Pursuant to the
Next Generation 911 Advancement Act of 2012
(Pub. L. No. 112-96 (2012))

Legal and Regulatory Framework for Next Generation 911 Services

Report to Congress
and
Recommendations

Federal Communications Commission
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1. INTRODUCTION

This Report to Congress is submitted by the Chairman, Federal Communications Commission (the Commission),[1] pursuant to Section 6509 of the Next Generation 9-1-1 Advancement Act of 2012 (NG911 Act), enacted as part of the Middle Class Tax Relief and Job Creation Act of 2012.[2] Prepared by Commission staff in the Public Safety and Homeland Security Bureau (the Bureau),[3] this report contains recommendations for the legal and statutory framework for Next Generation 911 (NG911) services.

Since the first 911 call was placed in 1968, the nation's 911 system has become an increasingly important component of our public safety infrastructure. Over 240 million 911 calls are made in the United States each year, and the American public has come to depend on the 911 system for seeking and obtaining rapid emergency assistance. The effectiveness of 911 service is due largely to the efforts of thousands of public safety professionals, including the call-takers working in over 6,100 911 call centers (Public Safety Answering Points or PSAPs) and the police, fire, and emergency medical first responders who are dispatched to emergencies. In addition, wireless and wireline carriers, Voice over Internet Protocol (VoIP) providers, and technology companies play essential roles in the maintenance and operation of the system.

While our legacy 911 system is highly effective, it is also confronting significant challenges. The legacy system has largely been built using circuit-switched infrastructure that does not support newer communications technologies and applications that Americans are increasingly using for personal communications, such as sending text, images and video. In addition, some of the key infrastructure on which the legacy system depends is aging and will become progressively vulnerable if it is not maintained, upgraded, or replaced by newer, more resilient technology.

For these reasons, Congress has rightfully recognized the importance of transitioning to a NG911 system that uses Internet Protocol (IP)-based technology to deliver and process 911 traffic. NG911 will facilitate interoperability and system resilience, improve connections between 911 call centers, and support not only traditional voice 911 calls but also the transmission of text, photos, videos, and data. These new capabilities will enhance the accessibility of 911 to the public (*e.g.*, by enabling video and text-to-911 for persons with speech and hearing disabilities), and will provide PSAPs with enhanced information that will enable emergency responders to assess and respond to emergencies more quickly and effectively.

In addition to technological change, implementation of NG911 requires governmental action and coordination among the myriad federal agencies and state, regional, tribal, and local authorities that are responsible for oversight and management of different components of the 911 system. In its National Broadband Plan, the Commission noted that many of the existing state and federal regulations governing 911 were written before the technological capabilities of NG911 existed and have therefore hampered the implementation of NG911.[4] The Commission recommended that Congress consider

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[1] *See* 47 U.S.C. § 155(a) (stating, *inter alia*, that "[i]t shall be [the Chairman's] duty . . . to represent the Commission in all matters relating to legislation and legislative reports").

[2] Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96 (2012), Title VI, Subtitle E, Next Generation 9-1-1 Advancement Act (NG911 Act) § 6509.

[3] *See* 47 C.F.R. § 0.191(k) (providing delegated authority to the Public Safety and Homeland Security Bureau to develop responses to legislative inquiries).

[4] Federal Communications Commission, *Connecting America: The National Broadband Plan*, Recommendation 16.14 at 326 (2010), *available at* http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-296935A1.pdf (last accessed Feb. 4, 2013) (National Broadband Plan).

developing a new "legal and regulatory framework for development of NG911 and the transition from legacy 911 to NG911 networks."[5] In the NG911 Act, Congress directed the Commission to provide more detailed recommendations for creation of such a framework. This report responds to that directive.

2. SUMMARY OF RECOMMENDATIONS

In this Report, we identify potential steps for Congress to take to create a legal and regulatory environment that will assist states, PSAPs, service providers and other stakeholders in accelerating the nationwide transition from legacy 911 to NG911. These recommendations focus on three areas identified by the statute.

First, with respect to creating a legal and regulatory framework for NG911, as required by Section 6509(1),[6] we recommend that Congress create incentives for states to become "early adopters" of NG911. This will accelerate the NG911 transition in these states while also generating valuable experience with NG911 implementation that can make the transition easier for other states to follow. More generally, we recommend that Congress encourage state-level governance of NG911 deployment, but that it also consider creating a federal regulatory "backstop" to ensure that there is no gap between federal and state authority over NG911. In addition, we recommend that Congress promote a consistent nationwide approach to key elements of NG911 deployment, including standards that support seamless communication among PSAPs and between PSAPs and emergency responders; reforms to the NG911 funding structure; appropriate liability protection to encourage technological innovation and rapid deployment of NG911; and provisions to make NG911 fully accessible to people with disabilities.

Next, to ensure efficient and accurate transmission of 911 caller information to emergency response agencies, as provided by Section 6509(2),[7] we recommend that Congress promote the development of location technologies that will support all NG911 applications regardless of the network or device used by the caller. We also recommend that Congress support establishment at the national level of certain databases that support NG911 routing and security. These national-level databases would provide economies of scale, reduce NG911 transition costs for states and localities, and promote consistent adoption of technical standards nationwide.

Finally, as called for by Section 6509(3),[8] we identify areas where Congress could assist in the elimination of legacy state regulations that are impeding NG911 deployment, while providing incentives for states to modernize their laws and regulations to accommodate NG911. These reforms will enable both traditional and non-traditional service providers to support an expanded array of NG911 services and applications, and will facilitate the deployment of more flexible and resilient network architecture to support NG911 operations.

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[5] *Id.*

[6] NG911 Act § 6509(1).

[7] *Id.* § 6509(2).

[8] *Id*. § 6509(3).

The following is a listing of the specific recommendations made in this Report:

State and Local Governance of NG911[9]

- Congress should create mechanisms such as challenge grants and other competitive funding programs to encourage states to compete to be NG911 "early adopters."
- Local and state public safety authorities should retain their primary responsibility for the deployment and configuration of 911 and NG911 services, but Congress should encourage states to establish or empower state 911 boards or similar state-level governance entities to provide technical and operational expertise necessary for the development and deployment of NG911.

Federal Role in Transition to NG911[10]

- Congress should facilitate the exercise of authority over NG911 by such federal agencies as the Commission, the 911 Implementation and Coordination Office, the National Highway Traffic and Safety Administration, the National Telecommunications and Information Agency, and the Department of Homeland Security, so that they are better able to support the NG911 transition and to coordinate with one another more effectively in these efforts.
- To address instances where states lack authority under state law to regulate certain elements of NG911 service or otherwise choose not to exercise such authority, Congress should consider enacting legislation creating a federal regulatory "backstop" to ensure that there is no gap between federal and state authority (or the exercise thereof) over NG911.

Deployment and Interconnection of Emergency Services IP Networks (ESInets)[11]

- Congress should encourage and set a goal for the early deployment of state or regional ESInets.
- Congress should encourage or require the use of a common set of standards for seamless transmission of NG911 information between ESInets and with other public safety networks, including the Nationwide Public Safety Broadband Network.
- Congress should encourage the development of consolidated regional NG911 call centers where possible, for example, by offering preference for grant eligibility to states and regions that make progress toward this goal.

Updating Funding Mechanisms for NG911[12]

- Congress should develop incentives for states to broaden the base of contributors to NG911 funding to more accurately reflect the benefits derived from NG911 service.
- Congress should encourage states to provide funding for NG911 as well as legacy 911 purposes as part of any existing or future funding mechanism.
- Congress should condition grants and other appropriate federal benefits on a requirement

[9] *See* Section 4.1.1.

[10] *See* Section 4.1.2.

[11] *See* Section 4.1.3.

[12] *See* Section 4.1.4.

that funds collected for 911/NG911 funding be used only for 911 or NG911 purposes, and should provide for appropriate enforcement of such requirements.

Liability Protection for NG911 Stakeholders[13]

- Congress should consider incentives for states to revise their liability regimes to provide appropriate protection for entities providing or supporting NG911 services, in conformance with standardized guidelines or model state legislation.
- Congress should include appropriate liability protection as part of any federal law that imposes NG911 requirements or solicits voluntary NG911 activity.

Access to NG911 Systems for Persons with Disabilities[14]

- Congress should continue to update communication laws, including laws addressing NG911 services, to ensure that individuals with disabilities are able to fully utilize emerging and future technologies that support access to emergency services.
- Congress should support an ongoing advisory body to explore ways that evolving technologies can enhance communication between public safety services and persons with disabilities.
- Congress should support heightened coordination between the Commission and the U.S. Department of Justice on the development of regulations and outreach efforts to ensure accessible emergency services by people with disabilities.

Encourage Development of Accurate Location Information Technologies[15]

- Congress should not set standards but should provide incentives for development of improved location technologies.
- Congress should consider enacting legislation clarifying that all network access providers and "over-the-top" NG911 service providers have an obligation to support NG911 location determination by technically feasible and commercially reasonable means.
- Congress should support neutral third-party testing programs and testing requirements for location technology.

National NG911 Database Components to Support Routing and Secure Delivery of Caller Information[16]

- Congress should consider supporting and funding the development of the NG911 "Forest Guide" at the national level as proposed by NENA.

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[13] *See* Section 4.1.5.

[14] *See* Section 4.1.6.

[15] *See* Section 4.2.1.

[16] *See* Section 4.2.2.

Ensuring Security of NG911 Systems[17]

- Congress should consider measures to ensure adherence to security standards and best practices for NG911 networks and consider establishing and funding a national PSAP credentialing authority.

National Information Tools for Tracking NG911 Progress[18]

- Congress should support enhancements to the Master PSAP Registry and the 911 Profile Database to enable collection, updating, and timely tracking of additional information regarding PSAPs and their progress towards NG911implementation.
- Congress should authorize information collection of aggregate NG911 implementation data and should provide incentives for states and PSAPs to provide data, for example, by conditioning NG911 grant funding on participation in the database effort. Congress should also support the development of web-based data filing mechanisms to minimize the burden on entities submitting NG911 information.

Removing Jurisdictional Barriers and Inconsistent Legacy Regulations[19]

- Congress should encourage state adoption of an expanded and uniform definition of entities that may obtain certification to act as NG911 System Service Providers.
- Congress should encourage states to modify or eliminate legacy routing regulations and adopt a technology-neutral approach to routing of NG911 traffic.

3. BACKGROUND

3.1. Technical Overview of Legacy 911 and Next Generation 911

3.1.1. Legacy 911

Today, 911 service over legacy networks[20] comes in two varieties: basic 911, which transmits only the voice call to a PSAP, and Enhanced 911 (E911), which transmits the voice call as well as the caller's telephone number and information about the caller's location. Basic 911 service transmits 911 calls from the service provider's switch to a geographically appropriate PSAP or public safety agency, using telephone trunk lines that have been dedicated to transmitting emergency calls. E911 service expands on basic 911 service by delivering 911 calls to the appropriate PSAP and also providing the call taker with the caller's call-back number and location information – capabilities known as Automatic Numbering Information (ANI) and Automatic Location Identification (ALI), respectively. Most areas of the country

[17] *See* Section 4.2.3.

[18] *See* Section 4.2.4.

[19] *See* Section 4.3.

[20] The term "legacy network" is often used to refer to the older telephone network, which generally does not utilize TCP/IP protocols when transferring voice and data information and may not adhere to modern technical standards. Since the mid-1990s, IP-based technologies have increasingly displaced circuit-switched technologies for providing enterprise and residential voice service. For example, almost all voice services provided by wireless carriers now utilize IP-based technologies, and some cellular service providers are transitioning to so-called voice-over-LTE technology that is also based on Internet protocols.

have implemented E911 service.[21]

3.1.1.1. *Wireline E911*

For both basic 911 and E911 service over wireline telephone networks, PSAPs are connected to the wireline network by trunk lines that are dedicated to delivering emergency calls. This network design typically uses traditional circuit-switched architecture, although the set-up of specific networks may vary from carrier to carrier and jurisdiction to jurisdiction. Wireline 911 and E911 networks generally are implemented, operated, and maintained by the incumbent local exchange carrier (ILEC) in each PSAP's service area,[22] with the ILEC's costs usually paid for through state tariffs. Typically, the ILEC aggregates and delivers 911 calls to the PSAP via a selective router, which receives 911 calls from the ILEC's customers and from customers of competitive local exchange carriers over the emergency-dedicated trunks. When a wireline 911 call is made, the selective router queries a selective router database (SRDB) maintained by the ILEC to determine which PSAP serves the caller's geographic area.[23] The selective router will then forward the call, along with the caller's telephone number (*i.e.*, ANI), to the PSAP that serves the caller's area. The PSAP then queries for the caller's physical address by forwarding the caller's ANI to an ILEC-maintained Automatic Location Identification Database (ALI Database).[24]

3.1.1.2. *Wireless E911*

In the legacy 911 architecture, wireless 911 calls are typically transmitted by the wireless carrier to the ILEC's selective router and then relayed to the PSAP by the mechanism described above. As in the case of wireline E911, the Commission's wireless E911 rules require wireless carriers to provide the originating telephone number of a 911 call (*i.e.*, ANI) and information regarding the caller's location (*i.e.,* ALI) to any PSAP that has requested that such information be delivered with 911 calls.[25] However, because the mobility of wireless subscribers makes permanent street addresses unreliable as location indicators, routing wireless 911 calls and locating wireless callers requires use of real-time location information. For this purpose, wireless carriers have developed various techniques to provision ANI and

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[21] *See* National Emergency Number Association (NENA), "9-1-1 Statistics," *available at* http://www.nena.org/?page=911Statistics (last accessed Jan. 31, 2013).

[22] A local exchange carrier (LEC) is the regulatory term for a company that provides telephone service within a localized area and access services that connect its customers to long distance networks. An incumbent local exchange carrier (ILEC) is a local telephone company that existed at the time of the breakup of AT&T into the Regional Bell Operating Companies (RBOCs also known as the "Baby Bells." A competitive local exchange carrier (CLEC) is a telecommunications provider company (sometimes called a "carrier") that operates within the service area of an ILEC.

[23] Specifically, the SRDB identifies the Emergency Service Number (ESN) that corresponds to the caller's location. ESNs are typically three to five digit numbers that represent a unique combination of emergency service agencies (Law Enforcement, Fire, and Emergency Medical Service) designated to serve a specific range of addresses within a particular geographical area, called an Emergency Service Zone (ESZ). The ESN itself is derived from the Master Street Address Guide (MSAG), which is a separate database of street addresses and corresponding ESNs. Some PSAPs require the use of ESNs to facilitate selective routing and selective transfer to the appropriate PSAP. Thus, the ESN essentially is a standardized identifier for the PSAP serving a specific area.

[24] The SRDB and the ALI Database may be the same database. The ALI database usually matches the caller's telephone number to a matching street address contained in the local Master Street Address Guide. The ALI Database may also return additional information, such as the name of the individual who is billed for telephone service at that address.

[25] *See, e.g.,* 47 C.F.R. § 20.18(d)-(h).

ALI to the PSAP that involve enhancements to the existing wireline E911 network.[26]

In addition, the Commission has adopted wireless E911 requirements in two "phases" for the provision of wireless call-back and location information. Under Phase I rules, wireless carriers must provide a call-back number for the handset placing the 911 call and report the location of the cell site or base station that received the call.[27] Under Phase II rules, wireless carriers must provide more accurate 911 call location information that includes longitude and latitude.[28] The degree of location accuracy required under the Phase II rules varies, depending on whether the carrier utilizes a network-based or handset-based solution.[29] For a PSAP request to be valid, the PSAP must be "capable of receiving and utilizing the data elements associated with" either E911 Phase I or Phase II service.[30]

3.1.1.3. *Interconnected VoIP E911*

Since 2005, the Commission has required providers of interconnected VoIP service to provide E911 service to their customers.[31] Interconnected VoIP providers must either (1) provide call-back and location information that a PSAP or other public safety authority is capable of receiving and using to handle the call, or (2) in instances where the PSAP is not capable of receiving and utilizing this information, must transmit all 911 calls to the appropriate PSAP via the wireline E911 Network.

As with wireless E911 service, the mobile nature of interconnected VoIP service presents challenges to routing the 911 call and locating the caller. Because a VoIP user may place an emergency call from outside his or her home area, the caller's permanent telephone number cannot be used for routing. Thus, VoIP providers must use similar methods to wireless carriers to route the call to the appropriate PSAP and provide the PSAP with a call-back number for the end user.[32] However, the difficulties in determining the geographic location of callers are even more acute with VoIP service. Accordingly, the Commission requires interconnected VoIP providers to obtain location information, called "Registered Location," from their subscribers when they first initiate service and when they change their physical location.[33] Under this approach, if a VoIP subscriber does not update his or her location manually or

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[26] Many of these techniques involve the use of a "pseudo-ANI" or "p-ANI," which is a number containing the same number of digits as the ANI but that is not a North American Numbering Plan telephone directory number. The p-ANI is used to route wireless 911 calls to a geographically appropriate PSAP, even if the caller has a wireless telephone number not associated with his or her location. PSAPs that are equipped to handle p-ANI can distinguish wireless from wireline calls, and can use the p-ANI to query the ALI Database for non-traditional location information. Forms of p-ANI known as "Emergency Services Routing Key" (ESRK), "Emergency Services Query Key" (ESQK), and "Emergency Services Routing Digits" (ESRD) currently are used to cause the Wireline E911 Network to properly handle and process E911 calls placed by CMRS subscribers.

[27] *See* 47 C.F.R. § 20.18(d).

[28] *See* 47 C.F.R. § 20.18(e).

[29] *See* 47 C.F.R. § 20.18(h).

[30] *See* 47 C.F.R. § 20.18(j).

[31] *See* 47 C.F.R. §§ 9.1 *et seq.*

[32] Like wireless carriers, interconnected VoIP providers use "pseudo-ANI" for call routing purposes. *See* 47 C.F.R. § 20.3; *see also* In the Matter of IP-Enabled Services E911 Requirements for IP-Enabled Service Providers, *First Report & Order and Notice of Proposed Rulemaking*, 20 FCC Rcd 10245, 10252 ¶ 17 (2005) (*VoIP 911 Order and VoIP 911 NPRM)*.

[33] *VoIP 911 Order and VoIP 911 NPRM*, 20 FCC Rcd at 10271 ¶ 46 (stating that "providers of interconnected VoIP services that can be utilized from more than one physical location must provide their end users one or more methods of updating information regarding their user's physical location."); *see* 47 C.F.R. § 9.5(d)(1)-(2). The (continued….)

through his or her billing record, the subscriber's 911 call may be routed to the wrong PSAP, which may delay the emergency response.

Beyond this basic functionality, the Commission also requires that interconnected VoIP providers forward all 911 calls made over their interconnected VoIP service to PSAPs, providing a call-back number and the caller's Registered Location for each call.[34] These calls must be routed utilizing ANI and, if necessary, and similar to wireless carriers, p-ANI, via the dedicated wireline E911 network, and the caller's Registered Location must be available from or through the ALI Database.[35]

3.1.2. Next Generation 911

With the transition to NG911, the circuit-switched architecture of legacy 911 will eventually be entirely replaced by IP-based technologies and applications that provide all of the same functions as the legacy 911 system as well as new capabilities. Although this transition is still in the early stages and there are no fully enabled NG911 systems yet operating, the technical architecture of NG911 systems has been developed in detail and is well-established.

Instead of using dedicated trunks, selective routers, and ANI and ALI databases, NG911 will use IP-based hardware and software to provide call identification, location determination, call routing, and call signaling for emergency calls.[36] NG-capable PSAPs will receive and process incoming calls by means of IP-based networks called Emergency Services IP Networks (ESInets).[37] This network architecture will support many more modes of emergency communication than the voice-centric legacy system: ESInets are designed not only to receive traditional 911 voice calls, but also to receive text, data, and video communications from any communications device via IP-based networks. In addition, ESInets can be configured to receive machine-generated data from telematics applications (*e.g.*, automatic collision notification systems in vehicles), medical alert systems, and sensors and alarms of various types.

In contrast to the device-specific connection protocols in legacy 911 networks for wireline, wireless, and interconnected VoIP phones, NG911 will provide IP-enabled devices with multiple means of accessing the NG911 network depending on whether they are operating in a stationary, nomadic, or mobile configuration. For example, an IP-enabled mobile device may be capable of accessing the Internet and

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Commission has sought comment on whether there may be ways for portable interconnected VoIP service providers to automatically identify the geographic location of a customer without the customer's active cooperation. *See* In the Matter of Wireless E911 Location Accuracy Requirements; E911 Requirements for IP-Enabled Service Providers, *Further Notice of Proposed Rulemaking and Notice of Inquiry*, 25 FCC Rcd 18957, 18970 at ¶¶ 27-32 (2010) (*Location Accuracy FNPRM/NOI*).

[34] *See* 47 C.F.R. § 9.5(b)(2); *see also VoIP 911 Order and VoIP 911 NPRM*, 20 FCC Rcd at 10266 ¶ 37.

[35] *See VoIP 911 Order and VoIP 911 NPRM*, 20 FCC Rcd at 10266 ¶ 37.

[36] Briefly, the more in depth technical details are as follows: the end system, such as an IP-enabled phone, contacts a local directory server using the LoST (Location-to-Service Translation) protocol. The server maps the caller's civic or geospatial coordinates and the emergency service identifier to the SIP URL of a PSAP or emergency services routing proxy (ESRP), using an internal database that contains the service regions of each ESRP or PSAP. The database may be derived from a geographic information system (GIS). The call is routed to the ESRP thus identified, which may in turn use the location information, again using Lost, to find another proxy closer to the PSAP serving the caller's location. This process repeats until the caller signaling request reaches the correct PSAP. LoST also provides the end system with information on the emergency services and dial strings, such as 911, available at its current location. *See* T. Hardie *et al.*, "LoST: A Location-to-Service Translation Protocol," Internet Engineering Task Force, RFC 5222 (Aug. 2008) (describing the LoST protocol).

[37] ESInets are defined in NENA Functional and Interface Standards for Next Generation 9-1-1 Version 1.0 (i3). ESInets may be established at the statewide or regional level to serve multiple PSAPs.

placing voice calls via a Wi-Fi hotspot, a cable modem, or a wireless broadband network. NG911 networks will therefore need mechanisms to recognize which form of access the device is using when an emergency call is made and to provide the appropriate caller identification, location determination, call routing, and call signaling in each case.

The NG911 architecture will also support enhanced flexibility and resiliency in network design, because it does not require system components to be in close geographic proximity to each PSAP and because it provides multiple alternatives for rerouting emergency communications to avoid congestion or outages. With traditional networks, the network's topology can constrain its service and functionality; *e.g.*, selective routers must be relatively close to the PSAPs they serve and dedicated trunks must be maintained between each selective router and PSAP. With NG911, however, network servers can be located and replicated anywhere, and 911 traffic can be transmitted over multiple IP-based networks, including networks that carry other traffic as well. Thus, with IP-based technology, PSAPs are no longer limited to a fixed location, 911 call takers can be located virtually anywhere an Internet connection can be found, and a single call taker can potentially support multiple PSAPs. Such "virtual PSAP" arrangements in the NG911 environment could allow more flexible and efficient staffing and more effective emergency response, for example by allowing PSAPs to temporarily relocate their operations when affected by major disasters.

3.2. Federal, State, and Local Roles in Legacy 911 and NG911 Governance

3.2.1. State and Local Governance of 911

Governance of legacy 911 is divided between the state and federal levels. At the state level, the structure and provision of 911 service by PSAPs is typically a state law matter, with some states further delegating aspects of 911 governance to the local level. In addition, many states regulate the provision of legacy 911 service by incumbent local exchange carriers, frequently under tariff regulations issued by the state public utility or public service commission.

Some states have revised their legacy 911 regulations to enable migration to NG911. Vermont, for example, has implemented a statewide NG911 system that utilizes VoIP to deliver calls to PSAPs over its ESInet.[38] Additionally, Vermont has initiated a text-to-911 trial allowing any Verizon Wireless subscriber to send emergency text messages to the Williston, Vermont PSAP, provided that the text message is transmitted via a cell tower located within the physical boundaries of Vermont.[39] On October 30, 2012, Vermont submitted an *ex parte* filing to the Commission indicating that it is maintaining the text-to-911 system past the end of its trial and is "currently working on enabling a second Public Safety Answering Point (PSAP) for redundancy purposes."[40]

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[38] *See* Vermont Enhanced 9-1-1 Board, *Vermont's 9-1-1 System*, *available at* http://e911.vermont.gov/vermont_911 (last accessed Feb. 13, 2013). *See also* Eddie Reyes, *Next Generation 9-1-1: What It Is – And Why Police Chiefs Should Care*, The Police Chief (Dec. 20, 2012), *available at* http://www.policechiefmagazine.org/magazine/index.cfm?fuseaction=display&issue_id=122012&category_ID=4 (last accessed Feb. 13, 2013) ("Vermont became the first state to implement a state-wide NG9-1-1 system, and, when Hurricane Irene struck in August 2011, its PSAPs were ready and not a single call was lost, even when one call center had to be evacuated").

[39] Urgent Communications, *Vermont Launches Text-to-911 Trial*, Apr. 19, 2012, *available at* http://urgentcomm.com/psap/news/va-911-text-trial-20120419/?cid=nl_uctoday&YM_MID=`mmid`&YM_RID=`email (last accessed July 9, 2012).

[40] Letter from David Tucker, Executive Director, State of Vermont Enhanced 9-1-1 Board, to Marlene Dortch, Secretary, Federal Communications Commission (Oct. 30, 2012) at 1.

Tennessee has its "[c]ore [NG911] network build complete, [is] deploying all PSAPs statewide to the NG network for wireless call traffic, and [its] statewide GIS mapping project [is] nearing completion."[41] As of August 2012, "NG 911 equipment has been installed in more than half of the districts and PSAPs, and 22 sites are live. The final completion date for NG 911 is projected to be in 2014."[42] This project is being implemented by the Tennessee Emergency Communications Board (TECB), and is funded through a monthly emergency telephone service charge on users and subscribers on non-wireline communications services.[43] The TECB enjoys a good deal of authority.[44] For purposes of regulating 911, Tennessee law defines "non-wireline service" to include both wireless service and IP-enabled service providers.[45] Tennessee provides equivalent liability protection to an IP-enabled service that offers 911 or E911 services and "complies with Federal Communication Commission Order #05-116, adopted May 19, 2005," that is "not less than the scope and extent of immunity or other protection from liability than any incumbent local exchange carrier in the provider's service area … [has] under applicable law."[46]

Other states that have attempted to implement statewide NG911 have encountered delays in their attempts to move to full NG911. Alabama, for example, has contracted with Bandwidth.com to implement NG911 call routing services across the state.[47] Bandwidth.com states thatit is collaborating with the Alabama Supercomputer Association to establish IP interconnections with all of the PSAPs in the state and will serve as its own selective router for NG9-1-1 calls.[48] Despite Alabama's desire to pursue NG911, Bandwidth.com states that it has "encountered the difficulty of attempting to steer people anchored in out-dated policies and mindsets to the next generation system, without federal requirements mandating that they do so."[49] Bandwidth.com states that "it found that embedded gatekeeper attitudes and processes are not easily revised. Even when the state expresses its clear

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[41] Performance Audit, Emergency Communications Board, State of Tennessee, Comptroller of the Treasury, Department of Audit, Division of State Audit (Sep. 18, 2012) at 12, *available at* http://tn.gov/emergency/ (Tenn. Performance Audit).

[42] Tenn. Performance Audit at 13.

[43] *Id.* at 2.

[44] "The Emergency Communications Board's major responsibilities are to implement wireless 911 service across the state according to the Orders of the Federal Communications Commission; assist emergency communications district boards of directors in the areas of management, operations, and accountability; adjust the emergency telephone service charge on landlines in emergency communications districts; oversee the finances of the state's 100 local emergency communications districts, which are statutory municipalities; establish technical operating standards for all E-911 districts; act as the deciding agency between local governmental entities concerning E-911 service and emergency communications; supervise the operations of a "financially distressed" emergency communications district; provide technical assistance to emergency communications districts; establish training and course of study standards for all 911 dispatchers and call takers receiving an E-911 call from the public; and provide grants for operating and capital expenditures for basic or enhanced 911 service and wireless enhanced 911 service to assist emergency communications districts." Tenn. Performance Audit at 3.

[45] Tenn. Code Ann. § 7-86-103(11).

[46] Tenn. Code Ann. § 7-86-320(a).

[47] *See* Bandwidth.com Comments at 1. Bandwidth.com further states that, "A number of states, including Alabama, Connecticut, Iowa, Maine, Minnesota, Tennessee, Texas and Washington have already started a migration to NG9-1-1. Kansas, Kentucky, Massachusetts, and New Jersey are conducting inquiries and may be the next to adopt NG9-1-1 plans." Bandwidth.com Comments at 3.

[48] *Id*.

[49] *Id*.

intent to deploy NG9-1-1, the owners of bottleneck facilities can cause many months of delay to the detriment of end-users and the other providers who have committed to the effort irrespective of technical or legal necessity."[50]

Meanwhile, some PSAPs in other states have reported that they are hampered in their NG911 efforts due to state regulation. For example in early 2012, the Counties of Southern Illinois (CSI), a consortium of 16 PSAPs in southern Illinois, petitioned the Illinois Commerce Commission (ICC) for authorization to operate as a 911 SSP and implement a regional NG911 project.[51] The ICC raised a number of questions regarding CSI's standing to petition for authorization, but before it could rule, CSI withdrew its request for certification, choosing to negotiate a contract with its 911 SSP, which had recently received ICC certification to operate within Illinois.[52] While the ICC is considering changes to state regulations that could ease the deployment of NG911 systems within the state, this case remains illustrative of the difficulties that legacy regulations can pose.[53] Some commenters argue that all 911 authorities should be allowed to act as SSPs, and that in order to make that possible, state-level requirements on CLEC and SSP certification should be eliminated or revised to enable PSAPs and other non-traditional service providers to be certified as SSPs.[54] The record also indicates that, in certain cases, PSAPs may seek to operate as SSPs because incumbent LECs in a state have not upgraded their facilities and do not intend to offer advanced infrastructure for PSAPs desiring to migrate to NG911 services.[55] Some commenters argue that Congress should require LECs to upgrade their technologies and services upon a request for NG911 services from PSAPs or state 911 authorities.[56]

3.2.2. Federal Governance of 911

Federal Communications Commission. The Commission exercises broad regulatory authority over the provision of 911 service by commercial service providers subject to its jurisdiction. Under this regulatory authority, the Commission has adopted numerous regulations over the past two decades governing the provision of 911 and E911. These include regulations implementing 911 as the national emergency number and requiring all 911 calls to be routed to the appropriate PSAP,[57] E911 location accuracy requirements for wireless carriers,[58] and E911 requirements for interconnected VoIP providers.[59]

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[50] *Id*. at 4.

[51] Broadband Illinois, *Next Generation 9-1-1 Project Files to Operate in Illinois*, Feb. 16, 2012, *available at* http://www.broadbandillinois.org/news/109 (last accessed Feb. 8, 2013).

[52] *See* Counties of Southern Illinois' Petition for Authority to Operate a Regional Next Generation 9-1-1 Pilot Project System, filed by Ottosen Britz Kelly Cooper Gilbert & DiNolfo, Ltd., ICC Docket No. 12-0094, Motion to Withdraw (Sep. 20, 2012), *available at* http://www.icc.illinois.gov/docket/DocketSheet.aspx?no=12-0094 (last accessed Feb. 20, 2013).

[53] Illinois Commerce Commission, 911 Program, *Staff's Final Draft Proposal 12/2011*, *available at* http://www.icc.illinois.gov/downloads/public/725%20Staff's%20Final%20redline%20draft%2012-2011.doc (last accessed Feb. 15, 2013).

[54] *See, e.g.*, National Association of State 911 Administrators (NASNA) Comments at 9.

[55] *See, e.g.,* NASNA Comments at 9; Counties of Southern Illinois (CSI) Comments at 5. CSI argues that its member PSAPs sought to take on the role of SSP but was impeded by state regulations that did not allow for entry by any SSPs, let alone PSAPs, to provide NG911 services.

[56] *See, e.g.*, CSI Comments at 5.

[57] *See* 47 C.F.R. § 64.3000 *et seq*.

[58] *See* 47 C.F.R. § 20.18.

In recent years, the Commission has taken steps to facilitate the transition to NG911. In the National Broadband Plan, the Commission made several recommendations to "bridge the gap" to NG911.[60] In December 2010, following up on the National Broadband Plan recommendation to "address IP-based NG911 communications devices, applications and services,"[61] the Commission issued a *Notice of Inquiry* on facilitating the transition to NG911, exploring issues of federal oversight or governance of state deployments of NG911,[62] improving the accuracy of technologies that supply PSAPs with critical location data,[63] as well as near-term and long-term solutions for providing consumers the ability to send text messages to 911.[64]

In August 2011, FCC Chairman Genachowski announced a five-step action plan for accelerating NG911 deployment.[65] Among other things, the Chairman's plan called for the Commission to initiate rulemaking proceedings on NG911 location accuracy and enabling the public to transmit emergency communications to PSAPs via text, data, and video in addition to voice.[66] The Commission has subsequently initiated rulemaking proceedings in both areas.[67] The plan also called for the Commission to work with "state 911 authorities, other Federal agencies, and other governing entities to provide technical expertise and develop a coordinated approach to NG911 governance."[68]

In December 2012, as part of its rulemaking proceeding on communicating with PSAPs via text, data, and video, the Commission adopted a *Further Notice of Proposed Rulemaking* in which it proposed to require all wireless carriers and providers of "interconnected" text messaging applications to enable their customers to send text messages to 911 in areas where PSAPs are also prepared to receive the texts.[69] The *Further Notice* reflected a voluntary commitment by the four largest wireless carriers – Sprint, AT&T, Verizon, and T-Mobile – to support text messaging to 911 to text-capable PSAPs by May

(Continued from previous page)

[59] *See* 47 C.F.R. § 9.1 *et seq*.

[60] National Broadband Plan, Chapter 16, Public Safety, Section 16.3, "Leveraging Broadband Technologies to Enhance Communications with the Public," at 325-326.

[61] *Id.*, at Recommendation 16.15.

[62] Framework for Next Generation 911 Deployment, *Notice of Inquiry*, 25 FCC Rcd 17869 (PSHSB 2010) (*NG911 NOI*).

[63] *Location Accuracy FNPRM/NOI*, 25 FCC Rcd at 18970 ¶ 33; *Public Safety and Homeland Security Bureau Seeks Comment on Multiline Telephone Systems Pursuant to the Next Generation 911 Advancement Act of 2012*, Public Notice, 27 FCC Rcd 5329 (May 21, 2012).

[64] *See* In the Matter of Facilitating the Deployment of Text-to-9-1-1 and Other Next Generation 9-1-1 Applications, Framework for Next Generation 9-1-1 Deployment, *Notice of Proposed Rulemaking*, 26 FCC Rcd 13615 (2011) (*NG911 NPRM*); *see also* In the Matter of Facilitating the Deployment of Text-to-911 & Other Next Generation 911 Applications Framework for Next Generation 911 Deployment, *Further Notice of Proposed Rulemaking*, 27 FCC Rcd 15659 (2012) (*Text-to-911 FNPRM*).

[65] FCC News Release, *FCC Chairman Genachowski Announces Five-Step Action Plan to Improve the Deployment of Next Generation 9-1-1*, Aug. 10, 2011, at 1, *available at* http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-309005A1.pdf (last accessed Feb. 15, 2013) (*Five-Step NG911 Plan*).

[66] *Id*.

[67] *See* Wireless E911 Location Accuracy Requirements, PS Docket No. 07-114; In the Matter of Facilitating the Deployment of Text-to-9-1-1 and Other Next Generation 9-1-1 Applications, Framework for Next Generation 9-1-1 Deployment, PS Docket Nos. 11-153 and 10-255.

[68] *Five-Step NG911 Plan* at 1.

[69] *Text-to-911 FNPRM* at 15659.

15, 2014.[70]

The Commission has also actively monitored the availability and performance of 911 service during natural disasters and has played an important role in restoring wireless communications after devastating storms such as Hurricanes Katrina, Gustav, and Ike, the June 2012 Mid-Atlantic Derecho and Superstorm Sandy in October-November 2012. The Commission has also issued reports and held hearings to assess the performance of critical communications infrastructure that supports 911,[71] and has recently established a Technology Transitions Policy task force to examine issues associated with the transition from legacy circuit-switched networks to fully IP-enabled networks.

Other Federal Agencies. A number of other federal agencies and offices also play important roles in the development of and transition to NG911. To support states in addressing issues of state and local governance, the Office of Emergency Medical Services (OEMS) at the National Highway Traffic Safety Administration (NHTSA) houses the National 911 Program, which seeks "to provide Federal leadership and coordination in supporting and promoting optimal 911 services,"[72] and "in coordinating the efforts of states, technology providers, public safety officials, 911 professionals and other groups, seeks to ensure a smooth, reliable and cost-effective transition to a 911 system that takes advantage of new communications technologies to enhance public safety nationwide."[73] Through NHTSA, the National 911 Program hosts a resource center,[74] which includes a public 911 profile database, resources for technical assistance, and guidelines for NG911 state legislative language, based on input from local, regional, state, and federal public sector stakeholders, as well as private sector industry representatives and advocacy associations.[75] These guidelines serve as a valuable resource for states as they address issues related to NG911 implementation. Finally, the Department of Homeland Security, through its SAFECOM program, works with state-level governance entities to improve multi-jurisdictional and intergovernmental communications interoperability.[76]

Federal Grant Programs. In 2009, NHTSA and NTIA announced more than $40 million in NG911 grants,

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[70] *Id.* at 15664, ¶¶ 16-19.

[71] *See* Federal Communications Commission, *Impact of the June 2012 Derecho on Communications Networks and Services: Report and Recommendations* (PSHSB, rel. Jan. 10, 2013), *available at* http://www.fcc.gov/document/derecho-report-and-recommendations (last accessed Feb. 20.2013) (*Derecho Report*); FCC News Release, *FCC Chairman Genachowski Announces Post-Superstorm Sandy Field Hearings to Examine New Challenges to Resiliency of U.S. Communications Networks During Natural Disasters & Other Times of Crisis,* Nov. 21, 2012, *available at* http://transition.fcc.gov/Daily_Releases/Daily_Business/2012/db1121/DOC-317543A1.pdf (last accessed Feb. 20.2013); FCC Announces Date and Locations for the First Post-Superstorm Sandy Field Hearing, *Public Notice*, DA 13-19 (Jan. 8, 2013), *available at* http://transition.fcc.gov/Daily_Releases/Daily_Business/2013/db0108/DA-13-19A1.pdf (last accessed Feb. 20.2013).

[72] National 911 Program, *About the 911 Program*, *available at* http://www.911.gov/about.html (last accessed Feb. 15, 2013).

[73] *Id*.

[74] National 911 Program, *9-1-1 Resource Center*, *available at* http://resourcecenter.911.gov/code/home.aspx (last accessed Feb. 14, 2013).

[75] National 911 Program and National Highway Traffic Safety Administration (NHTSA), *Guidelines for State NG9-1-1 Legislative Language* (2011), *available at* http://www.911.gov/pdf/ModelNG911legis-110812.pdf (last accessed Feb. 8, 2013) (NHTSA Guidelines).

[76] *See* Department of Homeland Security, *About SAFECOM*, *available at* http://www.safecomprogram.gov/about/Default.aspx (last accessed Feb. 21, 2013).

authorized under the ENHANCE 911 Act.[77] Grants were awarded to 30 states and territories, ranging from $200,000 (awarded to American Samoa) to $5.4 million (awarded to Texas), and can be used for hardware, software, training or consulting services that directly benefit public safety answering points (PSAPs) in upgrading their equipment and operations.[78] Other grants, although not designed specifically for NG911, can be leveraged for NG911 purposes. Many general FEMA grants can be used for 911 purposes and by extension NG911. NHTSA lists fifteen FEMA grant programs available for expenditure, "over a third of which can likely be leveraged by the 911 community."[79] Key grant programs for 911 stakeholders include, "Emergency Operations Center Grant Programs, Homeland Security Grant Program, Interoperable Emergency Communications Grant Program, Regional Catastrophic Preparedness Grant Program, and Tribal Homeland Security Grant Program."[80] However, there is a short timeframe for many grant programs, and FEMA will recoup funds that have not been spent by given deadlines.[81] All FY2010 funds must be spent by September 30, 2013.[82] Finally, NTIA oversaw the Public Safety Interoperable Communications (PSIC) grant program, which awarded over $968 million in 2007 to communications infrastructure projects nationwide, some of which included upgrades for PSAPs.[83] For example, PSIC awarded approximately $9.7 million to the State of Connecticut for mobile PSAP backup systems and interconnectivity of state PSAPs and communications systems.[84] It is important to note, however, that this program was a one-time grant and future funds are not available through PSIC.

3.3. Previous Federal Legislation Affecting 911 and NG911 Efforts

On several prior occasions, Congress has passed legislation to advance 911 and NG911 services. We briefly summarize these below:

3.3.1. Wireless Communications and Public Safety Act

In 1999, Congress passed the Wireless Communications and Public Safety Act (911 Act).[85] The 911 Act

[77] Ensuring Needed Help Arrives Near Callers Employing (ENHANCE) 911 Act of 2004, Pub. L. 108-498, §§ 104, 158 (b)(1); 118 Stat. 3987-3988; 47 U.S.C. § 942(b) (2004) (ENHANCE 911 Act).

[78] NHTSA, "Grants," *available at* http://911.gov/grants.html (last accessed Feb. 19, 2013).

[79] NHTSA, "Potential Grant Funding," *available at* http://www.911.gov/pdf/Potential_911_Grant_Funding_02282012-03052012.pdf (last accessed Feb. 19, 2013).

[80] *Id*.

[81] *Id*.

[82] *Id*.

[83] The Public Safety Interoperable Communications (PSIC) Grant Program was created by the Deficit Reduction Act of 2005 (the Act) (Pub. L. 109-171), as amended by the Implementing Recommendations of the 9/11 Commission Act of 2007 (the 9/11 Act) (Pub. L. 110-53) and A bill to allow the funding for the interoperable emergency communications grant program established under the Digital Television Transition and Public Safety Act of 2005 to remain available until expended through fiscal year 2012, and for other purposes (Pub. L. 111-96). The legislation directed the National Telecommunications and Information Administration (NTIA) of the Department of Commerce (DOC), in consultation with the Department of Homeland Security (DHS), to establish and administer a grant program to assist public safety agencies in the advancement of interoperable communications. *See* NTIA, Public Safety Interoperable Communications Grant Program, *available at* http://www.ntia.doc.gov/legacy/psic/index.html (last accessed Feb. 19, 2013).

[84] *See* NTIA, Public Safety Interoperable Communications Grant Program, *available at* http://www.ntia.doc.gov/legacy/psic/index.html (last accessed Feb. 19, 2013).

[85] Wireless Communications and Public Safety Act of 1999, Pub. L. 106-81 § 3(a); 113 Stat. 1286; 47 U.S.C. §§ 222, 251, 601, 615, 615a, and 615b (1999) (911 Act).

set the broad goal of facilitating "the prompt deployment throughout the United States of a seamless, ubiquitous, and reliable end-to-end infrastructure for communications, including wireless communications, to meet the Nation's public safety and other communications needs."[86] To ensure a comprehensive approach to emergency service throughout the country, the 911 Act mandated 911 as the official national emergency telephone number and directed the Commission to establish appropriate transition periods for areas in which 911 was not in use as an emergency telephone number as of the date of enactment.[87] The 911 Act also addressed liability protection by providing that a wireless carrier shall have immunity or liability protection in a state that is not less than the immunity or other liability protection afforded to LECs under state or federal law.[88] Finally, the 911 Act required the Commission to work with the states and other affected parties to deploy comprehensive wireless E911 service.[89]

3.3.2. ENHANCE 911 Act

Congress enacted the Ensuring Needed Help Arrives Near Callers Employing 911 Act in 2004 (ENHANCE 911 Act).[90] The act addressed numerous concerns that had been raised about 911 deployment, including compliance, coverage in rural areas, and the use of fees levied by states and localities to cover 911 service costs. The ENHANCE 911 Act also created the E911 Implementation Coordination Office (ICO), an office jointly administered by the National Telecommunications and Information Administration (NTIA) and NHTSA, to assist and coordinate with state and local 911 authorities in the development of 911 and E911 and to administer a grant program for the implementation and operation of Phase II E911 services and NG911 services.[91] ICO helps to coordinate the efforts of states, technology providers, public safety officials, 911 professionals and other groups, and seeks to ensure a smooth, reliable and cost-effective transition to a 911 system that takes advantage of new communications technologies to enhance public safety nationwide.

3.3.3. NET 911 Improvement Act

In 2008, Congress enacted the New and Emerging Technologies 911 Improvement Act (NET 911 Act).[92] The NET 911 Act confirmed the Commission's authority to regulate the provision of 911 by VoIP service providers[93] and took other steps to improve the delivery of 911 services nationwide. The key provisions of the NET 911 Act are as follows:

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[86] 911 Act § 2(b); 47 U.S.C. § 615 (1999).

[87] 911 Act § 3; 47 U.S.C. § 251(e) (1999).

[88] 911 Act § 4; 47 U.S.C. § 615a (1999).

[89] 911 Act § 3; 47 U.S.C. § 615 (1999). As discussed above, E911 service provides 911 call centers with Automatic Number Identification (ANI), which recognizes and displays the telephone number from which the call is placed, and with Automatic Location Identification (ALI), which provides information regarding the caller's location. For 911 calls placed from wireline phones, ALI consists of the street address associated with the telephone number. For 911 calls placed from wireless phones, ALI consists of the approximate geographic coordinates of the caller.

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

[91] ENHANCE 911 Act § 104, as amended by the New and Emerging Technologies 911 Improvement Act of 2008, Pub. L. 110-283, § 102; 47 U.S.C. § 942 (2008).

[92] New and Emerging Technologies 911 Improvement Act of 2008, Pub. L. 110-283; 122 Stat. 2620 (2008); 47 U.S.C. §§ 222, 609, 615a-b, and 942 (2008) (*NET 911 Act*).

[93] The Commission originally adopted 911 requirements for VoIP providers in 2005. *See* In the Matters of IP-Enabled Services E911 Requirements for IP-Enabled Service Providers, *First Report and Order and Notice of Proposed Rulemaking*, 20 FCC Rcd 10245 (2005).

- Required VoIP providers to provide 911 and E911 in compliance with existing Commission regulations at the time of passage of the act or as modified in the future.[94]
- Provided for equal access for VoIP providers to communications networks needed to complete 911 calls.[95]
- Extended state liability protection for 911 and E911 to VoIP providers and other emergency service providers.[96]
- Directed the 911 Implementation and Coordination Office (ICO) to develop a national migration plan for transition of 911 to an IP-enabled 911 network.[97]
- Protected the rights of states and other political subdivisions to levy fees on 911 services.[98]
- Required the FCC to report annually on collection of state fees and other levies on 911 and E911 services.[99]

3.3.4. Americans with Disabilities Act

In 1990, Congress enacted the Americans with Disabilities Act (ADA), which, in part, prohibits state and local governmental programs from discriminating on the basis of disability.[100] The legislative reports accompanying the ADA interpreted this prohibition, contained in Title II of the statute, to require that local governments "ensure that [their] telephone emergency number systems are equipped with technology that will give hearing impaired and speech impaired individuals a direct line to these emergency services."[101] While this mandate has initially required the installation of TTY capabilities by PSAPs, Congress made clear that "future technological advances – such as speech to text services – may offer other means of affording direct and equally effective access for these individuals."[102]

3.3.5. Twenty-First Century Communications and Video Accessibility Act

In October 2010, Congress enacted the Twenty-First Century Communications and Video Accessibility

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[94] NET 911 Act § 101; 47 U.S.C. § 615a-1 (2008).

[95] *Id*.

[96] NET 911 Act § 201; 47 U.S.C. § 942 (2008).

[97] NET 911 Act §102; 47 U.S.C. § 615a-1 (2008). ICO released its national migration plan in September 2009. *See* National E911 Implementation Coordination Office, *A National Plan for Migrating to IP-Enabled 9-1-1 Systems*, *available at* http://www.ntia.doc.gov/files/ntia/publications/nationalng911migrationplan_sept2009.pdf (last accessed Feb. 4, 2013) (ICO Plan). In 2011, ICO released a national report on 911 authorities' progress in implementing more advanced 911 systems, including NG911. *See* ICO, *2011 National 911 Progress Report*, *available at* http://www.911.gov/pdf/National911ProgressReport2011.pdf (last accessed Feb. 4, 2013) (*ICO 911 Progress Report*).

[98] NET 911 Act § 101; 47 U.S.C. §§ 615a-1 (2008).

[99] NET 911 Act § 101; 47 U.S.C. §§ 615a-1 (2008). The Commission has submitted four such annual reports to Congress. The most recent report was submitted on December 22, 2012. *See* Federal Communications Commission, *Annual Report to Congress on State Collections and Distribution of 911 and Enhanced 911 Fees and Charges*, Dec. 22, 2012 (rel. Jan. 14, 2013) (*2012 Fee Report*).

[100] Americans with Disabilities Act of 1990, Pub. L. 101-336, 42 U.S.C. § 12101 *et. seq* (ADA).

[101] H. Rep. No. 485, Part 2, 101st Cong., 2d Sess. 84-5 (May 15, 1990). Similar language is found in the ADA Conference Committee Report. Conf. Rep. No. 596, 101st Cong., 2d Sess. 67-8 (July 12, 1990).

[102] *Id*.

Act (CVAA).[103] The CVAA amended the Communications Act and imposed a variety of new obligations on service providers, equipment manufacturers, and the Commission that relate to providing access to communications services for people with disabilities. Section 106 of the CVAA requires the Commission to take certain steps "[f]or the purpose of achieving equal access to emergency services by individuals with disabilities, as a part of the migration to a national Internet protocol-enabled emergency network[.]"[104] Pursuant to Section 106 of the CVAA, the Chairman established the Emergency Access Advisory Committee (EAAC), comprised of representatives from state and local government, emergency responder agencies, national organizations representing people with disabilities and senior citizens, communications equipment manufacturers, service providers, and other subject matter experts, to make recommendations to the Commission on achieving equal access to emergency services by individuals with disabilities as part of our nation's migration to NG911.[105]

The EAAC has since conducted a national survey of people with disabilities on the most effective and efficient technologies and methods to enable NG911 access, and submitted a report on these survey results to the Commission on July 21, 2011.[106] Following release of the *EAAC Survey Report*, the EAAC formed subcommittees to undertake consideration of the policy and technical issues concerning the accessibility of emergency services by individuals with disabilities. The outcome of these subcommittee deliberations was the *EAAC Report and Recommendations*, which the EAAC submitted to the Commission on December 7, 2011.[107] The EAAC intends to further clarify these recommendations in a subsequent report to be submitted to the Chairman by June 14, 2013. Under the CVAA, the Commission has authority to implement such EAAC recommendations, as well as other regulations, technical standards, protocols and procedures that are necessary to achieve reliable, interoperable communication to ensure access by people with disabilities to an Internet protocol-enabled emergency network, where achievable and technically feasible.[108]

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[103] Pub. L. No. 111-260, 124 Stat. 2751 (2010) (as codified in various sections of 47 U.S.C.); Pub. L. 111-265, 124 Stat. 2795 (2010) (making technical corrections to the CVAA).

[104] 47 U.S.C. § 615c(a).

[105] Emergency Access Advisory Committee (EAAC) Announcement of Members and Co-Chairpersons, *Public Notice*, 25 FCC Rcd 17084 (CGB rel. Dec. 7, 2010), *available at* http://hraunfoss.fcc.gov/edocs_public/attachmatch/DA-10-2318A1.pdf (last accessed Feb. 13, 2013).

[106] EAAC, Report on Emergency Calling for Persons with Disabilities Survey Review and Analysis 2011 (July 21, 2011), *available at* http://transition.fcc.gov/cgb/dro/EAAC/EAAC-REPORT.pdf (*EAAC Survey Report*).

[107] EAAC, *Emergency Access Advisory Committee Report and Recommendations* (Dec. 6, 2011), *available at* http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-312161A1.pdf (last accessed Feb. 18, 2013) (*EAAC Report and Recommendations*). These recommendations cover a range of issues, including the need for direct access by people with disabilities to emergency (911) services such as text-to-911, the need for upgrades and modifications to equipment and services, and the need for greater outreach and education to this community. The EAAC will continue to meet through June 14, 2013 to submit additional technical and policy recommendations to the Commission about improving access to emergency services for the communication-disabled community. *See* Emergency Access Advisory Committee Charter Extended to June 14, 2013, *Public Notice*, DA Docket No. 13-28, (CGB/PSHSB rel. Jan. 11, 2013), *available at* http://www.fcc.gov/document/emergency-access-advisory-committee-charter-extended-june-14-2013 (last accessed Feb. 13, 2013).

[108] Pub. L. No. 111-260 § 106(g); 47 U.S.C. § 615c(g) (providing that "[t]he Commission shall have the authority to promulgate regulations to implement the recommendations proposed by the [EAAC], as well as any other regulations, technical standards, protocols, and procedures as are necessary to achieve reliable, interoperable communication that ensures access by individuals with disabilities to an Internet protocol-enabled emergency network, where achievable and technically feasible").

3.3.6. Next Generation 9-1-1 Advancement Act of 2012

On February 22, 2012, Congress enacted the Next Generation 9-1-1 Advancement Act of 2012 as part of the Middle Class Tax Relief and Job Creation Act of 2012 (NG911 Act).[109] Sections 6503 through 6508 of the Act take various steps to further the implementation of NG911.

3.3.6.1. *Sections 6503-6508*

In these sections, the NG911 Act took the following actions:

- Reestablished the 911 Implementation Coordination Office (ICO) and established a matching grant program to support 911, E911, and NG911 implementation.[110]
- Required the Commission to seek comment on the feasibility of multiline telephone systems (MLTS) manufacturers incorporating 911 caller location capability into MLTS equipment, and required the General Services Administration to report to Congress on the 911 capabilities of MLTS systems used by federal agencies in all federal buildings and properties.[111]
- Required the Government Accountability Office (GAO) to study state and local 911 fees and submit a report to Congress on whether such fees are used for non-911 purposes.[112]
- Provided liability protection parity in the provision and use of NG911 services for NG911 service providers and users, PSAPs, and associated officers, directors, employees, vendors, agents, and authorizing government entities. The act provides the same level of liability protection for NG911 that is afforded to wireless providers under the 911 Act, which, as noted above, is essentially the same level of liability protection that is afforded to legacy 911 services under applicable state and federal law.[113]
- Required the Commission to initiate a proceeding to create a specialized "Do-Not-Call" registry for PSAPs.[114]
- Required ICO to submit a cost study to Congress, in consultation with NHTSA, the FCC, and DHS, that "analyzes and determines detailed costs for specific Next Generation 911 service requirements and specifications."[115]

3.3.6.2. *Section 6509 – Report to Congress on Legal and Regulatory Framework for Next Generation 911*

Section 6509 of the NG911 Act directs the Commission to prepare and submit the instant report to Congress. Specifically, Section 6509 states:

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[109] Middle Class Tax Relief and Job Creation Act of 2012, Title VI, Subtitle E, Pub. L. 112-96, 126 Stat. 156, Sections 6503-6509; 47 U.S.C. §§ 942, 1471-1473 (2012) (NG911 Act).

[110] NG911 Act § 6503; 47 U.S.C. § 942 (2012).

[111] *Id.*, § 6504; 47 U.S.C. § 1471 (2012). The Commission issued a *Public Notice* seeking comment on this issue. Public Safety and Homeland Security Bureau Seeks Comment on Multiline Telephone Systems Pursuant to the Next Generation 911 Advancement Act Of 2012, *Public Notice*, 27 FCC Rcd 5329 (2012).

[112] *Id.*, § 6505; 47 U.S.C. § 1471 (2012).

[113] *Id.*, § 6506; 47 U.S.C. § 1472 (2012).

[114] *Id.,* § 6507; 47 U.S.C. § 1473 (2012). The Commission initiated this proceeding and has established the PSAP Do-Not-Call registry. *See* In the Matter of Implementation of the Middle Class Tax Relief & Job Creation Act of 2012, *Report and Order*, 27 FCC Rcd 13615 (2012).

[115] NG911 Act, § 6508; 47 U.S.C. § 1473 (2012).

> Not later than 1 year after the date of the enactment of this Act, the Commission, in coordination with the Secretary of Homeland Security, the Administrator of the National Highway Traffic Safety Administration, and the Office, shall prepare and submit a report to Congress that contains recommendations for the legal and statutory framework for Next Generation 9–1–1 services, consistent with recommendations in the National Broadband Plan developed by the Commission pursuant to the American Recovery and Reinvestment Act of 2009, including the following:
>
> (1) A legal and regulatory framework for the development of Next Generation 9–1–1 services and the transition from legacy 9–1–1 to Next Generation 9–1–1 networks.
>
> (2) Legal mechanisms to ensure efficient and accurate transmission of 9–1–1 caller information to emergency response agencies.
>
> (3) Recommendations for removing jurisdictional barriers and inconsistent legacy regulations including—
>
> (A) Proposals that would require States to remove regulatory roadblocks to Next Generation 9–1–1 services development, while recognizing existing State authority over 9–1–1 services;
>
> (B) Eliminating outdated 9–1–1 regulations at the Federal level; and
>
> (C) Preempting inconsistent State regulations.

To assist in developing the recommendations to Congress to be included in this report, the Bureau issued a *Public Notice* in November 2012 seeking comment on the topics specified in Section 6509 and associated issues.[116] The Bureau received 24 comments and 14 reply comments in response to the *Public Notice*.[117] Section 6509 of the NG911 Act also requires the Commission to coordinate in the preparation of this report with the Department of Homeland Security (DHS), NHTSA, and ICO.[118] In accordance with this provision, the Bureau has consulted with and solicited the views of each of these agencies/offices in preparing this report, and the recommendations in the report are reflective of their input and related coordination efforts.

4. DISCUSSION & RECOMMENDATIONS

In developing our recommendations for Congress in this report, we considered all commentary and input received from government and public safety agencies, wireless carriers, technology vendors, and stakeholders in the disability community. Each section below describes the particular issue on which Congress seeks guidance, discusses the input we received, and, most importantly, sets forth recommendations for Congress on how to best navigate the complicated transition from legacy 911 to NG911 networks and to regulate NG911 service in the future. We first make recommendations for a legal and regulatory framework on both the state and federal levels for the administration of NG911 service. Second, we explore possible legal mechanisms that would ensure efficient and accurate transmission of 911 caller information to emergency response agencies. Third, we make recommendations for the elimination of regulatory roadblocks and outdated state and federal 911 regulations.

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[116] Public Safety and Homeland Security Bureau Seeks Comment on the Legal & Statutory Framework for Next Generation 9-1-1 Services Pursuant to the Next Generation 9-1-1 Advancement Act of 2012, *Public Notice*, 27 FCC Rcd 14070 (2012) (*Public Notice*).

[117] For a list of parties filing comments or replies, see Appendix A.

[118] NG911 Act, § 6509; 47 U.S.C. § 1473 (2012).

4.1. Legal and Regulatory Framework for the Development Of NG911 Services and the Transition from Legacy 911 to NG911 Networks

4.1.1. State and Local Governance of NG911

4.1.1.1. *Background*

To help the Commission prepare this report, our *Public Notice* sought comment on the role of state governments in the transition to NG911.[119] Specifically, we asked whether Congress should create requirements or incentives for states to establish NG911 oversight bodies at the state or regional level. In light of the variation in state-level approaches to legacy 911, we also sought comment on the ability of states to effectively coordinate the transition to NG911 and whether we should recommend that Congress create incentives or requirements for such coordination at the state or regional level.[120]

The consensus view expressed by commenters is that state and local authorities should retain their primary role in the management and development of NG911 by PSAPs, and that general state and local oversight authority over these matters should not be supplanted by the federal government, even in light of the sweeping changes to networks and technology involved in the transition to NG911.[121]

While commenters generally agree on the importance of state and local authorities retaining their traditional PSAP oversight roles as NG911 develops, many commenters contend that the transition to NG911 will be achieved more quickly and cost-effectively where decision-making and oversight authority are focused at the state – as opposed to local – level. NENA states that "[e]xtensive experience in the laboratory of the states has demonstrated that this type of oversight and coordination [at the state level] is most effective when undertaken by an independent body of representative stakeholders."[122] Commenters note that about half the states have established state-level 911 boards or similar entities, and support action by Congress to increase the effectiveness of such boards and to encourage their establishment by states that have not yet done so. [123]

Some commenters urge Congress to require states without state-level 911 boards or oversight bodies to establish them.[124] L.R. Kimball suggests that Congress could require each state to "determine the appropriate level of readiness for the state and report on how they plan to deploy; at the state level, regional, or other."[125] Other commenters, including NENA, APCO, and TCS, do not support a Congressional mandate but suggest that Congress could create incentives for states to create state-level

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[119] *Public Notice*, 27 FCC Rcd at 14071.

[120] *Id.*

[121] *See* Boulder Regional Emergency Telephone Service Authority (BRETSA) Comments at 6-7; Connecticut DESPP/DSET (Connecticut) Comments at 2-3; CSI Comments at 1; NASNA Comments at 2; National Emergency Number Association (NENA) Comments at 3, 5; Texas 911 Entities Comments at 6-7; Verizon and Verizon Wireless (Verizon) Comments at 4; Intrado Comments at 3; L.R. Kimball Comments at 3; Motorola Solutions (Motorola) Comments at 2-3; Wireless RERC Comments at 4; CTIA – The Wireless Association (CTIA) Reply Comments at 12.

[122] NENA Comments at 4.

[123] NASNA Comments at 2; Texas 911 Entities Comments at 6-7; T-Mobile USA, Inc. (T-Mobile) Comments at 8; CSI Comments at 1.

[124] Hawaii E911 Board (Hawaii) Comments at 1; Bandwidth.com Comments at 6; L.R. Kimball Comments at 2; Motorola Comments at 3; Wireless RERC Comments at 5.

[125] L.R. Kimball Comments at 2.

boards.[126] NENA proposes several specific incentives, including giving states with 911 boards preference for public safety-related grants and granting them access to GSA schedules for procurement.[127] Additionally, NENA suggests that Congress could discourage states from ignoring the issue by allowing the Commission "to craft default NG911 regulations that would apply in the absence of a modernized state regime or at least demonstrated progress toward such a regime."[128]

Intrado suggests that development of state-level governance of NG911 may also be spurred as states become involved in deployment of the 700 MHz Nationwide Public Safety Broadband Network (NPSBN). Intrado notes that under the statutory framework for the network established under the Public Safety Spectrum Act, states will "have to develop state governance and decision-making with respect to deployment and utilization of the [nationwide] public safety broadband network with which NG9-1-1 networks and services will have to interact."[129]

[126] NENA Comments at 4-5 (recommends that "the Commission suggest to Congress a program of incentives, coupled with backstops, aimed at encouraging the creation regional or state boards to coordinate the transition to NG911."); Association of Public Safety Communications Officers (APCO) Comments at 3 ("To best create an effective working relationship between the federal program and the states, the FCC should recommend that Congress craft incentives for state-level (or multi-state) NG9-1-1 coordination."); TCS Comments at 3 ("[H]istory dictates that coordination among existing entities should be encouraged but not required. Due to differences in state law, this may be accomplished by various procedures… which may or may not require the establishment of a new 'entity' to ensure cooperation.").

[127] NENA comments at 5.

[128] *Id.* NENA also suggests that the Commission could "condition the obligation of carriers to deliver traffic to an NG9-1-1 system that has requested service on the existence of a governing board and a coordinated deployment plan." *Id.*

[129] Intrado Comments at 3.

4.1.1.2. *Recommendations*

1) Congress should create mechanisms such as challenge grants and other competitive funding programs to encourage states to compete to be NG911 "early adopters."

State public safety authorities will necessarily play a critical role in the deployment and configuration of NG911. In addition, early engagement at the state level can help drive the transition to NG911 and make near-term implementation of NG911 in those states more likely. States that elect to move forward as "early adopters" of NG911 will also provide important experience and lessons learned for the NG911 transition in other parts of the nation. However, early adopter states also face inherent technological and programmatic risks and uncertainties by virtue of their decision to proceed with NG911 implementation more quickly.

To provide incentives and mitigate the risk for early adopters, we recommend that Congress establish incentive-based programs to encourage states to compete to be among the first to extensively implement NG911. These incentives, which could take the form of challenge grants or other favorable funding arrangements, will encourage states to accelerate NG911 initiatives, increase the pace at which implementation challenges are taken on and successfully overcome, and reward those states that lead the way.

The benefits provided to states that become early adopters would also generate public safety benefits for other states that do not directly benefit from such programs or that otherwise choose not to be early adopters. This is because these other states would benefit from the experience and lessons learned by the early adopter states, would have earlier access to successful models for NG911 implementation, and would have more options to select vendors that had already successfully implemented NG911. In this way, Congress could leverage a modest, targeted funding amount to achieve broader nationwide public safety benefits, by providing a path for more states to implement NG911 sooner and with fewer risks.

Encouraging states to compete to become NG911 early adopters is similar in some respects to programs that have been used to incentivize states in other contexts. For example, under the American Recovery and Reinvestment Act of 2009, Congress established the "Race to the Top" education funding program to spur innovation and reforms in state and local district K-12 education.[130] Under the Race to the Top program, the U.S. Department of Education established certain priorities for education and measured states' progress towards these priorities in order to prioritize the grants.[131] States competed against one another for the grants, and were awarded points for satisfying certain educational policies. In response, several

[130] *See* Department of Education, *Race to the Top Program Executive Summary* (Nov. 2009), *available at* http://www2.ed.gov/programs/racetothetop/executive-summary.pdf (last accessed Feb. 20, 2013).

[131] *Id*. at 4-5.

states changed their policies to make their applications more competitive.[132]

2) **Local and state public safety authorities should retain their primary responsibility for the deployment and configuration of 911 and NG911 services, but Congress should encourage states to establish state 911 boards or similar state-level governance entities that can provide technical and operational expertise necessary for the development and deployment of NG911.**

We believe more needs to be done to encourage states to establish state-level governance of the NG911 transition. The success of state-level governance is illustrated by examples of states that have established 911 boards or other oversight bodies to advance the transition to NG911, such as the Vermont Enhanced 911 Board, which has been instrumental in providing statewide oversight and direction in the transition to NG911 in Vermont.[133] Not all states, however, have state 911 boards or similar entities, and those that do have such boards do not necessarily have boards with the operational and technical expertise critical to guiding state-wide NG911 implementation.[134] We therefore recommend that Congress recognize the importance of state 911 boards and state-level governance entities in the cost-effective and efficient implementation of emergency services.

Congress should provide funding or other incentives for states that establish such governance structures. Congress should also consider requiring state-level governance as a condition for receipt of 911 or NG911-related grants or other appropriate federal benefits relating to public safety. In particular, such state-level 911 governing bodies should have meaningful authority over the provision of 911 service, and not just over the collection and dissemination of 911 funding.[135] Although state-level 911 governance could reasonably be tied in with other responsibilities, a state 911 board must be able to coordinate, implement, and manage all elements of NG911. Further, such entities should be specifically charged with addressing the development and implementation of NG911 within the state, particularly from an operational and technical standpoint, in addition to ensuring that regulatory and legal mechanisms are in place to facilitate state-wide

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[132] Department of Education, *Nine States and the District of Columbia Win Second Round Race to the Top Grants* (Aug. 24, 2010), *available at* http://www.ed.gov/news/press-releases/nine-states-and-district-columbia-win-second-round-race-top-grants (last accessed Feb. 20, 2013).

[133] Vermont was the first state to implement a statewide ESInet and it empowers its Enhanced 911 Board to "develop designs, standards, and procedures," and provides that the Board, "shall adopt rules," regarding, "the technical and operational standards for public safety answering points…the system data base, standards and procedures for developing and maintaining the data base…statewide, locatable means of identifying customer location, such as addressing, geo-coding, or other methods of locating the caller….and standards and procedures to ensure system and data base security." 30 V.S.A. § 7053. In addition, Alabama, Arkansas, Florida, Indiana, Iowa, Kentucky, Maryland, Minnesota, North Carolina, North Dakota, South Dakota, Tennessee, Texas, and Washington have designated state 911 entities that, at a minimum, govern the collection of 911 fees and their expenditures. *See* NENA, *Status of NG9-1-1 State Activity*, Oct. 3, 2011, *available at* http://www.nena.org/resource/resmgr/ng9-1-1_project/20111205_national_ip_networ.xlsx (last accessed Feb. 7, 2013).

[134] Only twenty-six states have statewide boards or similar entities to manage issues related to 911 service, and there is significant variance in the authority that they exercise.

[135] Examples include Hawaii and North Carolina.

deployment of NG911. We note that this recommendation is consistent with NHTSA's Model State Legislation language for state and local governance, which provides an option for the creation of a state 911 Office, responsible for statewide coordination of planning and deployment of services and networks.[136]

4.1.2. Federal Role in Transition to NG911

4.1.2.1. *Background*

In the *Public Notice*, we sought comment on what role the federal government should play in NG911 oversight, and whether the Commission should recommend that Congress enact legislation defining the federal government's role.[137] More specifically, we asked what role existing federal agencies, such as the Commission, NHTSA, NTIA, and DHS should play, and whether a single federal entity should be established or designated to set national policy and oversee the transition to NG9-1-1.[138]

As noted above, most commenters responding to the *Public Notice* advocate that state and local authorities should retain existing authority over the provision of 911 and NG911 service.[139] However, many of these commenters also call for the federal government to take a more proactive role in leading and coordinating the transition to NG911.[140] For example, APCO urges Congress to "create a federal program that is led by the [Federal Communications] Commission and actively involves the other federal agencies, and charge this body with the responsibility to work with the public safety community to create a standard, national framework that PSAPs can follow to ensure secure, effective, and efficient NG9-1-1 deployments."[141]

However, most commenters do not advocate creation of a new federal entity to oversee NG911,[142] but instead propose that existing agencies such as the Commission, ICO, NHTSA, NTIA, and DHS continue to play an active and coordinated role in NG911 policy and implementation.[143] Thus, commenters generally support the Commission continuing its role in setting national NG911 policy and providing regulatory oversight consistent with its statutory authority over 911, E911 and NG911. NENA says that the Commission is "the expert agency with the longest and most detailed involvement in 9-1-1 policy" and, because its existing jurisdiction covers many of the issues that must be dealt with to speed the development of NG911 on a nationwide basis, it "should be statutorily designated as the agency

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[136] *See* NHTSA, "Guidelines for State NG9-1-1 Legislative Language" at 5 (2011), *available at* http://www.911.gov/pdf/ModelNG911legis-110812.pdf (last accessed Feb. 8, 2013) (NHTSA Guidelines).

[137] *Public Notice*, 27 FCC Rcd at 14071.

[138] *Id.*

[139] *See*, *infra*, Section 4.1.1.

[140] APCO Comments at 2; iCERT Comments at 2; Bandwidth.com Comments at 2; TracFone Wireless Comments at 6; Consortium Comments at 2; CTIA Reply Comments at 8.

[141] APCO Comments at 3. *See also* Motorola Comments at 3-4 (arguing that Congress should specify and fund one organization "to operate as the NG9-1-1 coordinating body").

[142] *See, e.g.*, L.R. Kimball Comments at 4 (While a single federal agency could coordinate among the federal agencies involved, "a single federal entity could not be established to oversee the transition to NG911. There are simply too many components involved in NG911 for centralized federal government involvement.").

[143] *See*, *e.g.*, NASNA Comments at 3 ("with proper coordination, the existing structure can leverage the operational needs to implement NG911.").

responsible for establishing NG9-1-1 policy."[144]

Numerous commenters also advocate designating ICO as the primary federal entity to coordinate NG911 transition efforts among all of the involved state, local, and tribal government agencies.[145] NASNA states that ICO "has proven to be an invaluable resource to the NASNA membership in its coordination role and it should be continued."[146] NENA proposes that ICO serve as the federal entity in charge of deployment of NG911, noting that, because ICO is under the joint authority of NHTSA and NTIA, "it could leverage NTIA's existing statutory authority over executive branch communications policy and activities."[147] Finally, Connecticut urges Congress to enhance the ICO program in order to allow ICO "to participate more fully in technology working groups, forums and meetings related to the technology and the roll-out of NG911, including grant coordination and administration related to the construction of ESInets and NG911 networks."[148]

Some commenters advocate expanding the resources and authority of specific federal agencies. For example, as noted previously, NENA suggests that Congress could empower the Commission to adopt default NG911 regulations that would apply to states that have not modernized or demonstrated progress toward modernizing their regulations to accommodate NG911.[149] Connecticut proposes that NTIA be responsible for "assuring the compatibility and coordination required between federal public safety entities and the various state, regional, and local implementations of NG911."[150] CSI calls for ICO to play both policy-setting and oversight roles in the transition to NG911, operating in tandem with NTIA.[151] Finally, CSI proposes that DHS "provide certification and funding for interoperability and establishment of emergency services IP networks."[152]

A number of commenters suggest that a federal advisory committee be established to oversee aspects of NG911.[153] NENA suggests that such a committee could be tasked with researching the universe of existing 911 laws and regulations at the state level.[154] Finally, AT&T urges Congress to hold hearings on the organization of emergency service providers in America for the purpose of recommending and encouraging a "re-imagined 9-1-1 organization that will facilitate deployment of NG911 services in an efficient and cost-effective manner."[155] APCO, however, opposes AT&T's proposal for Congressional hearings, stating that "AT&T's suggestion that Congress review the basic PSAP structure does not take into consideration the fundamentally local nature of first responder agencies or the substantial benefits

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[144] NENA Comments at 9.

[145] *Id*. at 14-16; NASNA Comments at 3; Connecticut Comments at 3; L.R. Kimball Comments at 4.

[146] NASNA comments at 3.

[147] NENA Comments at 16.

[148] Connecticut Comments at 3-4.

[149] NENA Comments at 5.

[150] Connecticut Comments at 4.

[151] CSI Comments at 3 (NTIA and ICO "should establish the national policy and initiate the development and deployment of shared statewide or regional ESInets").

[152] *Id*. at 2.

[153] Sprint Nextel Reply Comments at 3-4; TIA Comments at 7-8.

[154] NENA Comments at 9-10. Sprint Nextel supports this proposal and advocates that the advisory committee be empowered to recommend modifications to relevant state and federal laws. Sprint Nextel Reply Comments at 3-4, 9.

[155] AT&T Comments at 7.

of local PSAPs."[156]

4.1.2.2. *Recommendations*

1) Congress should facilitate the exercise of existing authority over NG911 by such federal agencies as the Commission, ICO, NHTSA, NTIA, and DHS, so that they are better able to support the NG911 transition and to coordinate with one another more effectively in these efforts.

The federal government must necessarily play a significant role in the transition to NG911, but its role should be primarily focused on supporting and coordinating state and local transition efforts and targeting federal resources to components of NG911 architecture that are uniquely suited to development at the national level; for example, an enhanced national PSAP registry and national-level location and routing databases.[157] As discussed in other sections of this report, federal agencies can also play a role in setting standards for nationwide NG911 interoperability, establishing demarcation points in NG911 networks, collecting data on NG911 progress, and eliminating state regulations that hinder the deployment of NG911 nationwide.

Existing federal agencies such as the Commission, ICO, NHTSA, NTIA, and DHS should play an active and coordinated role in NG911 policy and implementation, rather than creating a new federal entity to oversee NG911. The Commission already has sufficient authority to regulate the 911 and NG911 activity of, *inter alia*, wireline and wireless carriers, interconnected VoIP providers, and other IP-based service providers.[158] Except with respect to certain specific areas noted below, we do not believe significant alteration of the Commission's jurisdiction over 911 or NG911 is required.

A number of commenters have advocated providing ICO with additional authority and resources to coordinate NG911 transition efforts among all of the involved stakeholders. Similarly, commenters support involvement in NG911 by NHTSA, NTIA, and DHS, particularly with respect to providing programmatic support and, where possible, grant funding for the NG911 transition. We agree that these existing agencies are potentially well-suited for these tasks, and that it is important for them to have sufficient authority and resources to coordinate NG911 deployment on a nationwide basis. Given that different agencies fund different elements of 911, Congress should emphasize or require coordination between agencies when establishing 911 grant programs to ensure that NG911 standards and requirements are consistently implemented and that agencies are working together to fund incentive-based NG911 programs. Coordinated funding at the federal level will play a critical role maximizing the ability of incentive-based programs to promote coordinated state and local NG911 adoption and to prevent duplication of effort at the federal level.

2) To address instances where states lack authority under state law to regulate certain elements of NG911 service or otherwise choose not to

[156] APCO Reply Comments at 1.

[157] *See, supra*, Sections 4.2.2, 4.2.3, and 4.2.4.

[158] *See* 47 C.F.R. Parts 9 and 20.

exercise such authority, Congress should consider enacting legislation creating a federal regulatory "backstop" to ensure that there is no gap between federal and state authority (or the exercise thereof) over NG911.

As noted above, this report recommends state and local public safety authorities should retain authority over the deployment and provision of NG911 services within their jurisdictions. However, as several commenters point out, there may be instances where states lack authority under state law to regulate certain elements of NG911 service or otherwise choose not to exercise such authority.[159] For example, a number of states have expressly refrained, by statute, from exercising regulatory jurisdiction over VoIP services.[160] This could potentially create a regulatory vacuum in regard to VoIP-based 911 service.[161] In such instances, Congress has the power to establish a federal regulatory "backstop" to ensure that there is no jurisdictional gap between the exercise of federal and state authority.[162] The existing pole attachment provisions in Section 224 of the Communications Act may provide a possible template for the kind of legislation that would be appropriate to establish such backstop authority.[163] Section 224 grants the Commission authority to regulate the rates, terms, and conditions for pole attachments, but provides that the Commission cannot exercise this authority "in

[159] CTIA Reply Comments at 10.

[160] *See, e.g.* Cal. Pub. Util. Code § 710 ("(a) The [public utilities] commission shall not exercise regulatory jurisdiction or control over Voice over Internet Protocol and Internet Protocol enabled services except as required or expressly delegated by federal law or expressly directed to do so by statute or as set forth in subdivision (c). … (b) No department, agency, commission, or political subdivision of the state shall enact, adopt, or enforce any law, rule, regulation, ordinance, standard, order, or other provision having the force or effect of law, that regulates VoIP or other IP enabled service ..."); 26 Del. C. § 202(i)(1) Notwithstanding any other provision of law to the contrary, the Commission shall have no jurisdiction or regulatory authority over Voice over Internet Protocol ("VoIP") service, as defined in paragraph (i)(2) of this section, including but not limited to, the imposition of regulatory fees, certification requirements, rates, terms or other conditions of service."); DC ST § 34-403 ("Internet Protocol-enabled Service, as defined in § 34-2001(7A), or Voice over Internet Protocol -enabled Service, as defined in § 34-2001(23), shall not be regulated by the Commission."); F.S.A. § 364.013 ("Broadband service and the provision of voice over Internet Protocol (VoIP) are exempt from commission jurisdiction and shall be free of state regulation, except as delineated in this chapter, regardless of the provider, platform, or protocol."); F.S.A. § 364.0361 ("A local government may not directly or indirectly regulate the terms and conditions, including, but not limited to, the operating systems, qualifications, services, service quality, service territory, and prices, applicable to or in connection with the provision of any voice-over-Internet Protocol, regardless of the platform, provider, or protocol, broadband or information service."); 73 P.S. § 2251.4 (Except as set forth in sections 5 and 6, … notwithstanding any other provision of law, no department, agency, commission or political subdivision of the Commonwealth may enact or enforce, either directly or indirectly, any law, rule, regulation, standard, order or other provision having the force or effect of law that regulates, or has the effect of regulating, the rates, terms and conditions of VoIP service or IP-enabled service.").

[161] *But, see,* 26 Del. C. § 202(i) (3) ("Nothing herein shall be construed to either mandate or prohibit the assessment of Enhanced 911 fees pursuant to Chapter 101 of Title 16 on VoIP service, or to mandate or prohibit the payment of any switched network access rates or other intercarrier compensation rates that may be determined to apply.").

[162] CTIA Reply Comments at 10.

[163] 47 U.S.C. § 224(b)-(c).

any case where such matters are regulated by a State."[164]

Furthermore, we do not consider it necessary for Congress to conduct hearings to explore reorganization of emergency service providers. While we believe it is important for state and local jurisdictions to consider organizational issues that will affect their transition to NG911, we agree with APCO that these issues are best considered at the state and local level, and believe that Congress should focus on the other recommendations in this report.

4.1.3. Deployment and Interconnection of ESInets

4.1.3.1. *Background*

One of the critical steps in the transition to NG911 is the deployment by 911 authorities of IP-based networks that are capable of receiving emergency communications via voice, text, video, and data. These networks, commonly referred to as Emergency Services IP Networks (ESInets),[165] will be the primary platform for receipt of incoming NG911 traffic from commercial networks to PSAPs as well as other public safety authorities data communications streams. In addition, ESInets will serve as the bridge between PSAPs on a state, regional, and national basis, facilitating flexible routing of traffic and coordinated response to emergencies. However, there has been only limited deployment of ESInets to date, and there is no established plan or timetable dictating how, when, or where individual ESInets will be built, nor how or on what schedule they should interconnect with each other.

In the *Public Notice*, we asked generally about state and national level deployment of ESInets, and, in particular, what role, if any, the federal government should play in enabling the deployment of state-wide ESInets.[166] We also asked about the feasibility of deploying a national NG911 infrastructure that would allow PSAPs to connect to a nationwide ESInet where state or regional level ESInets have yet to be deployed, and whether Congress should promote the development of such a national infrastructure.[167]

Commenters addressing these issues generally do not support creating a national ESInet infrastructure that would replace state and regional ESInet deployments, but some agree that targeted actions at the federal level could help to ensure coordinated deployment, interconnection, and exchange of traffic between ESInets over time. For example, Connecticut urges the federal government to wait until states and regions install and stabilize their ESInets, although it also supports a federal role in facilitating "compatibility between the states so that cross-border [interconnection] will be relatively simple and inexpensive to enable."[168] Likewise, BRETSA notes that, in most cases, states implementing ESInets will have secured rights-of-way and installed network facilities, thus bearing a substantial portion of the costs.[169]

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[164] 47 U.S.C. § 224 (c)(1).

[165] ESInets are a key component of the NENA i3 architecture, which has been widely accepted by 911 authorities as the basis for proceeding with NG911 deployment. NENA i3 enables PSAPs to receive IP-originated traffic that conforms to the i3 standard directly into the ESInet and uses gateways to receive and convert 911 communications originated on non-IP legacy networks. *See* NENA, "NENA i3 Solution – Stage 3" (July 2011), *available at* http://www.nena.org/?page=i3_Stage3 (last accessed Feb. 8, 2013).

[166] *Public Notice* at 14072.

[167] *Id.*

[168] Connecticut Comments at 3.

[169] BRETSA Comments at 24.

Similarly, TCS states that "the lack of an existing national network does not mean that it will [be] necessary to deploy a new national NG9-1-1 infrastructure that would allow PSAPs to connect to a nationwide ESInet prior to the deployment of statewide or regional ESInets."[170] L.R. Kimball believes that a number of "state and/or regional NG9-1-1 efforts are deploying so called 'hosted' 9-1-1 solutions, a cloud-like approach where some 9-1-1 functions, which in the legacy world would be deployed at the PSAP, have now been moved into centralized regional or state-level locations."[171] Some commenters suggest mechanisms that could be established at the national level to enhance coordinated deployment and interconnection of ESInets. L.R. Kimball argues that national ESInet infrastructure could provide location-based call routing down to the state level, and perhaps further, if regional, local, or even individual PSAPs interconnect to the national network.[172] NENA proposes that Congress or the Commission could condition access to national databases that support NG911 on conformity with the functions and interfaces specified in the i3 standard at defined interconnect points.[173]

Some commenters argue for steps to encourage ESInet deployment at the state level and not on a PSAP-by-PSAP basis. T-Mobile asserts that PSAP-by-PSAP deployment of E911 led to increased costs and significant delays and argues that deployment of ESInets at the state or regional level will "yield substantial benefits, including cost savings, economies of scale, and logistical efficiencies in PSAP call overflow and transfer."[174] T-Mobile also points out that, through use of legacy network gateways that are part of the ESInet architecture, all PSAPs in a region or state can migrate to the ESInet simultaneously even if some individual PSAPs are not capable of receiving IP traffic directly.[175] T-Mobile argues further that carriers should not be required to deliver traffic to an ESInet until all PSAPs in a state or region are ready to migrate to an ESInet architecture.[176] Several commenters also suggest that, to make the transition to NG911 more cost-effective and efficient, Congress should encourage the use of consolidated statewide or regional 911 call centers for handling of NG-specific caller media, such as text, data, and other multimedia traffic.[177]

4.1.3.2. *Recommendations*

1) **Congress should encourage and set a goal for the early deployment of state or regional ESInets.**

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[170] TCS Comments at 4.

[171] L.R. Kimball Comments at 7.

[172] *Id*. at 7.

[173] NENA Comments at 7; *see also* Texas 911 Entities Comments at 12 (arguing that national efforts on issues like LoST, PKI, and "forest guides" could significantly reduce the complexity of the NG911 transition).

[174] T-Mobile Comments at 6 ("[P]iecemeal implementation risks customer confusion and creates duplicative network costs for PSAPs and providers that will introduce delay and additional points of failure to the entire system. Piecemeal implementation also undercuts one of the key benefits of NG911 – interconnection and portability of PSAPs.").

[175] T-Mobile Comments at 7.

[176] *Id*. at 8.

[177] AT&T Comments at 6, BRETSA Comments at 22-23, and Consumer Groups Comments at 8. *See also* Arlington, Texas Reply Comments at 4.

We recommend that Congress encourage and set a goal for the early establishment of state or regional ESInets in order to create the necessary and efficient infrastructure critical to local PSAPs' planning and deployment of NG systems and handling of NG-centric traffic streams, such as video. Establishing strong state and regional ESInets is more cost effective and efficient and will also provide the focal point for interstate and inter-regional interconnection and exchange of traffic between ESInets.

We do not agree with commenters that argue that, unless and until all PSAPs are NG ready and there exist state or regional ESInets to carry traffic, carriers should not be required to deliver NG 911 traffic to any PSAP in the state. Again, we emphasize that PSAPs should determine their readiness to deploy NG911 systems, ideally within the context of a state-developed deployment plan. A PSAP requesting delivery of NG traffic should not be denied such traffic because other PSAPs within a state are not ready to accept such traffic. As discussed below, state and regional ESInets will facilitate the deployment of state or regional call centers that can handle such traffic and serve as intermediaries to PSAPs still operating legacy systems.

2) **Congress should encourage or require the use of a common set of standards for seamless transmission of NG911 information between ESInets and with other public safety networks, including the Nationwide Public Safety Broadband Network.**

The record indicates that NG911 deployments and ESInet construction will be piecemeal. As states and regional authorities move forward to deploy systems and infrastructure, there is a risk that different standards may be applied to network design and architecture, with associated negative impacts on the seamless delivery of traffic between ESInets. Equally important, ESInets will need to support seamless delivery of emergency information to other public safety networks used by first responders. In particular, the Nationwide Broadband Public Safety Network (NPSBN), being deployed by FirstNet pursuant to the Public Safety Spectrum Act, will provide first responders with access to broadband data, including photos, video, and other data originating from NG911 systems. It is therefore essential to ensure that such traffic can be delivered seamlessly between all ESInets and the NPSBN.

To avoid the risk of inconsistent standards, some of which may not represent best practices, Congress should encourage or, if necessary, require development and implementation of uniform standards with respect to interstate interconnection and exchange of traffic between ESInets, and between ESInets and other public safety networks such as the NPSBN.

3) **Congress should encourage the development of consolidated regional NG911 call centers where possible, for example, by offering preference for grant eligibility to states and regions that make progress toward this goal.**

The advantages of utilizing statewide or regional call centers to handle next generation text, photo, and video streams would be a significant advantage for PSAPs that may not otherwise be able to finance the initial costs of transitioning to NG911. Indeed, this consortia-based approach also underlies arguments for instituting primary oversight at the state level, enabling better and more efficient use of financial resources, stronger leadership, bulk-buying capacity, and efficiency and care in network design and maintenance. Congress should include appropriate

conditions in federal grant programs to encourage states to consolidate elements of NG911 infrastructure; for example, PSAPs and emergency operations centers.[178]

4.1.4. Updating Funding Mechanisms for NG911

4.1.4.1. *Background*

While certain grant programs exist at the federal level, today 911 service is funded primarily at the state and local level, generally through monthly 911-specific line-item charges on wireline and wireless customers' bills. Accordingly, the mechanisms for collection, and the amounts collected, can differ substantially across jurisdictional boundaries. For example, in the most recent annual report to Congress on state collection and distribution of 911 and E911 funds, the Commission found that the amounts raised from state and territorial 911/E911 fees ranged from an estimated low of $1,779,710 in Guam to an estimated high of $209,202,098 in Texas.[179] How funds may be spent also varies between states, creating further disparities among the states' 911 programs and potentially creating interoperability or compatibility issues where one state or locality progresses more quickly than another.

In the *Public Notice*, we observed that current 911 funding mechanisms "may not adequately account for new services that offer emergency communications in a NG9-1-1 environment."[180] Accordingly, we sought comment whether we should recommend that Congress take steps to ensure that 911 funding mechanisms are technologically neutral so that the funding obligation does not disproportionately burden certain types of services over others. We also asked whether Congress should authorize or require 911 fee contributions by all service providers, such as VoIP or IP-enabled service providers, and not just those providing network access.[181]

Commenters overwhelmingly favor an overhaul of current 911 funding mechanisms, believing the current system to be outdated and inadequate for facilitating the transition to NG911.[182] Discussed below is the prevailing view with respect to who should contribute to funding NG911, how funds should be collected, who should oversee fund collection, and how funds should be spent.

Who Should Contribute to Funding NG911. In arguing for changes to current 911 funding mechanisms, many commenters assert that it is not sustainable for contributions to 911 funding to come primarily from fees paid solely by users of voice-centric wireline and wireless services. First, commenters assert that such a regime is insufficient to fund the initial transition and the ongoing costs of NG911. Second, commenters argue that the narrowness of the existing funding base is not competitively neutral in an

[178] For instance, Congress could establish the consolidation of 911 functions as a priority when providing incentive-based NG911 grants. *See* Section 4.1.3.

[179] *2012 Fee Report* at 8.

[180] *Public Notice*, 27 FCC Rcd at 14073.

[181] *Id.*

[182] APCO Comments at 5; AT&T Comments at 7-8; Bandwidth.com Comments at 8; Connecticut Comments at 7; CSI Comments at 4; Hawaii Comments at 2; iCERT Comments at 2-3; Intrado Comments at 9-10; NENA Comments at 18-19; Texas 911 Entities Comments at 16; TIA Comments at 4-6; T-Mobile Comments at 9-10; TracFone Wireless Comments and Reply Comments throughout; Verizon Comments at 9-10; Wireless RERC Comments at 5, 9; AICC Reply Comments at 5, 6; APCO Reply Comments at 2; CTIA Reply Comments at 15; NENA Reply Comments at 4; NexGen Global Technologies Reply Comments at 3; NTCA Reply Comments at 4; Sprint Nextel Reply Comments at 7.

evolving IP-based network environment where many more parties play a role in the provision of 911 service than did previously.[183] APCO, for example, argues that "Congress should consider creating a technology-neutral, uniform model that all service providers would utilize to ensure appropriate NG9-1-1 funding for the states."[184] CSI similarly proposes that "[a]ny device that can connect to any system providing 9-1-1 services at any time should contribute and be required to remit 9-1-1 fees based on the jurisdictional rate."[185]

How Funding Should Be Collected. Commenters express diverse opinions on how 911 funds should be collected. Some commenters argue that 911 should be funded from federal and state general revenue rather than from perpetuation of the existing fee-based regime.[186] APCO questions whether a NG911 funding approach that is centered on service providers can work given that NG911 services will not be "easily tied to service providers and recurring billing practices."[187] Other commenters suggest that a fee-based approach to NG911 funding is feasible, but that existing 911 fee collection mechanisms must be substantially overhauled in order to include a broader range of potential contributors. NENA urges Congress to "consider a 9-1-1 funding model based on service fees imposed on access network subscriptions. [188] Other commenters argue for point-of-sale collection of 911 surcharges as the best method to ensure contribution by pre-paid wireless users.[189]

Who Should Oversee Funding: Federal versus State/Local Jurisdictions. A number of commenters advocate increased state-level oversight and interstate or federal coordination of NG911 funding. [190] Verizon argues that, if a fee-based approach is used, the fee should be state-administered in order to take advantage of economies of scale and integrate less populated areas into improved emergency communications systems.[191] TracFone Wireless urges preemption of state funding laws that are not competitively neutral.[192]

Some commenters advocate an increased federal role in NG911 funding and funding oversight. NASNA argues that federal funding "should be tied to reaching objective interoperability goals set for NG911 implementation."[193] BRETSA contends that any federally mandated NG911 service should be

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[183] *See, e.g.* CSI Comments at 4; NTCA Reply Comments at 4; Sprint Nextel Reply Comments at 7; TracFone Wireless Comments at 8; iCERT Comments at 2-3; NENA Comments at 18-19; Intrado Comments at 9; Verizon Comments at 9.

[184] APCO Comments at 5.

[185] CSI Comments at 4; Verizon Comments at 10.

[186] AT&T Comments at 9; s*ee also* TracFone Wireless Reply Comments at 2.

[187] APCO Comments at 5.

[188] NENA Comments at 18. NENA asserts that this "would effectively eliminate a 'free-riding' problem, at the expense of capturing revenue from a small number of users who do not use any 9-1-1 capable originating service." *See also* Wireless RERC Comments at 9 (a fee-based approach must ensure that non-voice-enabled services "contribute their fair share" to 911 funding).

[189] *See* TracFone Wireless Comments at 5; T-Mobile Reply Comments at 4.

[190] T-Mobile Comments at 10.

[191] Verizon Comments at 10.

[192] TracFone Wireless Comments at 6.

[193] NASNA Comments at 2.

accompanied by permanent federal funding for the service."[194]

How Funding Should be Spent. Two general themes emerge with respect to comments on the expenditure of 911 funds. First, most commenters advocate strong measures to curb the use of collected funds for non-911 purposes. NENA states that, despite annual reports by the Commission and the threat of reduced grant funding, previous efforts to end this practice have proven ineffective.[195] NENA argues that Congress should consider stronger measures to remedy this situation, including prohibiting the collection of 911 fees that are remitted to a state's general fund rather than a separate 911 fund, or conditioning all public safety grant funding, not just 911-specific funding, on proper use of 911 fees.[196] T-Mobile echoes this concern, arguing that "clarifying the definition of valid uses of 911 surcharges will ensure that funds are not improperly diverted away from NG911 deployment."[197] APCO agrees that Congress should "mandate that states use such fees only for NG9-1-1 purposes."[198]

Second, commenters advocate steps to ensure that funds can be used to support the transition to NG911 and not just traditional 911 programs and infrastructure. Hawaii states that "funding mechanisms will need modification and definition, as NG911 will bridge current and future technologies."[199]

4.1.4.2. *Recommendations*

1) Congress should develop incentives for states to broaden the base of contributors to NG911 funding to more accurately reflect the benefits derived from NG911 service.

There appears to be a strong consensus that the existing user fee-based regime is inadequate both with respect to the ability to fund the initial and ongoing expenses associated with NG911 and with respect to the inclusion of all participants in the NG911 ecosystem that will benefit from the significant enhancements to public safety that NG911 will provide. In addition, as individual consumers increasingly depend on a range of devices and services for communication, fixed per-line fees may be seen as not competitively neutral and unfair. Accordingly, Congress should consider paths to develop incentives for states to broaden the base of contributors to this effort to more accurately reflect the benefits derived. This might be accomplished by providing states with a menu of options for permissible contribution from point-of-sale collection to general revenue assessment, with accompanying federal incentives depending on Congressional preference for outcomes.

2) Congress should encourage states to provide funding for NG911 as well as

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[194] BRETSA Comments at 8.

[195] NENA Comments at 5-6.

[196] *Id*. at 6. *See also* Motorola Solutions Comments at 4 ("The Federal coordinating body should also be responsible for ensuring that funds appropriated for 9-1-1 and NG9-1-1 are secure. Funds and fees collected and monies appropriated for NG9-1-1 need to be reserved only for use in connection with 9-1-1-related operations and development. The commission should work with Congress and the states to ensure that funds are identified, secured, and appropriately used.").

[197] T-Mobile Comments at 10.

[198] APCO Comments at 5.

[199] Hawaii Comments at 2.

legacy 911 purposes as part of any existing or future funding mechanism.

According to the Commission's most recent annual report on 911 fees, states differ in how they treat NG911 under their relevant funding statutes.[200] Thirty-three states reported to the Commission that funding of NG911 programs is permitted under their funding statutes, with sixteen of these states reporting the actual allocation of 911 funds for NG911 services in 2011. Three states indicated that their funding mechanisms do not permit the allocation of 911 funds to NG911 programs. Congress should encourage those states that have not done so to modify their statutes to support NG911 activities, and expand existing funding programs to provide for funding of NG911 as well as legacy 911.

3) Congress should condition grants or other appropriate federal benefits on a requirement that funds collected for 911/NG911 funding be used only for 911 or NG911 purposes, and should provide for appropriate enforcement of such requirements.

Although Congress has taken some steps to discourage states from using 911 fees for non-911 purposes, the Commission's annual reports to Congress on collection and use of 911 funds indicate that some states have continued the practice.[201] Congress should therefore consider otherwise conditioning appropriate federal benefits on a requirement that states use fees collected for 911 and NG911 solely for 911/NG911 purposes, and provide for adequate auditing or enforcement of that obligation. NHTSA's Model State Legislation contains a section for a state statute that would embody this recommendation:

> *"Dedicated 9-1-1 revenues may be used to support 9-1-1 activities and equipment/software that comply with nationally accepted technical and/or training standards. Administrative costs related to the operation of State, regional and local 9-1-1 authorities and any related governing or advising commissions or boards are permitted at a maximum rate of xx% of 9-1-1 revenue distribution. Recovery of any unexpended 9-1-1 funds from local and State 9-1-1 authorities shall be permitted and recovered funds used for future allowable expenditures. 9-1-1 Funds may be used by State, regional, and local 9-1-1 authorities and allowable uses of these funds should be clearly delineated."*[202]

4.1.5. Liability Protection for all NG911 Stakeholders

4.1.5.1. *Background*

In general, liability protection for the provision of 911 service is governed by state law. In many instances, the relevant state laws were drafted years ago to address liability issues associated with legacy 911 service and therefore extended liability protection only to traditional 911 providers such as LECs. However, as 911 has evolved and expanded to include wireless, VoIP, and now NG911, Congress

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[200] *See 2012 Fee Report*.

[201] *See id.*; *see also* Federal Communications Commission, *Third Report to Congress on State 911 Fees and Charges* (Nov. 8, 2011), *available at* http://www.fcc.gov/document/3rd-report-congress-state-911-fees-and-charges (last accessed Feb. 15, 2013).

[202] NHTSA Guidelines at 23.

has enacted legislation requiring states to provide parity in the degree of liability protection provided by state law to both traditional and non-traditional 911 providers. Such parity provisions were included in the 911 Act,[203] the ENHANCE 911 Act,[204] and most recently in the NG911 Act, which extended liability parity to providers of NG911 services.[205]

In the *Public Notice*, we noted the above statutory provisions and asked whether they were sufficient or whether the Commission should recommend that Congress take further steps to provide for liability protection to promote the development of NG911.[206] Specifically, we asked (1) whether existing law authorizes the Commission to provide liability protection to NG911 providers, including carriers, vendors, and PSAPs; (2) whether Congress should take steps to further encourage or require states to extend liability protection to 911 and NG911 services; and (3) whether Congress should provide direct liability protection for NG911 services at the federal level.[207]

In response to the *Public Notice*, a broad cross-section of commenters contend that liability protection is a concern that could hamper the transition to NG911 without further Congressional action. While Congress has provided for parity in the 911/NG911 liability protection provided by each state, commenters express concern about the adequacy and inconsistency among the states in the underlying level of liability protection provided.[208] AT&T argues that the liability protection parity extended to wireless, VoIP, and other emergency communications service providers does not address "the extent to which they are actually immune from liability associated with 9-1-1 access because immunity afforded the LECs is often based on telephone company tariffs, which can vary from jurisdiction to jurisdiction or which are being eliminated or replaced or which are tied to a specific . . . technology."[209]

Some commenters express uncertainty whether the liability provisions of the NG911 Act extend to the full array of potential NG911 providers and applications. These commenters stress that liability protection should be platform-agnostic and extended to all forms of data included in NG911.[210] Agero, for example, cites the potential for NG911 to include advanced automobile collision notification, but contends that "it is critical that adequate liability protections be in place" for such technology to be broadly available across vehicle models.[211] Bandwidth.com argues that communications providers that are not yet required to provide 911 but voluntarily do so "must be given the same protections from liability currently extended to carriers, VoIP providers, and 9-1-1 service providers."[212]

Many of the commenters who express concern about the adequacy of state-by-state NG911 liability protection urge Congress to set an overarching federal liability standard. NENA recommends "creation

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[203] 911 Act § 4 (1999).

[204] ENHANCE 911 Act § 201 (2004); 47 U.S.C. § 615-a.

[205] *See* NG911 Act § 6506; 47 U.S.C. § 1472.

[206] *Public Notice*, 27 FCC Rcd at 14073.

[207] *Id.*

[208] *See*, *e.g.*, NENA Comments at 17 ("[M]any of the underlying [state] liability protection regimes may not necessarily provide adequate assurances that vendors, carriers, integrators, PSAPs, or 9-1-1 professionals will not be subject to potentially devastating civil damage awards.").

[209] AT&T Comments at 4.

[210] *See* NCTA Reply Comments at 2; Sprint Reply Comments at 5-6; T-Mobile Reply Comments at 3; TCS Comments at 6.

[211] Agero Reply Comments at 12.

[212] Bandwidth.com Comments at 8.

of a comprehensive liability protection scheme that would bar any cause of action or imposition of liability for ordinary negligence in the provisioning of 9-1-1 service."[213] AT&T argues that "creation of a modern NG911 system impacts interstate commerce – network providers, software developers, equipment manufacturers, and associated vendors – and Congress needs to recognize its obligation to make limitation-of-liability protection for these entities a national concern."[214] Therefore, AT&T asserts, liability protection "should be clear and unambiguous, comprehensive, standardized, nationwide, and applicable to all equally – regardless of technology involved."[215] T-Mobile proposes a nationwide liability standard that would provide immunity unless a party can show gross negligence.[216] Verizon recommends that Congress enact NG911 liability protection similar to the liability protection provided for Commercial Mobile Alert System (CMAS) wireless alerts under the 2006 Warning Alert and Response Network (WARN) Act.[217] Motorola recommends that Congress "require states to extend liability protection to 9-1-1 and NG9-1-1 services while providing direct liability protection for NG9-1-1 services at the federal level."[218]

Other commenters support enhancements to liability protection at the state level rather than federal action. NASNA suggests that Congress "should encourage states to provide liability protections to 911 and NG911 services within the scope of each individual state's public policies and statutory constructs."[219] NASNA contends that Congress should not circumvent state liability protections, although NASNA supports federal "'gap fill' protections to cover NG911 services in the absence of state provisions."[220] Intrado believes that federal immunity for 911, E911 and NG911 services "would be valuable," but states that, "if insufficient federal authority exists to provide such immunity, states should consider legislative changes."[221] On the other hand, Connecticut notes that its legislature "has extended immunity from liability to telephone companies and VoIP providers providing 9-1-1 ALI services, but not for other acts or omissions" and disagrees that the absence of such provisions has hindered the development of NG911. [222] Connecticut also questions whether "immunity from liability for the acts or omissions of a PSAP for what is arguably the core aspect of 'what PSAPs do' is necessary or even advisable."[223] Finally, Connecticut contends that "immunity should attach for consequences arising from telephone companies' and CMRS providers' compliance with FCC NG911 requirements, but we believe that should define the extent of such immunity."[224]

Finally, TCS raises concerns about potential liability in connection with the licensing of intellectual property rights needed to provide 911 services – an issue that was not expressly raised in the *Public*

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[213] NENA Comments at 17.

[214] AT&T Comments at 5.

[215] *Id*. at 5.

[216] T-Mobile Comments at 9.

[217] Verizon Comments at 5-6; 42 U.S.C. § 1201 *et seq.*, Pub. L. 109-347 (2006).

[218] Motorola Comments at 8.

[219] NASNA Comments at 6.

[220] *Id*. at 7.

[221] Intrado Comments at 8.

[222] Connecticut Comments at 6.

[223] *Id*.

[224] *Id*.

Notice.[225] TCS asserts that it and other 911 service providers have become the target of predatory litigation by patent assertion entities (PAEs)[226] and other intellectual property rights-holders that exploit the Commission's mandatory 911 service requirements "to force carriers and their vendors into licensing agreements or face crippling litigation expenses."[227] TCS contends that this creates an "unfortunate arbitrage opportunity" for PAEs and discourages implementation of advanced 911 capabilities by leaving providers with a choice between accepting unreasonable terms of licensing and violating Commission rules.[228]

Wireless commenters generally support a more detailed examination of the intellectual property issues raised by TCS.[229] CTIA encourages the Commission "to recommend that Congress avoid adopting any new requirements that are specific to particular technologies and services and, in doing so, force covered entities to utilize technologies not available under fair, reasonable, and non-discriminatory (FRAND) terms."[230] According to CTIA, increased emphasis on standards-based and outcome-oriented requirements, rather than specific technologies, "can better prevent some of the intellectual property litigation issues that have arisen in the E911 context from extending to NG911."[231]

4.1.5.2. *Recommendations*

1) **Congress should consider incentives for states to revise their liability regimes to provide appropriate protection for entities providing or supporting NG911 services, in conformance with standardized guidelines or model state legislation.**

While some commenters call for Congress to preempt state law and set federal liability protection standards for NG911, we believe that Congress should proceed cautiously in this area. Tort law liability standards are traditionally a matter of state

[225] TCS has also filed a separate petition before the Commission raising the same issue described in its comments, urging the Commission to take action against patent infringement lawsuits involving mandatory 911 service capabilities. *See* Petition of Telecommunication Systems Inc. for Declaratory Ruling and/or Rulemaking, GN Docket No. 11-117, WC Docket No. 05-196, PS Docket No. 11-153, PS Docket No. 10-255 (July 24, 2012) (TCS Petition).

[226] The term "patent assertion entity" refers to firms whose business model primarily focuses on purchasing and asserting existing patents rather than developing new technologies. *See* Federal Trade Commission, "The Evolving IP Marketplace: Aligning Patent Notice and Remedies with Competition" (March 2011), *available at* http://www.ftc.gov/os/2011/03/110307patentreport.pdf (last accessed Feb. 15, 2013).

[227] TCS Comments at 11.

[228] *Id*. at 11-12.

[229] CTIA Comments at 16-17 (urging the Commission "to examine the potential intellectual property implications of its NG9-1-1 framework"); Reply Comments of T-Mobile USA, Inc. at 5 ("When carriers and vendors preparing to deploy public safety networks are held hostage to owners of intellectual property, the ultimate losers are the American people.").

[230] CTIA Comments at 17.

[231] *Id.* at 18.

law. Further, while commenters have expressed concern that recent laws are inadequate, they do not cite any specific incidents where liability has attached or otherwise impacted behavior. Moreover, some states have modernized and reformed their liability laws to accommodate NG911, and other states are considering doing so.[232] Furthermore, NHTSA's Model State Legislation provides helpful language on this issue that may assist states in developing such a liability regime:

> *"No person involved in the provision of 9-1-1 service who in good faith receives, develops, collects or processes information for the 9-1-1 databases, relays, transfers, operates, maintains or provides 9-1-1 services or system capabilities, or provides emergency 9-1-1 communications or services for ambulance, police and fire departments, or other public safety entities, shall be liable for damages in any civil action for any act or omission that results in death, injury or loss to person or property unless such action or inaction constitutes gross negligence or an intentional tort."*[233]

In light of these considerations, we believe that Congress should focus on creating incentives for states themselves to undertake revisions of their liability regimes, perhaps in conformance with standardized guidelines or model legislation developed by stakeholders. For example, Congress could require that any federal NG911 grants be conditioned on state adoption of standardized guidelines for liability protection developed by stakeholders. In this regard, we also concur with commenters that liability protection should be extended to any entity that is providing NG911 services on a voluntary basis as a means to incent participation in the NG911 transition and provide valuable services to customers utilizing newer communications platforms.

2) Congress should include appropriate liability protection as part of any federal law that imposes NG911 requirements or solicits voluntary NG911 activity.

When Congress enacted the WARN Act, it included liability protection for participants in the voluntary program.[234] While we are not currently recommending federal preemption of state liability regimes for 911 and NG911 services, to the extent that Congress chooses to impose federal obligations or provide for voluntary measures associated with the provision of NG911 service or any associated

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[232] Arkansas, Connecticut, Florida, Illinois, Kentucky, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Montana, North Carolina, North Dakota, Oregon, Pennsylvania, Rhode Island, South Dakota, Tennessee, Vermont, Virginia, and Washington all have upgraded or modified their 911 systems to accommodate NG911 at either the State or sub-State level. *See* ICO 911 Progress Report.

[233] NHTSA Guidelines at 30.

[234] 42 U.S.C. § 1201(e).

components of the NG911 architecture, we believe federal liability protection for such obligations and or voluntary measures should be included in such legislation.

Finally, with respect to the patent licensing issue raised by TCS, we decline to make a recommendation at this time pending development of a more complete record. The Bureau released a *Public Notice*[235] on the petition filed by TCS, and the record developed thereby may provide additional insight. The issues identified may also have implications beyond NG911.

4.1.6. Access to Next Generation 911 Systems for Persons with Disabilities

4.1.6.1. *Background*

Currently, approximately 15 percent of the United States population, or 34.5 million people, have hearing disabilities and approximately 7.5 million people have difficulty using their voices.[236] Moreover, there is a strong relationship between age and reported hearing loss. For example, 18 percent of American adults 45-64 years old have a hearing loss, 30 percent of adults 65-74 years old have a hearing loss, and 47 percent of adults 75 years old or older have a hearing loss.[237] By 2030, 20 percent of the U.S. population will be over 65 years old, substantially increasing the number of Americans who may need alternatives to voice communications when accessing 911.[238] Further, an increasing number of soldiers are returning from overseas and are experiencing traumatic brain injury, which can result in hearing or speech disabilities.[239]

As noted above, Title II of the Americans with Disabilities Act (ADA), enacted in 1990 requires PSAPs to provide persons with hearing or speech disabilities with direct access to 911 emergency services.[240] Since 1991, the U.S. Department of Justice (DOJ) has implemented this provision by requiring all public

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[235] Public Safety and Homeland Security Bureau Seeks Comment on Petition for Declaratory Ruling and/or Rulemaking Filed by Telecommunications Systems Inc., *Public Notice*, DA Docket No. 13-273 (Feb. 22, 2013).

[236] This includes individuals who have cerebral palsy, Parkinson's disease, ALS, aphasia, Huntington's disease, and speech disabilities such as stuttering or stammering. *See, e.g.,* National Institute on Deafness and Other Communications Disorders, National Institutes of Health, available at http://www.nidcd.nih.gov/health/statistics/pages/vsl.aspx (last accessed Feb. 19, 2013). *See also* American Speech, Hearing and Language Association (ASHA), "Incidence and Prevalence of Communication Disorders and Hearing Loss in Children – 2008 Edition," *available at* http://www.asha.org/research/reports/children.htm (last accessed Dec. 12, 2012).

[237] National Institute on Deafness and Other Communication Disorders, *available at* http://www.nidcd.nih.gov/health/statistics/Pages/quick.aspx (last accessed Dec. 12, 2012).

[238] *See* Frank B. Hobbs, U.S. Census Bureau, "The Elderly Population," *available at* http://www.census.gov/prod/1/pop/p23-190/p23-190.pdf (noting "[a]bout 1 in 8 Americans were elderly in 1994, but about 1 in 5 would be elderly by the year 2030.") (last accessed Dec. 12, 2012).

[239] *See, e.g.*, Greg Zoroya, "Troops with Traumatic Brain Injury Face Long Road to Recovery," USA TODAY, July 31, 2010, *available at* http://abcnews.go.com/Politics/iraq-afghanistan-troops-traumatic-brain-injury-face-long/story?id=11287674 (last accessed Dec. 12, 2012).

[240] The ADA House Report stated that: "Title II will require local governments to ensure that these telephone emergency number systems are equipped with technology that will give hearing impaired and speech impaired individuals *a direct line to these emergency services*. While initially this will mean installation of a TDD or compatible ASCII or Baudot computer modems by programs operating these services, future technological advances. . . may offer other means of affording direct and equally effective access for these individuals." H. Rep. No. 485, Part 2, 101st Congress., 2d. Sess. 84-85 (May 15, 1990) (emphasis added); *See also* Conf. Rep. No. 596, 101st Cong., 2d Sess. 67-68 (Jul. 12, 1990) (containing similar language).

safety agencies to make their telephone emergency services directly accessible to TTYs.[241] The Commission has noted in the past that people with hearing and speech disabilities have increasingly migrated away from specialized legacy devices, such as TTYs,[242] and towards more widely available forms of text communications because of the ease of access, availability, and practicability of modern text-capable communications devices.[243] While the migration to widely available texting technologies has had the unique benefit of bringing prior TTY users into the mainstream of our nation's communications systems, this transition has also left some people with hearing and speech disabilities without an effective, reliable and direct means of accessing 911 services in the event of an emergency.[244]

The EAAC noted that individuals who cannot hear or speak well enough to communicate with 911 currently have no direct means of accessing 911 when mobile other than TTYs.[245] However, with the vast majority of people with hearing and speech disabilities having discarded their TTYs, these devices are no longer considered an effective solution for directly accessing 911. Moreover, the EAAC found that many individuals who are deaf have service plans that include SMS,[246] and one "key finding" of the EAAC is that "individuals with disabilities should be able to call 9-1-1 using the same means they use for everyday telecommunication."[247]

In response to the *Public Notice*, a number of commenters recommend continued and enhanced focus on access for people with disabilities as the NG911 transition moves forward. NENA suggests that regulations under the ADA be modified for NG911 and that TTY-related requirements be eliminated in light of recent developments towards texting to 911. It notes that "the use of legacy Baudot-based TTY

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[241] 28 C.F.R. §35.162; *see also* 56 Fed. Reg. 35694, 35712-13 (July 26, 1991) (Final rules for Title II of the ADA, governing nondiscrimination obligations by state and local governments). Department of Justice's (DOJ) Title II Technical Assistance Manual states that access through a third party or through a relay service does not satisfy its ADA requirement for direct access. Title II TA Manual at II-7.3000 (Emergency telephone services) *available at* http://www.ada.gov/taman2.tml. In recent testimony to the Senate Committee on Health, Education, Labor and Pensions, the Department of Justice reaffirmed that TRS may "result in harmful delays in reporting emergencies or in requesting emergency assistance for individuals with disabilities." Testimony of Eve Hill, Senior Counselor to the Assistant Attorney General for Civil Rights, Department of Justice, before the Senate Committee on Health, Education, Labor and Pensions, at 13 (Feb 7, 2012). DOJ is considering changes to its accessibility mandates governing 911 access to PSAPs to bring these in line with more current communications technologies, but has not yet issued a final rule requiring other forms of text to be accepted by all PSAPs. *See* 75 FR 43446 (July 26, 2010). The July 26, 2010, ANPRM is accessible through the Federal eRulemaking Portal (http://www.regulations.gov), at docket number DOJ-CRT 0111, *also available at* http://www.ada.gov/anprm2010/nextgen_9-1-1%20anprm_2010.htm.

[242] A TTY, also sometimes called a "TDD," is a text device that employs graphic communication in the transmission of coded signals through a wire or radio communication system. *See* 47 CFR § 64.601(22); Telecommunications Services for Individuals with Hearing and Speech Disabilities and the Americans with Disabilities Act*, Report and Order and Request for Comments*, 6 FCC Rcd 4657 at 4657, ¶1, n.1 (1991).

[243] *See Notice*, 26 FCC Rcd at 13629-30 ¶ 36.

[244] *See, e.g.,* Ray Comments at 1-2; King County E911 Program at 3; Consortium Comments at 3; Tziallila Comments at 1, filed in the Commission's Text-to-911 proceeding. In the Matter of Facilitating the Deployment of Text-to-911 and Other Next Generation 911 Applications, Framework for Next Generation 911 Deployment, *Further Notice of Proposed Rulemaking,* 27 FCC Rcd 16569 at n. 117 (2012).

[245] EAAC Report at 29.

[246] *Id*.

[247] *Id*. at 30.

text devices has almost entirely evaporated,"[248] and proposes that as text-to-911 becomes available, individual PSAPs should be relieved of legacy TTY requirements in order to transition to "IP-based transitional or NG9-1-1 text service processes."[249] NENA contends that this would allow PSAPs to take funds currently used for TTY equipment upkeep and reallocate them to NG911 service, which would benefit individuals with disabilities by providing access to enhanced features like video calling and multi-party (caller – telecommunicator – interpreter) calling.[250]

The Wireless RERC makes a number of recommendations in its comments as to the role of existing working groups that advocate on behalf of the disability community. It first recommends that EAAC, with the Consumer and Governmental Affairs Bureau (CGB)'s oversight, "be responsible for facilitating compliance with disability access requirements dictated not only by the [CVAA] but also Title II and Title IV of the Americans with Disabilities Act."[251] More specifically, the Wireless RERC suggests that EAAC's charter be amended to include the authority to:

- Develop guidance for state agencies designated to oversee NG911, outlining their obligations and sensitizing them to the needs of people with disabilities and recommending that subject matter experts in the area of (a) disability access policy and (b) assistive and accessible communications technologies be included in their coordination and implementation efforts.
- Test NG911 compliance with accessibility requirements, including "secret shopper" calls based on reasonable disability-oriented scenarios. Scoring poorly on such a compliance test should result in a notification letter, and subsequent failure should initiate an official investigation subject to joint enforcement actions by the Commission and the DOJ.
- Develop boilerplate, disability-oriented public information materials and ensure they are made available to states in accessible formats so that the state agency can tailor the materials to their needs. Develop a nationwide PSA (for radio and television that includes the captions and/or a sign language interpreter) regarding NG9-1-1 that directs viewers to check the availability of text-to-911 or NG911 via a PSAP registry.
- Integrate NG911 implementation with the Commission's other subscriber-facing accessibility initiatives, especially relay services (TRS [telecommunications relay services], VRS [video relay services], captioned telephone, and STS [speech-to-speech relay services]) and the National Deaf Blind Equipment Distribution Program.
- Provide results on an ongoing basis to the Interagency Coordinating Council on Emergency Preparedness and People with Disabilities (ICC) to ensure cohesive development and implementation of NG911 policies and technologies. [252]

Also focusing on the EAAC, the Consortium of Advocacy Groups For The Deaf And Hard Of Hearing (Consortium) strongly supports the EAAC recommendation[253] that the Commission and DOJ activities

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[248] NENA Comments at 22.

[249] *Id*.

[250] *Id*.

[251] Wireless RERC Comments at 6.

[252] *Id*. at 7-8.

[253] *See* EAAC, Emergency Access Advisory Committee Report and Recommendations (Dec. 6, 2011), *available at* http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-312161A1.pdf (last accessed Feb. 18, 2013).

under CVAA and ADA be coordinated with regard to access requirements to individuals with disabilities, and the development of regulations pursuant to Section 106(c)(3).[254] The Consortium also urges the Commission and DOJ to adopt rules to ensure that individuals with disabilities calling NG911 have the same privacy, security, and monitoring safeguards as individuals without disabilities.[255]

4.1.6.2. *Recommendations*

1) Congress should continue to update communication laws, including laws addressing NG911 services, to ensure that individuals with disabilities are able to fully utilize emerging and future technologies that support access to emergency services.

In the past, communications technologies often have outpaced disability laws, leaving the disability community without effective access to our nation's communication infrastructure. For example, as noted above, laws adopted in the 1990s to require TTY access to PSAPs have become outdated because new digital and video communication technologies have supplanted the use of TTYs by people who are deaf, hard of hearing, or speech disabled. In addition, continued evolution of these new technologies could lead to further enhancements in accessibility for people with disabilities. Consistent with the overarching purpose of the CVAA, Congress should continue to ensure that the accessibility needs of individuals with disabilities are addressed if and when it updates communication laws addressing NG911 services.[256]

2) Congress should support an ongoing advisory body to explore ways that evolving technologies can enhance communication between public safety services and persons with disabilities.

In its 2011 report to the Commission, the EAAC successfully collaborated to provide extensive advice and recommendations for achieving 911 access by people with disabilities. Some of these recommendations have assisted the Commission in the development of its policies on text-to-911 and NG911.[257] As noted above, the EAAC will be further clarifying its 2011 recommendations in a pending report to be submitted to the Chairman by June 14, 2013. Congress should direct and support the continuance of this advisory body or the establishment of a new ongoing advisory body, which, like the EAAC, would consist of a diverse group of industry, government, and consumer representatives, to help facilitate the roll-out of NG911 for people with disabilities over the next several years. It would be charged with exploring ways that evolving technologies can enhance communication between public safety services and persons with disabilities. This advisory body could

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[254] Consortium Comments at 6.

[255] *Id*.at 6.

[256] S. Rep. No. 111-386 at 1 (2010)(Senate Report); H.R. Rep. No. 111-563 at 19 (2010) (House Report) (noting that the stated purpose of the CVAA was to "update the communication laws to help ensure that individuals with disabilities are able to fully utilize communications services and equipment . . .").

[257] *See*, *e.g.*, *Text-to-911 FNPRM* at ¶¶ 52, 54, 112-113.

explore, for example, the feasibility of utilizing direct, reliable, and interoperable multimedia technologies, such as video conferencing services and real-time text,[258] to ensure that NG911 services are fully accessible by people with disabilities.

3) Congress should support heightened coordination between the Commission and the U.S. Department of Justice on the development of regulations and outreach efforts to ensure accessible emergency services by people with disabilities.

As noted above, although the Commission has jurisdiction over provision of 911 and NG911 by entities within the scope of its regulatory authority, DOJ has jurisdiction pursuant to the ADA over state and local governmental bodies and their PSAPs with respect to the provision of emergency services to people with disabilities. To ensure consistency and uniformity for entities that will be affected by the deployment of NG911 – including providers, first responders and their governmental authorities, and consumers with disabilities – Congress should support heightened coordination between the Commission and DOJ on the development of regulations and outreach efforts affecting the provision of accessible emergency services to people with disabilities.

4.2. Legal Mechanisms for Ensuring Efficient and Accurate Transmission of 911 Caller Information to Emergency Response Agencies

4.2.1. Encourage Development of Location Information Technologies

4.2.1.1. *Background*

In the *Public Notice*, we sought comment on whether the Commission should recommend that Congress authorize or implement any specific legal mechanisms to ensure the transmission of efficient and accurate 9-1-1 caller information to PSAPs.[259] Commenters advocate a variety of approaches, ranging from direct imposition of federal standards to incentive-based approaches through grant funding and other measures.

As briefly described above, the Commission's requirements to transmit E911 Phase I and Phase II

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[258] Some consumer advocates have urged the adoption of real-time text in order to fully meet the needs of people who are deaf, who are hard of hearing, deaf-blind, or speech disabled. Real-Time Text is defined as text transmitted while it is being typed or created, with the characters or words being sent immediately (within a fraction of a second) once typed, and also displayed immediately to the receiving person(s). This provides for the same conversational directness and interactivity as voice because the receiving party can read the newly created text while the sender is still typing it. *See* Real Time Text Task Force, at http://www.realtimetext.org/rtt_in_detail (last visited February 14, 2013). Real-time text would allow emergency callers to send and receive text in parallel with voice on the same call, using VoIP systems and devices, when the latter have a multiline text display. Advocates of any emergency communication method, including real-time text, further propose that real-time text be routinely available – *i.e.,* not just for emergencies – so that individuals in an emergency will understand how to use this feature under the stress of an emergency. *See also* EAAC Recommendation P1.2 (recommending that the FCC promulgate rules that people with disabilities be able to contact NG911 using the same devices with which they are familiar and that they use for daily communication); EAAC Recommendation T4.1 (noting that users will only be able to effectively call 911 when under stress of an emergency if they are able to do using the same devices that they use for daily communication); *See also* Recommendations P2.5, T2.1, T5.4 (addressing real-time text capabilities).

[259] *Public Notice*, 27 FCC Rcd at 14074.

location information in the wireless environment currently apply to Commercial Mobile Radio Service (CMRS) licensees.[260] Concerning the Phase II location information, CMRS licensees must deliver the location of the caller within specific parameters, depending on the location technology that the carriers have chosen. Carriers that use handset-based technologies and those that use network-based technologies have to meet different sets of benchmarks over the next six years.[261] The location accuracy requirements also obligate the carriers to test and measure their compliance with those parameters at the county or the PSAP service area geographic level.[262] This testing requirement applies only to outdoor measurements.[263] Additionally, CMRS licensees and Service System Providers (LECs, CLECS, owners of E911 networks and emergency service providers) are required to deliver confidence and uncertainty data (for the location of the 911 call) to the PSAPs.[264]

Also, as noted above, the Commission requires interconnected VoIP providers to deliver (1) all 911 calls to the local emergency call center and (2) the customer's call-back number and Registered Location. Interconnected VoIP providers must obtain the Registered Location from their customers and inform them of the circumstances under which E911 service may be unavailable or limited when compared to traditional E911 service. Such circumstances may include the customer relocating the IP-compatible end-unit device.[265]

Pursuant to its authority under the Communications Act to impose E911 requirements, the Commission has pending rulemaking proceedings to address various E911 location issues, including indoor location accuracy requirements, the provision of automatic location information (ALI) for VoIP 911 calls, and the application of the Commission's 911 rules to over-the-top VoIP providers and providers of "outbound-only" interconnected VoIP services."[266] Further, the Commission is considering approaches to support NG911 location determination through leveraging of location technologies that are already being developed for commercial broadband applications. The Commission is also seeking comment on the level of location information that should be required for text-to-911 messaging.[267]

As summarized above, in an NG911 environment, IP-based technologies and applications will over time replace legacy network methodologies for determining call location information and associated call routing, and call signaling for emergency calls. NG911 location determination will be based on the civic address or geospatial location (the geographic coordinate-based location) of the caller to the initiating call router (or end unit customer device), which will then use an emergency call identifier and the location information, along with other information, to route the call to the nearest IP-enabled PSAP.[268] That geographic information system (GIS) data will also be used to validate location information through

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[260] *See*, *infra*, Section 3.1.1. CMRS licensees do not include Mobile Satellite Service operators. *See* 47 C.F.R. § 20.18(a).

[261] See 47 C.F.R. § 20.18(h)(1) (for network-based technologies); § 20.18(h)(2) (for hand set-based technologies). The benchmark period for both technologies commenced on Jan. 11, 2011 and terminates Jan. 11, 2019.

[262] *See* 47 C.F.R. § 20.18(h).

[263] *See id*.

[264] See 47 C.F.R. § 20.18(h) (commencing Jan. 18, 2013).

[265] *See* 47 C.F.R. §9.5.

[266] "Outbound-only" interconnected VoIP services support outbound calls to the public switched telephone network (PSTN) but not inbound voice calls from the PSTN.

[267] *See*, *e.g.*, *Text-to-911 FNPRM*, 27 FCC Rcd at 15686, ¶¶ 88-100.

[268] *See*, *infra*, Section 3.1.

NG911 components, such as the Emergency Call Routing Function (ECRF)[269] and the Location Verification Function (LVF).[270] Moreover, in addition to CMRS providers that already provide E911 automatic location information, other providers of IP-enabled services (whether for voice, text, data, or video) will need to deploy these capabilities in order to support location determination for NG911 services. These new providers could include IP network-access providers and over-the-top providers.

Concerning the implementation of such NG911 location components, some public safety entities urge Congress either to enact or to authorize the Commission to mandate standards for improving location accuracy. For example, CSI supports direct legislation "to require…the development of technologies that provide more accurate and efficient transmission of 9-1-1 caller information in an NG9-1-1 environment."[271] NASNA suggests that "[s]etting standards for best practices should be authorized by Congress and enforced by the individual states…."[272] NENA urges Congress to "confer explicit authority on the Commission to decide what information must be provided, by what protocols or other means, and under what conditions."[273] Similarly, APCO submits that "Congress should empower the Commission with sufficient authority to adopt and enforce requirements concerning the transmission of NG9-1-1 caller information to PSAPs, including location information and means to contact the caller regardless of the technology used (voice, text, data, apps)."[274]

Industry commenters believe that, rather than setting standards, Congress and the Commission should leave that process to standards-setting bodies and focus instead on general requirements and "safe harbors" to facilitate the transmission of location data. For instance, TIA "encourages use of voluntary, consensus-based and open industry standards to be used as safe harbors to guarantee compliance."[275] Motorola submits that both the Commission and Congress "should avoid premature mandates that exceed the standards setting process."[276] Wireless carriers express similar support for a voluntary approach based on industry-developed standards.[277]

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[269] The ECRF is a functional element in an ESInet which is a LoST protocol server where civic address or geo-location is part of the input to a mapping function used to route an emergency call to the appropriate PSAP. *See* NENA, Emergency Services IP Network Design for NG9-1-1, NENA 08-506, Version 1, at 12 (Dec. 14, 2011), *available at* http://c.ymcdn.com/sites/www.nena.org/resource/collection/2851C951-69FF-40F0-A6B8-36A714CB085D/NENA_08-506_Emergency_Services_IP_Network_Design_12142011.pdf (last accessed Feb. 21, 2013).

[270] NG911 service providers will use the LVF to pre-validate addresses or new subscribers.

[271] CSI Comments at 4.

[272] NASNA Comments at 8.

[273] NENA Comments at 20.

[274] APCO Comments at 6.

[275] TIA Comments at 10. *See also id*. at 16, n.39 (adding a mandate for location functionality…"for, e.g., MLTS' Wi-Fi/DECT-enabled MLTS devices, would have [a] limited public safety benefit and would come at the cost of undermining the trust [MLTS users] have in MLTS'.").

[276] Motorola Comments at 8.

[277] *See* Verizon Comments at 6, *citing*, *e.g*., ATIS-ESIF, Location Technology Test Bed (ATIS-0500022), and Supplemental E911 Location Information (ATIS-0500021) ("industry standards already are under development that will govern the transmission of 911 caller information for IP-enabled NG911 services and networks. Issues such as accuracy and efficiency are being addressed through the industry standards processes and through service provider and PSAP best practices."); *see also* T-Mobile Comments at 10 ("Congress should not implement any specific data transmission requirements " and "the continuing requirement of providing A-GPS capable handsets

(continued….)

Some commenters suggest other potential Congressional actions to improve location accuracy and the efficient transmission of 911 caller information. APCO proposes that Congress empower the Commission to impose location accuracy testing requirements on service providers, device manufacturers, and application developers.[278] Connecticut similarly advocates a testing program to be conducted by the Commission, ICO, and the National Institute for Standards and Technology (NIST) "to ensure that the carriers are meeting the FCC requirements."[279] NENA proposes that Congress "clarify the obligation of access network providers to provision location determination and discovery service…."[280] Wireless RERC proposes that Congress fund research on new technologies to be added to NG911.[281]

4.2.1.2. *Recommendations*

1) Congress should not set standards but should provide incentives for development of improved technologies.

Although some public safety entities support Congressionally mandated standards, we recognize that public safety groups and industry sponsored standards setting bodies have made significant progress on the NG911 standards concerning location technologies. For instance, states that have initially deployed or are in the process of implementing NG911 ESInet capabilities have contracted with carriers and vendors using the NENA i3 standard. Moreover, as industry commenters submit, other standards and best practices efforts are underway to improve and apply technologies for the location functions and components necessary for NG911. In view of these efforts, we believe that Congressional action on standards is not warranted. However, the comments indicate that Congressionally-provided incentives for developing improved location technologies would facilitate NG911 deployment on a consistent basis. As the examples of states initiating NG911 deployment indicate, states and localities are and will be conducting pilot and test programs to implement NG911. Incentivizing those efforts will be necessary to ensure uniform deployment of NG911 location capabilities and functions. Therefore, we recommend that Congress provide incentives for deployment of improved location technologies by conditioning 911 or NG911 grant funding on state and locality efforts going forward.

2) Congress should consider enacting legislation clarifying that all network access providers and "over-the-top" NG911 service providers have an obligation to support NG911 location determination by technically feasible and commercially reasonable means.

In the NG911 environment, text, video, multimedia as well as legacy E911 and new IP-enabled voice services must be capable of delivering accurate location

(Continued from previous page)
and transmitting data from a caller's handset to the appropriate ESInet [as] acceptable, but does not feel that wireless carriers should be required to meet other specific technological obligations.").

[278] APCO Comments at 6.

[279] Connecticut Comments at 8.

[280] NENA Comments at 20.

[281] Wireless RERC Comments at 10 (noting that '[t]he PSIC grant program would have to be expanded to include technologies to advance NG9-1-1 and allow for eligibility of academic institutions of higher learning and other non-profit research centers.").

information. In addition to the CMRS and interconnected VoIP providers and SSPs that the Commission currently regulates for E911, providing NG location capabilities will be the obligation of new entities providing NG services. As the current Commission E911 rules and rulemaking proceedings recognize, there has been a significant migration in the industry in offering wireless IP-enable location-based services (LBS) that are commercially available and have achieved significant market penetration among subscribers. Further, the record in the above-referenced rulemaking proceedings and the comment record for this Report indicate that more refined location capabilities, *e.g.* geo-spatial/GIS location determining systems, are technically feasible for NG911. Although the Commission has indicated that it has authority to impose E911 and NG911-related location requirements on network access providers and "over-the-top" NG911 service providers,[282] to expedite reform and reduce the possibility of litigation and attendant uncertainty, Congress should consider enacting legislation clarifying that all such providers have an obligation to support NG911 location determination by technically feasible and commercially reasonable means.

3) Congress should support neutral third-party testing programs and testing requirements for location technology.

States and localities implementing NG911 will need to conduct pilot and testing programs. To ensure that the NG911 location components and functions are transmitting accurate location information, public safety entities and providers of NG911 services will be required to coordinate with third-party vendors and manufacturers. Congressional support for public safety entities to coordinate initial and continued testing programs according to the requirements of the standard(s) adopted will be necessary. We recommend that, to facilitate the transition to NG911, Congress should enable and encourage the required testing of programs and requirements by conditioning 911 and NG911 grant funding on public safety entities establishing and participating in testing programs for improving location technology that will comply with the NG911 standard(s) that are implemented.

4.2.2. National NG911 Database Components to Support Routing and Secure Delivery of Caller Information

4.2.2.1. *Background*

NG911 architecture requires new protocols to direct database functions related to handling routing and delivery of location information of an emergency call to the appropriate PSAP. In particular, NG911 will use a Location-to-Service Translation (LoST) directory to map emergency calls and provide the civic or geospatial information needed for specific services. Sometimes referred to as the "Forest Guide," LoST is a lookup directory database that associates an NG911 emergency call or request with other NG-specific functions, such as the Emergency Call Routing Function (ECRF) and Location Verification Function (LVF). [283] The LoST protocol function is a component of the NENA i3 Standard, and states and localities that have either conducted NG911 pilot test programs or have deployed operational NG911

[282] *See*, *e.g.*, *Location Accuracy FNPRM/NOI*, 25 FCC Rcd at 18977 ¶ 7; *NG911 NPRM*, 26 FCC Rcd at 13662 ¶ 117; *see also Text-to-911 FNPRM*, 27 FCC Rcd at 15722-23 ¶¶ 170-72.

[283] *See, infra*, note 258 (concerning NG911 operations and the function of a local directory server using the LoST [Location-to-Service Translation] protocol.).

networks have incorporated this capability.[284] Use of the LoST protocol by the NG911 location database functions can also permit the flow of location information from 911/E911 legacy network address databases, such as the Master Street Address Guide and ALI database, to PSAPs while the legacy and NG911 networks operate in tandem during the transition to NG911.[285]

NENA proposes to establish the Forest Guide at the national level to "support the routing of calls and other data streams to the border control functions of lower-level state and local ESInets appropriate to a caller's location."[286] Under NENA's proposed approach, the Forest Guide would provide a national registry of ESInets, with information on their status of deployment for NG911. NENA contends that establishing the Forest Guide at the national level will provide economies of scale and reduce NG911 transition costs for states and localities that would have access to the database.[287] The national Forest Guide would also provide an efficient mechanism for wireless carriers, interconnected VoIP providers, and other NG911 service providers to obtain the information needed to route 911 calls to the appropriate ESInet and PSAP.[288] Texas 911 Entities also supports establishing a national Forest Guide, noting that while national implementation "may not be absolutely required, such national efforts could significantly reduce complexity of the NG9-1-1 transitions."[289]

4.2.2.2. *Recommendation*

1) Congress should consider supporting and funding the development of the NG911 "Forest Guide" at the national level as proposed by NENA.

We recommend that Congress consider authorizing a federal entity such as the Commission or ICO to contract with an appropriate service provider for the development of the national level Forest Guide, as proposed by NENA. A national level Forest Guide would provide economies of scale and reduce NG911 transition costs at the state and local level, in addition to ensuring state, regional, local and tribal adoption of the national level standards for accessing the Forest Guide. A national Forest Guide could be leveraged by state, regional, and local PSAPs in their transition to NG911, without infringing on their ability to shape NG911 policy and deployment within their jurisdictions.

4.2.3. Ensuring Security of NG911 Systems

4.2.3.1. *Background*

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[284] *See*, *infra*, Section 3.2.1 for examples of states that have deployed or will soon be implementing NG911 programs incorporating the LoST protocol.

[285] *See*, *infra*, Section 3.1.

[286] NENA Comments at 14.

[287] *Id*. at 7 (concerning the Forest Guide asset as enabling "NG9-1-1 in a way that minimizes costs and maximizes capabilities for all parties.").

[288] *Id*.; also at 19 ("transitioning away from fixed databases and toward dynamic location determination mechanisms, NG9-1-1 will eliminate or reduce many of the challenges telecommunicators and responders now face in dealing with newer technologies that have been effectively 'bolted on' to legacy E9-1-1 systems.").

[289] Texas 911 Entities Comments at 11 (also mentioning components, "L[o]ST, PKI [Public Key Infrastructure for Certificate Authority]," similar to the components that NENA proposes). *See also* L.R. Kimball Comments at 7 ("anticipat[ing] that a national infrastructure should provide at least location-based call routing down to the state level, and perhaps further if regional, local, or even individual PSAPs interconnect to the national network.").

Because NG911 relies on an IP-enabled interconnected and networked architecture, the architectural design must include robust safeguards to address the risk of cyber attacks, including computer viruses and denial of service (DoS) attacks. In this respect, deployment of NG911 requires more sophisticated cyber security standards than have historically been needed for legacy 911 systems.

To address these issues, in 2010, NENA released the Security for Next Generation 9-1-1 Standard, also known as NG-SEC, a comprehensive cyber security standard designed to mitigate potential cyber attacks on NG911 systems.[290] NG-SEC establishes minimal guidelines and requirements for the protection of NG911 assets or elements by identifying basic requirements, standards, procedures, or practices to provide minimum levels of security applicable to NG911 Entities.[291] Additionally, NG-SEC provides audit checklists and detailed methods to assess levels of security and risk to NG911 entities.[292] NG-SEC standards apply to PSAPS, NG911 ESInets, NG911 service providers, NG911 equipment and service vendors, and any contracted service that performs functions or services that require securing NG911 assets, such as computers, networks, and information databases.[293] Under the standard, 911 authorities must apply a comprehensive approach to assessing security vulnerabilities and implementing the appropriate policies and processes for functional policies and procedures; roles and responsibilities; information classification and protection; application, system, and network administration; safeguarding of information assets; physical security; remote access; change control and compliance processes; and risk identification and response planning.[294]

Additional work is required, however, to ensure that NG911 traffic on ESInets is authenticated and encrypted, and its integrity protected. This function will generally be performed by NG911 "border control" functions that incorporate both session border control and firewall elements and that include standardized interfaces for mitigating malicious attacks on PSAPs.[295] Further, because emergency service networks and PSAPs will continue to be operated and managed on many levels in the near term – local, regional, and state, or some combination thereof – the deployment of NG911 may require a public-key cryptography certificate to ensure that PSAPs can be authenticated by other NG911 entities and to ensure that PSAPs with authenticated credentials are capable of receiving access to secure location information databases.

In this regard, NENA proposes establishing a PSAP Credentialing Authority (PCA) to handle the issuance of cryptographic certificates. Further, NENA argues that in order to ensure uniform and cost-effective application of database elements of the i3 standard in state and local NG911 deployments, the PCA components should be developed and maintained at the national level.[296] NENA notes that "prior

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[290] *See* NENA, Security for Next-Generation 9-1-1 Standard (NG-SEC), Version 1.0 (Feb. 6, 2010), *available at* https://c.ymcdn.com/sites/nena.site-ym.com/resource/collection/9652017C-3DDB-4F48-91BE-57871A0E68E6/NENA_75-001-v1_NG-Security.pdf (last accessed Feb. 20, 2013) (NG-SEC Standard).

[291] *See Id*. at Chapters 4-9.

[292] *Id*.

[293] *Id*. at 7.

[294] *See id.* throughout.

[295] *See* CSRIC Report at 67.

[296] NENA Comments at 14-15. NENA also proposes a "national backbone network" that would enable state, regional, and local NG911 systems to access the national Forest Guide and PCA services. *Id*. NENA suggests the backbone network would also enable PSAPs to obtain secure access to federal databases (*e.g.*, GIS, FBI criminal information) and would "facilitate ubiquitous, low-cost interconnection of state, territorial, and tribal ESInets." *Id.* We address these elements of the NENA proposal in Section 4.1.3, dealing with ESInet interconnection.

federal initiatives have already established well-controlled access points for public IP networks[,]… making a federally operated PCA the least costly option for implementation and operation…."[297] NENA also contends that a federal bridge certification authority "will enable authentication of responders and agencies outside the PCA domain, easing interoperation between NG9-1-1 systems and field responder systems such as FirstNet."[298]

NENA further suggests that ICO be responsible for overseeing deployment of these assets, although other federal agencies "may have a responsible role in the[ir] actual deployment.[299] NENA also suggests that "Congress or the FCC could condition access to these assets on conformity with functions and interfaces specified in the i3 standard at defined interconnect points."[300]

4.2.3.2. *Recommendation*

1) Congress should consider measures to ensure adherence to security standards and best practices for NG911 networks and consider establishing and funding a national PSAP credentialing authority.

In view of the need for security and authenticated access on NG911 and the work to date accomplished by NENA to define security standards for all NG911 participants in NG911, we recommend that Congress consider measures that recognize the standards development to date as defined by NENA for NG911 systems. We also recommend that Congress support establishment of a national PCA to verify the identity of and authority of each PSAP to receive NG911 traffic and secure database information. Further, the PCA should base granting a cryptographic certificate upon demonstration by the requesting PSAP that it adheres to NENA NG-SEC standards and associated best practices. We further recommend that PSAPs be required to renew their certificates following the announcement of major revisions to or adoption of new NG-SEC standards. Given the ongoing nature of the authentication function, we further recommend that Congress consider appointing an existing federal entity, such as the Commission or ICO, to act as the PCA and to provide necessary funding to perform this essential function.

4.2.4. National Information Tools for Tracking NG911 Progress

4.2.4.1. *Background*

Two existing national-level databases have been developed to provide information on PSAPs and on the deployment of E911 and NG911. First, since December 2003, the Commission has maintained a national registry of PSAPs (Master PSAP Registry) that is available to the public.[301] The Master PSAP Registry serves as a tool to aid the Commission, 911 authorities, PSAPs, and service providers in ascertaining the

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[297] *Id.* at 15.

[298] *Id*.

[299] NENA Comments at 16; *see also* Texas 911 Entities Comments at 11.

[300] NENA Comments at 7.

[301] The NET 911 Act authorized the FCC to compile a list of contact information for PSAPs and make the information available where releasing it would benefit public safety. *See* 2009 CRS Report at 20, *citing* NET 911 Act § 6(g), Pub. L. 110–283, 122 Stat 2620 (July 23, 2008); 47 U.S.C. § 615a-1.

current operational status of PSAPs.[302] The information in the Registry is provided on a voluntary basis by PSAPs, and the Bureau updates the Registry periodically as it receives updated information, *e.g.*, identification of new or newly consolidated PSAPs.

Second, the National 911 Program maintains a "National 911 Profile Database" (911 Profile Database) containing information provided by the states on a voluntary basis regarding the status of E911 operations and 911 authorities' progress in implementing NG911.[303] In its 911 Progress Report, ICO noted the potential for this database to be "truly comprehensive and serve as a definitive resource," but noted that due to the voluntary nature of the information collection process, only 28 states had submitted data.[304] Moreover, the reporting states only agreed to submit data on the condition that individual states would not be identified. ICO stated that this condition "makes it impossible to provide meaningful [comparisons] as part of this 2011 progress report."[305]

In the *Public Notice*, we asked how to improve data collection in the NG911 environment.[306] Commenters generally support enhancing the Master PSAP Registry to include more data relating to NG911 development. For example, Wireless RERC proposes upgrading the registry database to include an interactive map showing the level of NG911 capability of each PSAP.[307] NASNA states that the Commission should "ensure that the same level of data collection exists for NG9-1-1 as it already does for 911 and enhanced 911 services."[308] Connecticut suggests that collection of additional data specific to NG911 "will be useful for determining readiness and compliance," and that "PSAPs are more willing to share and correct data if they are able to see and utilize the national results of such data collection."[309]

4.2.4.2. *Recommendations*

1) **Congress should support enhancements to the Master PSAP Registry and the 911 Profile Database to enable collection, updating, and timely tracking of additional information regarding PSAPs and their progress**

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[302] The Registry is available on a "read-only" basis. It lists each PSAP by an FCC-assigned identification number and includes the PSAP's state, county, and city. The Registry also provides information on any type of record change and the reason for updating the record, *e.g.*, to reflect that local PSAPs have consolidated. *See* Federal Communications Commission, *Master PSAP Registry File, available at* http://www.fcc.gov/encyclopedia/9-1-1-and-e9-1-1-services (last accessed Feb. 8, 2013).

[303] *See* National 911 Program, 911 Resource Center, 9-1-1 Profile Database, *available at* http://resourcecenter.911.gov/code/9-1-1ProfileDatabase.aspx (last accessed Feb. 13, 2013) (describing the 911 Profile Database as "a resource that will be used to help accurately measure and depict the current status and planned capabilities…on a state-by-state basis."). This database also references web links on legislation and funding for the states that have submitted information. *See id*. (available on "read-only" basis to the public, but the states have access to "populate" the database).

[304] ICO 911 Progress Report at 5. *See also id*. at 15-21 (including map and status of NG911 implementation for those states that submitted information. Not all of the responding states submitted complete information on their NG911 projects and status of particular components, as ICO requested.).

[305] *See id*. (also finding that "there is no standard state institutional environment necessary to collect and report the data necessary….").

[306] *Public Notice*, 27 FCC Rcd at 14074.

[307] Wireless RERC Comments at 7.

[308] NASNA Comments at 8.

[309] Connecticut Comments at 8.

towards NG911 implementation.

The Commission agrees with commenters that upgraded national data collection and development of interactive information tools to enable tracking of nationwide NG911 progress would be beneficial in transitioning to NG911. Therefore, we recommend that Congress support and provide resources to enable the Commission and ICO, respectively, to upgrade the Master PSAP Registry and the 911 Profile Database to reflect current E911 deployment status and the transition status to NG911. Upgrades would enable robust collection, updating, and timely tracking of additional information that the Commission and the ICO determine will be needed regarding PSAPs and their progress towards NG911implementation. The Commission therefore recommends that Congress consider supporting these database capabilities by providing additional funding for the Commission and ICO.

Additional information collected in the Master PSAP registry could include: data on PSAP capabilities, *e.g.*, support for voice, text, video, multimedia; scope of NG911 deployments across sources of 911 calls; connection to state or regional ESInets; and general information on PSAP coverage and facilities (*e.g.*, population served, number of call takers, and geographic coverage area as polygons). Addition of this information to the Master PSAP Registry would facilitate coordination among state, regional, and local PSAPs, and would assist third-party service providers or validated call centers in accessing PSAP contact information as it changes in the transition to NG911.[310] The registry can then be used to automatically generate a number of reports and maps. For example, it would also provide consumers with information on whether NG911 or text-to-911 services are available where they live.

An enhanced, upgraded, and more robust 911 Profile Database could include: (1) relevant metric data reflecting a state's progress on migrating to NG911; (2) cost data associated with NG911 implementation, including anticipated and actual costs incurred for specific elements; (3) information regarding state 911 boards and contact information for key officials; and (4) status of state regulations and regulatory reform initiatives. This enhanced data set would facilitate NG911 policy development and planning by federal, state, and local governments. It would assist in providing Congress with a complete and up-to-date picture of NG911 evolution.

2) **Congress should authorize information collection of aggregate NG911 implementation data and should provide incentives for states and PSAPs to provide data, for example, by conditioning NG911 grant funding on participation in the database effort. Congress should also support the development of web-based data filing mechanisms to minimize the burden on entities submitting NG911 information**.

The database enhancements recommended above will only be effective if all PSAPs and state 911 authorities provide and update the information on a regular and reliable basis. Therefore, we recommend that Congress extend the data collection provisions of the NET 911 Act to authorize collection of the additional data.[311]

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[310] *See*, *e.g.*, 2009 CRS Report at 20, *citing* NENA's registry for PSAP information at North American 9-1-1 Resources Database, *available at* http://www.nena.org/?911Resource_db (last accessed Feb. 6, 2013).

[311] *See also*, NG911 Act, § 6503; 47 U.S.C. § 158(a)(3)(B) (stating that one of the purposes of ICO is to "develop, collect, and disseminate information…used in the implementation of…Next Generation 9-1-1 services"). If (continued….)

Extending the authority of the Commission and ICO for data collection relevant to NG911 deployment could specifically include providing the capabilities for the agencies to monitor NG911 deployment at the state level and coordinate with each other on the transition to NG911. The data collection could also provide aggregate information on deployment of NG911 components and functions that would reflect which states are early adopters of those capabilities. Congress could also encourage states and PSAPs to provide data by conditioning NG911 grant funding on participation in the database effort. Finally, to minimize the administrative burden on entities submitting information, we recommend that Congress support the development by the Commission and ICO of web-based filing mechanisms for electronic data collection.

4.3. Removing Jurisdictional Barriers and Inconsistent Legacy Regulations

The migration from legacy circuit-switched 911 service to NG911 poses significant networking and operational challenges to PSAPs, carriers, and 911 system service providers (SSPs). These challenges can be exacerbated by outdated regulations that focus on legacy technologies and processes and thus present obstacles to the full deployment of NG911. In prior sections of this Report, we addressed certain types of existing laws and regulations that can impede NG911 deployment, such as those relating to funding and liability protection. In the *Public Notice*, we asked commenters to identify other existing state or federal laws and regulations that could hinder the development of NG911 services.[312]

In response to the *Public Notice*, commenters express general concern with legacy state regulations that assume or require use of certain legacy network elements, and with certain federal rules that establish the 911 responsibilities of carriers routing voice communications on circuit-switched networks. Because NG911 implementation involves the use of new network elements integral to the provision of secure IP-based routing and interconnection, commenters contend that these legacy regulations impede the transition to IP-based routing of 911 calls and interconnection of ESInets.[313] For example, some state statutes, in establishing the specifications for obtaining authorization to provide 911 system service, reference or require use of legacy network elements that are not included in NG911 architectures.[314] Such outdated statutes and associated regulations can delay NG911 deployment at the state and local level, thereby delaying nationwide deployment as well.[315] In this section, we address specific types of

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Congress agrees with this recommendation, it may be appropriate to consider granting flexibility or an appropriately conditioned exemption from the information collection requirements under the Paperwork Reduction Act (PRA). Such an exemption could facilitate flexible electronic data collection in response to significant changes in the NG911 transition. Congress previously exempted the Commission from PRA requirements in the Consolidated Appropriations Act of 2000, which included an exemption to expedite the auction of 700 MHz commercial frequencies.

[312] *Public Notice*, 27 FCC Rcd at 14074-14075.

[313] *See, e.g.*, Bandwidth.com Comments at 3 ("the most fundamental elements to successful nationwide NG911 deployment are ensuring that all stakeholders participate in the process while avoiding the perpetuation of PSTN-based policies and infrastructure bottlenecks that impede full NG911 implementation.").

[314] Examples include references to Centralized Automated Message Accounting (CAMA) trunks, Signaling System #7 (SS7) trunks, Central Offices or End Offices, Tandem trunks, and Local Access and Transport Areas (LATAs).

[315] Bandwidth.com's experience with NG911 deployment is illustrative. Bandwidth.com notes that "NG911 projects are susceptible to the whims of incumbent interests… if service providers do not wish to 'play along' with the planned network and traffic routing interoperability necessary, they will become critical stumbling blocks to other stakeholders dedicated to a full NG911 deployment. Specifically, the most fundamental elements to successful nationwide NG911 deployment are ensuring that all stakeholders participate in the process while (continued….)

legacy regulations relating to certification and routing that commenters identified as problematic.

4.3.1. System Service Provider (SSP) Certification Requirements

4.3.1.1. *Background*

In the *Public Notice*, we asked (1) whether there are existing state approval processes and certification requirements for 911 System Service Providers (SSPs) that are outdated or overly burdensome, and (2) whether Congress should encourage or require states to update or streamline their certification processes to facilitate certification of NG911 SSPs, including allowing public safety entities to act directly as NG911 SSPs.[316]

Commenters generally argue that legacy SSP rules and regulations, coupled with multi-jurisdictional oversight, will impede NG911 deployments.[317] TCS notes that numerous states require that 911 SSPs obtain certification as CLECs to operate, which can lead to delays of up to 18 months for entities seeking to offers NG911 services to PSAPs.[318] Furthermore, TCS states that new entrants are unable to obtain certification because certification laws and regulations are not applicable to entities that are not providing end-to-end voice service.[319]

Some commenters argue that all 911 authorities should be allowed to act as SSPs, and that in order to make that possible, state-level requirements on CLEC and SSP certification should be eliminated or revised to enable PSAPs and other non-traditional service providers to be certified as SSPs.[320]

4.3.1.2. *Recommendation*

1) Congress should encourage state adoption of an expanded and uniform definition of entities that may obtain certification to act as NG911 System Service Providers.

We agree with commenters that state statutes that limit SSP eligibility to legacy service providers present an ongoing challenge to NG911 deployment. This is particularly true in states where early adopter PSAPs are seeking to obtain NG SSP status or third party service provision, but are prevented from doing so because of legacy definitions of what constitutes a system service provider. We believe that NHTSA has identified a legislative approach that addresses the concerns identified in the record and which can serve to ensure that states have ready access to latest technological and competitive offerings. NHTSA's Model State Legislation provides options for performance-based and technology-neutral regulations that "focus on

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avoiding the perpetuation of PSTN-based policies and infrastructure bottlenecks that impede full NG911 implementation. Bandwidth.com Comments at 3.

[316] *Public Notice*, 27 FCC Rcd at 14075.

[317] *See, e.g.*, NENA Comments at 11 ("certification requirements developed in the heyday of utility telecommunications regulations have proven particularly ill-suited to the federated nature of NG9-1-1"); TCS Comments at 8.

[318] *See, e.g.*, TCS Comments at 7-8; CSI Comments at 5-6.

[319] TCS Comments at 8, citing Utah, Iowa, and Maine as examples and referring to the one-way nature of emergency service calls.

[320] *See, e.g.*, NASNA Comments at 9; CSI Comments at 5. CSI argues that its member PSAPs sought to take on the role of SSP but was impeded by state regulations that did not allow for entry by any SSPs, let alone PSAPs, to provide NG911 services.

the functionality and/or outcome of a service or tool, rather than the tool or service itself, which is simply used to achieve an outcome."[321] Specifically, NHTSA's Model State Legislation states:

> *"The State 9-1-1 office shall implement activities necessary to carry out the powers granted in this section in a manner that is competitively and technologically neutral as to all communications service providers."*[322]

Further, NHTSA's points out that "much of the existing state regulatory language relating to 911 is specific to telecommunications service providers or specific technology and limits the ability of states to maximize the potential of advancing technology and may force the continued operation of obsolete technology."[323] Accordingly, Congress should incentivize states, for example, through grant conditions and other appropriate program-related policies and requirements, to adopt legislation codifying a performance-based and technology-neutral approach to NG911 service provision and removing outdated certification and definitional requirements that are not relevant to the actual service being offered.

4.3.2. Legacy Regulations that Impede IP-Based Routing

4.3.2.1. *Background*

A key feature of NG911 architecture is the IP-based routing of calls. IP-based routing assumes the presence along the network of specific databases and servers to properly route the call. As discussed above, these network components are entirely different from those supporting legacy 911 systems, which utilize selective routers that are typically owned and operated by incumbent local telephone companies under state tariff regulation. In the *Public Notice*, we asked whether Congress should encourage or require modification of existing state regulations, laws, or tariffs to ensure that 911 governing authorities or new 911 SSPs could receive relevant routing, location, and other related 911 information at reasonable rates and terms.[324]

Commenters view regulations that mandate the continued use of selective routers as a critical bottleneck that can impede moving from legacy routing of 911 calls to IP-based routing.[325] TCS argues that selective router architecture "is often not suitable for an advanced E9-1-1 data or NG9-1-1 vendor. For some interconnecting carriers… this can result in a demand to provide duplicate simultaneous 9-1-1 voice facilities to PSAPs; one for legacy 9-1-1 voice calls through the LEC selective router, and a second for new digital NG9-1-1 traffic directly to the PSAP."[326] TCS adds that "LEC tariffs often have elements that are not traffic or volume sensitive," adding costs that act as significant obstacles to carriers that use a non-LEC vendor for some or all of its NG911 needs and delaying a timely cut-over to NG911 services.[327]

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[321] NHTSA Guidelines at 18.

[322] *Id.*

[323] *Id*. at 18-19.

[324] *Public Notice*, 27 FCC Rcd at 14075.

[325] *See, e.g.*, Bandwidth.com at 4 (that "even when the state expresses its clear intent to deploy NG9-1-1, the owners of bottleneck facilities can cause many months of delay to the detriment of end-users and the other providers who have committed to the effort irrespective of technical or legal necessity").

[326] TCS Comments at 10.

[327] *Id*.

Commenters also urge the Commission to examine its own regulations to remove outdated selective router requirements. CSI notes that the Commission's VoIP 911 rule requires that VoIP calls pass through the legacy selective router, and asserts that while this rule "made sense at the time it was enacted, . . . with the advent of NG9-1-1, it should no longer apply."[328] Similarly, T-Mobile advocates that the Commission either remove requirements that reference selective routers or at a minimum clarify that such requirements no longer apply in the NG911 context.[329] Bandwidth.com calls on the Commission to "limit the ability of incumbent participants to delay or impede the development of NG911 and require all service providers to interconnect with and route emergency calls to the selected NG911 solutions provider."[330] L.R. Kimball asks the Commission to review its requirement that all 911 calls be routed to the 'geographically appropriate' PSAP, even if it is not the geographically closest PSAP,[331] reasoning that this "has to do with the new capability local 9-1-1 authorities will have to configure their systems to route calls differently based on call type, e.g., calls from non-English speakers or from non-human-initiated devices."[332]

4.3.2.2. *Recommendation*

1) Congress should encourage states to modify or eliminate legacy routing regulations and adopt a technology-neutral approach to routing of NG911 traffic.

Considering these suggestions, we recommend that Congress use grant conditions, incentives, and other appropriate program-related policies and requirements, to encourage states to revise or eliminate regulations relating to selective router architecture. While some selective router technology may have to remain in place for a transitional period to ensure continued support for legacy 911 operations during the transition to NG911, states should allow all PSAPs and other NG911 service providers to transition to IP-based routing as soon as it is feasible to do so.

We make no recommendation to Congress with respect to the Commission rules cited by commenters because the Commission has existing authority to revise its own rules. The Bureau will consider these comments in formulating appropriate recommendations to the Commission for further action.

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[328] CSI Comments at 6.

[329] T-Mobile Comments at 10-11 and Reply Comments at 4 ("many…issues could be resolved by updating regulations that use the selective router as the demarcation point and instead identifying the demarcation point as the carrier-facing headend of the ESInet").

[330] Bandwidth.com Comments at 3-4.

[331] L.R. Kimball Comments at 4-5.

[332] *Id*. at 5.

APPENDIX A
List of Commenting Parties

Initial Comments

1. 4G Americas
2. Association of Public Safety Communications Officials (APCO)
3. AT&T
4. Bandwidth.com, Inc.
5. Boulder Regional Emergency Telephone Service Authority (BRETSA)
6. COMPTEL
7. Connecticut DESPP/DSET
8. Counties of Southern Illinois (CSI)
9. Hawaii E9-1-1 Board
10. iCERT - Industry Council for Emergency Response Technologies
11. Intrado
12. L.R. Kimball
13. Motorola Solutions, Inc.
14. National Association of State 911 Administrators (NASNA)
15. National Emergency Number Association (NENA)
16. TeleCommunication Systems, Inc. (TCS)
17. Telecommunications for the Deaf and Hard of Hearing, Inc. (Consortium)
18. Telecommunications Industry Association (TIA)
19. Texas 9-1-1 Entities
20. T-Mobile USA, Inc.
21. TracFone Wireless, Inc.
22. Verizon and Verizon Wireless
23. Wireless RERC

Reply Comments

1. Agero, Inc.
2. Alarm Industry Communications Committee (AICC)
3. APCO
4. AT&T
5. BRETSA
6. City of Arlington, Texas
7. CTIA – The Wireless Association
8. National Cable and Telecommunications Association (NCTA)
9. National Telecommunications Cooperative Association (NTCA)
10. NENA
11. NexGen Global Technologies
12. Sprint Nextel
13. T-Mobile USA, Inc.
14. TracFone Wireless, Inc.