup> These include state approval processes and certification requirements. For example, some state statutes require the use of legacy network elements that are not included in NG911 architectures. NHTSA has observed that “current laws and regulations in most States do not effectively enable the implementation of new technologies. . . .” and “[m]any existing laws, regulations, and tariffs specifically reference older technologies or system capabilities and may inadvertently inhibit the migration to IP-enabled 9-1-1.”<sup>28</sup>

These barriers, among others, demonstrate that increased funding alone will not ensure the transition to nationwide NG911. Some have suggested that success lies in a greater federal role.<sup>29</sup> At least one consideration calls for the establishment of a single entity that has the responsibility and authority to oversee the transition possibly at the federal level.<sup>30</sup> Others call for the federal government to establish certain databases that support NG911 routing and security to take advantage of economies of scale, reduce costs, and promote the consistent adoption of technical standards nationwide.<sup>31</sup> The hearing will examine these matters and others through an examination of the current state of NG911 implementation.

## **V. STAFF CONTACTS**

If you have any questions regarding this hearing, please contact Gene Fullano of the Committee staff at (202) 225-2927.

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<sup>25</sup> FCC Report at 50-51.

<sup>26</sup> *Id.* at 51.

<sup>27</sup> FCC Report at 55.

<sup>28</sup> *Guidelines for State NG9-1-1 Legislative Language*, National Highway Traffic Safety Administration at 1 available at 1 <https://www.911.gov/pdf/modelng911legis-110812.pdf>8-19.

<sup>29</sup> FCC Report at 3.

<sup>30</sup> See *The Status of NG911 Deployment in the United States* at 28.

<sup>31</sup> FCC Report at 2.