

April 2013

911 SERVICES

Most States Used 911 Funds for Intended Purposes, but FCC Could Improve Its Reporting on States' Use of Funds



G A O

Accountability * Integrity * Reliability

Why GAO Did This Study

Wireless E911 service refers to the capability of 911 call takers to automatically receive location information from 911 callers using mobile phones. The current E911 system is not designed to accommodate emergency communications from the range of new technologies in common use today that support text, data, and video. Although deploying wireless E911 and NG911 is the responsibility of state and local governments, FCC is required by law to report annually on the funds states collect to provide 911 services such as E911. The Next Generation 911 Advancement Act of 2012 required GAO to review states' collection and use of 911 funds. In this report, GAO presents information on (1) progress implementing wireless E911 in the last decade, (2) states' collection and use of 911 funds and the usefulness of FCC's reporting on this issue, and (3) challenges to implementing NG911 services and federal efforts to facilitate its deployment. GAO reviewed FCC's annual reports, states' responses to FCC's information-collecting efforts, and documents from FCC and DOT regarding E911 and NG911. GAO reviewed best practices for collecting and analyzing data and interviewed federal and state officials and other stakeholders.

What GAO Recommends

FCC should follow best practices for data collection and analysis to improve its current method of collecting and reporting information on state 911 funds. In response, FCC concurred with GAO's recommendation and agreed to take action to address it.

View [GAO-13-376](#). For more information, contact Mark Goldstein at (202) 512-2834 or goldsteinm@gao.gov.

911 SERVICES

Most States Used 911 Funds for Intended Purposes, but FCC Could Improve Its Reporting on States' Use of Funds

What GAO Found

Although states faced challenges and delays in the past, states have made significant progress implementing wireless Enhanced 911 (E911) since 2003. Wireless E911 deployment usually proceeds through two phases: Phase I provides general caller location information by identifying the cell tower or cell site that is receiving the wireless call; Phase II provides more precise caller-location information, usually within 50 to 300 meters. Currently, according to the National Emergency Number Association (NENA), nearly 98 percent of 911 call centers, known as Public Safety Answering Points (PSAPs), are capable of receiving Phase I location information, and 97 percent have implemented Phase II for at least one wireless carrier. This represents a significant improvement since 2003 when implementation of Phase I was 65 percent and Phase II was 18 percent. According to NENA's current data, 142 U.S. counties (representing roughly 3 percent of the U.S. population) do not have some level of wireless E911 service. The areas that lack wireless E911 are primarily rural and tribal areas that face special implementation challenges, according to federal and association officials.

According to data collected by the Federal Communications Commission (FCC), all 50 states and the District of Columbia reported collecting—or authorizing local entities to collect—funds for wireless E911 implementation, and most states reported using these funds for their intended purpose. Six states—Arizona, Georgia, Illinois, Maine, New York, and Rhode Island—reported using a total of almost \$77 million of funds collected for 911 implementation for other purposes (e.g., transferring 911 funds to the general fund) in 2011. Using funds in this way is permissible by state law in these states, but it creates the risk of undermining the credibility of 911 fees in those states. The manner in which FCC collects and reports information on state 911 funds limits the usefulness of its annual report. In particular, contrary to best practices for collecting and analyzing data, FCC uses only open-ended questions to solicit information from states, lacks written guidelines for interpreting states' responses and ensuring that results can be reproduced, and does not describe the methodology used to analyze the data it collects. As a result, FCC is missing an opportunity to analyze trends and to provide more detailed aggregated information that would be useful to decision makers.

Next Generation (NG911) will enable the public to reach PSAPs through voice and data, such as text messages, but stakeholders have identified a variety of technical, regulatory, and funding challenges to implementing it. For example, many of the existing state and federal regulations governing 911 were written before the technological capabilities of NG911 existed. The federal government is taking steps to help states address challenges. In particular, the Department of Transportation (DOT) has focused on research through the NG911 Initiative, and FCC released a 5-point plan to encourage NG911 implementation. FCC's plan includes (1) developing location accuracy mechanisms for NG911; (2) enabling consumers to send text, photos, and videos to PSAPs; (3) facilitating the completion and implementation of NG911 technical standards; (4) developing a governance framework for NG911; and (5) developing a funding model for NG911. FCC also released a report in March 2013 that detailed specific recommendations to Congress for a legal and regulatory framework for NG911.

Contents

Letter		1
	Background	4
	States Have Made Significant Progress Implementing Wireless E911	9
	According to FCC's Reporting, Some States Have Used 911 Funds for Other Purposes, but FCC's Reporting Could Be More Useful Although NG911 Is in Preliminary Stages and Faces Challenges, the Federal Government Is Supporting NG911 Activities	14
	Conclusions	24
	Recommendation for Executive Action	28
	Agency Comments	29
Appendix I	Objectives, Scope, and Methodology	29
Appendix II	Comments from the Federal Communications Commission	31
Appendix III	GAO Contact and Staff Acknowledgments	34
Tables		
	Table 1: Current 911 versus NG911 Capabilities	8
	Table 2: PSAP Progress Implementing Wireless E911 since 2003, as of March 2013	9
Figures		
	Figure 1: Simplified Routing of a Wireless Enhanced 911 Call to a Public Safety Answering Point	6
	Figure 2: Percentages of Each State's Counties and the District of Columbia That Have Completed Phases I and II of Wireless E911, as of December 2012	13

Abbreviations

CSRIC	Communications Security, Reliability, and Interoperability Council
DNP	did not provide
DOT	Department of Transportation
E911	Enhanced 911
FCC	Federal Communications Commission
IP	Internet Protocol
NENA	National Emergency Number Association
NET 911 Act	New and Emerging Technologies 911 Improvement Act of 2008
NG911	Next Generation 911
NHTSA	National Highway Traffic Safety Administration
NTIA	National Telecommunications and Information Administration
PSAP	Public Safety Answering Point
USDA	Department of Agriculture
VoIP	Voice-over-Internet Protocol

This is a work of the U.S. government and is not subject to copyright protection in the United States. The published product may be reproduced and distributed in its entirety without further permission from GAO. However, because this work may contain copyrighted images or other material, permission from the copyright holder may be necessary if you wish to reproduce this material separately.



G A O

Accountability * Integrity * Reliability

United States Government Accountability Office
Washington, DC 20548

April 18, 2013

The Honorable John D. Rockefeller IV
Chairman
The Honorable John Thune
Ranking Member
Committee on Commerce, Science, and Transportation
United States Senate

The Honorable Fred Upton
Chairman
The Honorable Henry A. Waxman
Ranking Member
Committee on Energy and Commerce
House of Representatives

Knowing the location of a 911 caller facilitates the quick and accurate dispatch of emergency responders such as police, firefighters, and ambulance crews. However, in some cases, response services need to be able to automatically identify the caller's location, such as in the case of a 911 caller who cannot speak because he is suffering a heart attack or a caller reporting an accident along a highway who does not know the exact location. Basic 911 service provided Americans with an easily remembered universal number that connects the caller to an emergency response center. Enhanced 911 (E911) service is a technological improvement that automatically provides the street address and callback number of a wireline caller or, in the case of wireless E911, the approximate geographic location of the mobile phone used to place a 911 call and the callback number of the person calling. The continuing evolution of communications technologies and wireless phones has implications for 911 services. Since 911 call centers predominantly use older, analog-based infrastructure and equipment, the current E911 system is not designed to accommodate emergency communications from the range of new technologies in common use today, including text and picture messaging and Voice-over-Internet Protocol (VoIP) telephony (e.g., Skype). In response to changing technologies, the Department of Transportation (DOT) launched the Next Generation 911 (NG911) Initiative, which has focused on the research required to develop an NG911 system. With NG911 services, the public could reach 911 call centers through various modes, including voice and data, and transmit multi-media information such as video. Deploying and operating wireless E911 (and NG911 going forward) is the responsibility of government

entities at the state, county, or local level, although the federal government has taken steps to facilitate the nationwide deployment.

The Federal Communications Commission (FCC) is required by law¹ to report to Congress on the identity of the states, territories, or political subdivisions (such as counties or localities) that collect taxes, fees, or other charges² for emergency communications such as E911. This reporting includes the amount of those revenues used for purposes other than the ones specified by the state's method of funding 911. FCC has been preparing these mandated reports since 2009 based on states' responses to FCC's public notices seeking relevant information. Hereafter, we will refer to states, territories, and political subdivisions as "states." The Next Generation 911 Advancement Act of 2012 mandated that we review states' collection and use of 911 funds.³ To provide context for our review, we also examined the progress of E911 implementation and federal efforts in this area. This report presents information on (1) the progress that has been made in implementing wireless E911 in the last decade, (2) the extent to which states are collecting and using 911 funds for 911 purposes and the usefulness of FCC's annual reports on states' 911 funds, and (3) challenges to implementing NG911 services and federal efforts to facilitate its deployment.

To address these issues, we analyzed county and state-level E911 implementation information collected by the National Emergency Number

¹New and Emerging Technologies 911 Improvement Act of 2008 (NET 911 Improvement Act of 2008), Pub. L. No. 110-283, § 101, 112 Stat. 2620, 2621, codified at 47 U.S.C. § 615a-1(f)(2). FCC is required to report to the Committee on Commerce, Science and Transportation of the Senate and the Committee on Energy and Commerce of the House of Representatives.

²FCC uses a variety of terms including fund(s), fee(s), surcharge(s), charge(s), and tax(es) in its report, though it uses mostly fund(s), with many instances of fee(s). States use fee(s) and surcharge(s); most often, though, they also use charge(s) and tax(es). For simplicity, we will use fund(s) whenever possible. When referring directly to FCC's report, we will use fee(s) and charge(s) as that is the report's title. When reporting information provided by states, we use the term used by each state.

³Pub. L. No. 112-96, 126 Stat. 156 (2012).

Association (NENA) as of December 2012,⁴ reviewed our previous reports on wireless E911 implementation,⁵ analyzed FCC's 2010 through 2012 annual reports on state collection and distribution of 911 and E911 fees and charges,⁶ reviewed states' responses to FCC's information-collecting effort associated with these reports, and analyzed comments submitted by government, industry, and association officials in response to FCC's public notice on NG911. In assessing the usefulness of FCC's reporting, we reviewed best practices set forth in our previous reports.⁷ To determine the reliability of the data used in FCC's annual reports, we reviewed relevant documentation, and interviewed cognizant officials about their processes for reviewing the data and ensuring their accuracy. We determined that the NENA E911 implementation data and, with certain exceptions subsequently noted in this report, the information related to FCC's reports to Congress are sufficiently reliable for the purposes of this report. We gathered further information from state officials in the states that reported using E911 funds for other purposes during calendar year 2011: Arizona, Georgia, Illinois, Maine, New York, and Rhode Island.⁸ We interviewed officials associated with a Texas NG911 pilot project and visited Illinois, where we interviewed officials from the state 911 office, officials associated with a regional NG911

⁴NENA is a professional organization solely focused on 911 policy, technology, operations, and education issues. NENA has more than 7,000 members in 48 chapters across North America and around the globe and promotes the implementation and awareness of 911 and international three-digit emergency communications systems.

⁵ See GAO, *Telecommunications: States' Collection and Use of Funds for Wireless Enhanced 911 Services*, [GAO-06-338](#) (Washington, D.C.: Mar. 10, 2006); and *Telecommunications: Uneven Implementation of Wireless Enhanced 911 Raises Prospect of Piecemeal Availability for Years to Come*, [GAO-04-55](#) (Washington, D.C.: Nov. 7, 2003).

⁶FCC's reports cover state activities from the previous calendar year. For example, FCC's 2012 report covers state activities for the calendar year ending December 31, 2011. We did not review FCC's 2009 report and related state reports because we determined that 3 years would be sufficient for our purposes and because the 2009 report was FCC's first report on the subject and as such was more prone to start-up issues that would impede our purposes for using this information.

⁷GAO, *Content Analysis: A Methodology for Structuring and Analyzing Written Material*, [GAO/PEMD-10.3.1](#) (Washington, D.C.: September 1996); and *Developing and Using Questionnaires*, [GAO/PEMD-10.1.7](#) (Washington, D.C.: October 1993).

⁸Guam also reported using 911 funds for other purposes in 2011. We contacted Guam officials and asked for further information in writing, but Guam did not respond to our request for information. We also attempted to contact states and territories that did not respond to FCC's information requests, but they also did not respond to us.

project, and representatives from rural counties in southern Illinois that have not begun E911 implementation. We chose to visit Illinois because stakeholders mentioned its regional NG911 project and because the state had reported using E911 funds for other purposes in its 2010, 2011, and 2012 reports to FCC. We interviewed Texas officials with responsibility for the state's NG911 pilot project because Texas received the largest 911 grant from the National Telecommunications and Information Administration (NTIA) and National Highway Traffic Safety Administration (NHTSA) and because stakeholders mentioned that the state was making progress on implementing NG911. We selected these states for the specific reasons noted above and the information we obtained is not generalizable to any other states. We also interviewed officials from FCC, DOT, and the Department of Agriculture (USDA) as well as representatives from associations including NENA, the National Association of State 911 Administrators, the Association of Public-Safety Communications Officials, the Competitive Carriers Association, and CTIA-The Wireless Association.

We conducted this performance audit from July 2012 to April 2013 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. Further details on our scope and methodology can be found in appendix I.

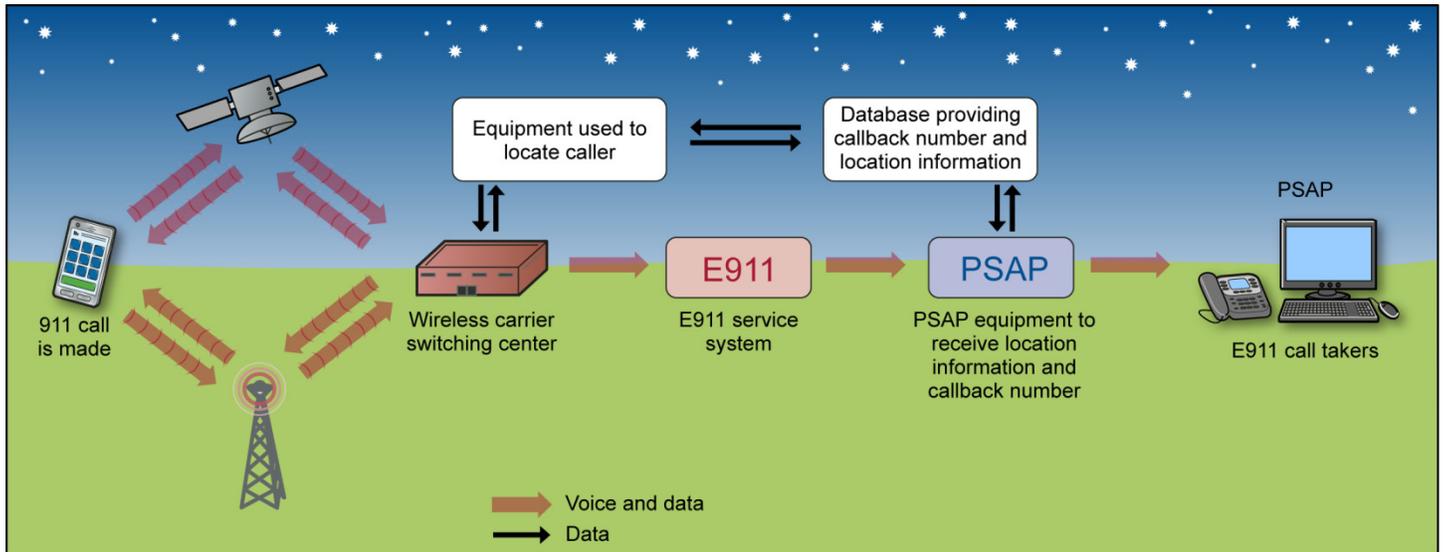
Background

Nationwide implementation of E911 by local wireline telephone companies began in the 1970s. With wireline E911 service, emergency calls are automatically routed to the appropriate 911 call center, and the call taker receives the telephone number and street address of the caller. In 1996, FCC adopted rules for wireless E911. Wireless E911 technology provides emergency responders with the location and callback number of a person calling 911 from a mobile phone. Implementing wireless E911 involves deploying technologies that are able to calculate the geographic coordinates of the caller's location at the time of the call and display these coordinates as a location the call taker can understand. When a wireless caller dials 911, the call must be routed along the networks of both a wireless telephone company and a wireline telephone company before terminating at a call center, known as a Public Safety Answering Point (PSAP). There are more than 6,000 PSAPs nationwide, often at a county or city level. PSAPs vary in size and technical sophistication. Some large

urban PSAPs have dozens of call takers and split the functions of call taking and dispatching the proper emergency responder. Smaller PSAPs are sometimes staffed by only two or three call takers who also handle dispatch. In some rural areas, the PSAP may be the sheriff's office.

As shown in figure 1, the wireless carriers, local exchange carriers, and PSAPs must have appropriate equipment and interconnections for wireless E911 calls to be sent to and received by PSAPs with the caller's location information. For example, wireless carriers must finance the implementation of a caller location solution and test their equipment to verify its accuracy. Local exchange carriers are generally responsible for ensuring that all the necessary connections between wireless carriers, PSAPs, and databases have been installed and are operating correctly. The original E911 system was designed to carry only the caller's telephone number with the call, and the associated fixed address was obtained from an established database. Wireless E911, however, requires more data items, and the mobile caller's location must be obtained during the call and delivered to the PSAP separately using additional data delivery capabilities. To translate the latitude and longitude location information into a street address, PSAPs usually must acquire and install mapping software. PSAPs may also need to acquire new computers to receive and display this information. Getting PSAPs the technology needed to receive wireless E911 location information is primarily a state and local responsibility because PSAPs serve an emergency response function that has traditionally fallen under state or local jurisdiction. As a result, states and local jurisdictions establish timetables for implementation by their PSAPs and fund the equipment upgrades needed by their PSAPs for E911 service.

Figure 1: Simplified Routing of a Wireless Enhanced 911 Call to a Public Safety Answering Point



Source: GAO.

The only federally mandated time frames for implementing wireless E911 technologies are those placed on wireless carriers by FCC. In 1996, FCC responded to the rising number of mobile telephone subscribers and the resulting increase in wireless 911 calls by adopting rules for wireless E911 that established a two-phase implementation approach for the wireless carriers and set deadlines for wireless carriers regarding their part in E911 deployment.⁹ FCC required that (1) by April 1998, or within 6 months of a request from a PSAP, wireless carriers be prepared to provide the PSAP with the wireless phone number of the caller and the location of the cell site receiving the 911 call (Phase I information); and (2) by October 2001, or within 6 months of receiving a request from a PSAP, wireless carriers be prepared to provide the PSAP with the geographic coordinates of the caller's location with greater precision,

⁹Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems, Report and Order and Further Notice of Proposed Rulemaking, 11 FCC Rcd 18676 (1996).

generally within 50 to 300 meters (Phase II information).¹⁰ As we reported in 2006, most states and the District of Columbia collect fees to cover the costs of implementing wireless E911.¹¹ States collect fees on a variety of telecommunications services including wireline, wireless, “prepaid wireless,”¹² and VoIP.

DOT has recognized the relationship between wireless E911 services and highway safety and, in 2001, contracted with NENA to develop a state/county database that tracks E911 implementation. As part of the contract, NENA created a database of counties, including information about implementation of wireless E911, which is updated with data gathered directly from state and county representatives. Now completely funded by NENA, the database is accessible through <http://www.nena.org>.

The New and Emerging Technologies 911 Improvement Act of 2008 (NET 911 Act) requires FCC to submit an annual report to Congress detailing the status in each state of the collection and distribution of fees or charges for the support or implementation of 911 or E911 services to ensure transparency and accountability. The annual reports are to include findings on the amount of revenues obligated or expended by each state or political subdivision thereof for any purpose other than the purpose specified in the state or local law adopting the fee or charge.¹³ FCC has submitted four reports to Congress covering the state activities of calendar years 2008 to 2011. In addition, the National 911 Program—

¹⁰See 47 C.F.R. § 20.18(d)-(g) for further information on FCC’s Phase I and Phase II deployment requirements. FCC’s rules allow wireless carriers to choose a network-based or a handset-based approach to determine a 911 caller’s location. A network-based solution involves locating a caller through a triangulation process involving the cell towers closest to the caller. A handset-based solution relies on triangulation using Global Positioning System (GPS) satellites and a GPS chip inside the mobile phone. FCC’s accuracy requirements vary depending on whether a carrier deploys a network-based or handset-based solution. See 47 C.F.R. § 20.18(h) for more details on FCC’s Phase II location accuracy requirements. FCC has granted waivers of the Phase II rules to wireless carriers.

¹¹[GAO-06-338](#).

¹²“Prepaid wireless” service is any wireless telecommunications service that is activated in advance by payment for a finite dollar amount of service or for a finite number of minutes that terminate either upon use by any person or within a certain period of time following the initial purchase or activation, unless an additional payment is made.

¹³Pub. L. No. 110-283, § 101, codified at 47 U.S.C. § 615a-1(f).

housed within NHTSA’s Office of Emergency Medical Services—has helped to provide federal leadership and coordination in supporting and promoting optimal 911 services.”¹⁴

Because of changes in the public’s use of communications technology and the aging infrastructure of the legacy 911 network, 911 services are transitioning to an NG911 system that uses Internet Protocol (IP)-based technology to deliver and process 911 traffic. Such a system will provide increased capabilities as shown in table 1. With NG911, PSAPs are expected to be able to process all types of emergency communications including voice, data, and video. According to NENA, Emergency Services IP Networks are among the basic building blocks required for NG911. They are managed, multipurpose networks that support public safety communications services and use broadband technology capable of carrying voice plus large amounts of data using Internet protocols and standards. As part of the NG911 Initiative, DOT has created an NG911 system design and tested it to show that the design will be capable of accommodating communications from a wider range of devices including cellular calls, instant messaging, wireline calls, “telematics” (automatic crash notification data directly from the vehicle), VoIP calls, and live video feeds.

Table 1: Current 911 versus NG911 Capabilities

Current 911 capabilities	Expected NG911 capabilities
Virtually all calls are voice callers via telephones over analog lines	Voice, text, or video information, from many types of communication devices, sent over IP networks
Callers routed through legacy selective routers, limited forwarding/backup ability	Callers routed automatically based on geographic location, enhanced backup abilities
Limited ability to handle overflow situations, callers could receive a busy signal	PSAPs able to control call congestion

Source: GAO presentation of DOT Information.

In September 2009, NHTSA and NTIA announced more than \$40 million in grants to help PSAPs implement E911 and NG911 technologies. To be eligible for the program, the applicant had to certify that the state and

¹⁴The fiscal year 2012 budget for the National 911 Program was \$1.25 million.

other taxing jurisdictions within the state had not used designated E911 funds for any other purpose than for which they were designated within 180 days preceding the application date.¹⁵ The grant period concluded at the end of 2012. In all, NHTSA and NTIA awarded grants ranging from \$200,000 to \$5.4 million to 30 states and territories to help implement NG911 services.¹⁶ NHTSA officials told us that they are currently conducting an evaluation of the grant program and that they will release a final report on <http://www.911.gov>.

States Have Made Significant Progress Implementing Wireless E911

Although states faced challenges and delays in the past, they have made significant progress implementing wireless E911. According to NENA data as of March 2013, 98 percent of PSAPs are capable of receiving Phase I location information and 97 percent have implemented Phase II for at least one wireless carrier.¹⁷ This represents a significant improvement in implementation since our previous reports in 2003 and 2006 as shown in table 2.¹⁸

Table 2: PSAP Progress Implementing Wireless E911 since 2003, as of March 2013

	Phase I implementation ^a	Phase II implementation ^a
March 2013	98 percent	97 percent
January 2006	80 percent	57 percent
October 2003	65 percent	18 percent

Source: NENA data.

^aPercentages reflect the percent of PSAPs that have implemented each phase for at least one wireless carrier.

According to NENA data, 142 U.S. counties (representing roughly 3 percent of the U.S. population) do not have some level of wireless E911

¹⁵47 U.S.C. § 942(c)(2). Grantees were also required to agree that, as a condition of the grant, if the state or other taxing jurisdictions within the state used 911 funds for any other purpose than for which they were designated during period the grant period, the grantee would return all grant funds. 47 U.S.C. § 942 (c)(3).

¹⁶Arizona was awarded a grant but later became ineligible because 911 funds were transferred to the general fund during the grant period.

¹⁷NENA does not maintain E911 implementation data on U.S. territories or political subdivisions.

¹⁸[GAO-04-55](#) and [GAO-06-338](#).

service. According to federal and association officials, these areas are primarily rural or tribal counties that face special challenges implementing wireless E911 service. According to the National 911 Program, rural agencies may lack the funding resources needed for technology upgrades, equipment, and training. Rural and tribal areas typically are large geographically but less densely populated than urban areas. In addition, because it may take first responders longer to reach the scene of an emergency, call-takers in PSAPs serving rural areas may be required to stay on the phone longer with callers or provide more extensive emergency instruction to callers until help arrives. Furthermore, federal and local officials told us about the following specific challenges facing rural and tribal areas:

- Tribal lands face special challenges related to 911 services because of several barriers to improving telecommunications on tribal lands. We have previously reported that the barriers to improving telecommunications on tribal lands most often cited by tribal officials, service providers, and others we spoke with were the rural, rugged terrain of tribal lands and tribes' limited financial resources.¹⁹ These barriers increase the costs of deploying infrastructure and limit the ability of service providers to recover their costs, which can reduce providers' interest in providing or improving telecommunications services. Other barriers include the shortage of technically trained tribal members and providers' difficulty in obtaining rights of way to deploy their infrastructure on tribal lands.
- The limited emergency response resources typical of rural areas can be relatively quickly overwhelmed in disasters or large-scale incidents, according to the National 911 Program. For example, officials from rural counties in one state told us that their PSAPs were overwhelmed with multiple calls following a recent derailed train incident. These calls paralyzed their 911 systems and prevented other 911 calls from reaching the PSAPs during the incident.
- According to FCC officials, network-based "triangulation"—a solution used by some wireless carriers to determine a caller's location—depends on the ability of three cell towers to access the caller's

¹⁹See GAO, *Telecommunications: Challenges to Assessing and Improving Telecommunications for Native Americans on Tribal Lands*, [GAO-06-189](#), (Washington, D.C.: Jan. 11, 2006).

mobile device.²⁰ Network-based triangulation can be particularly challenging in rural areas that have fewer cell towers than more densely populated areas.

- According to rural officials in one state we contacted, some homes in rural areas do not have addresses and some streets do not have names. Before E911 can be implemented in these areas, addresses will have to be created and mapping of those addresses will have to be completed so that automated location services can be provided.

Providing E911 services is primarily a state and local government responsibility, but USDA has programs that are available to help rural and tribal areas gain access to wireless E911 services. On September 12, 2011, USDA adopted a final rule that described program eligibility requirements for a 911 Access Loan Program to make loans and loan guarantees to finance the construction of interoperable, integrated public safety communications networks in rural areas.²¹ These networks offer several advantages, including the ability to precisely locate rural wireless 911 calls. Funds for this program are available through the Rural Utilities Service's traditional Telecommunications Infrastructure Loan Program.²² In addition, USDA's Community Facilities Program supports essential infrastructure and services for public use in rural areas of 20,000 in population or less. Financing for community facilities projects covers a broad range of interests, including health care, education, public safety, and public services. A USDA official said that this program could be used in a variety of ways to help rural areas gain access to wireless E911,

²⁰FCC's rules allow wireless carriers to choose a network-based or a handset-based approach to determine a 911 caller's location. A network-based solution involves locating a caller through a triangulation process involving the cell towers closest to the caller. A handset-based solution relies on triangulation using GPS satellites and a GPS chip inside the mobile phone.

²¹See 77 Fed. Reg. 15564 (March 16, 2012).

²²The Telecommunications Infrastructure Loan Program makes long-term direct and guaranteed loans to qualified organizations for the purpose of financing the improvement, expansion, construction, acquisition, and operation of telephone lines, facilities, or systems to furnish and improve telecommunications service in rural areas. All facilities financed must be capable of supporting broadband services. For more information on this program, see http://www.rurdev.usda.gov/utp_infrastructure.html, last accessed March 4, 2013.

including constructing PSAPs or providing the necessary equipment, software, computer networks, and power supplies.²³

Even though some rural and tribal counties do not have wireless E911 service, almost 97 percent of the overall population has some Phase I wireless coverage and approximately 98 percent has some Phase II wireless coverage, according to NENA data. Furthermore, as shown in figure 2, 25 states and the District of Columbia have fully implemented wireless E911 Phase I and Phase II in all counties.

²³For more information on this program, see http://www.rurdev.usda.gov/Community_Development.html, last accessed March 14, 2013.

Figure 2: Percentages of Each State's Counties and the District of Columbia That Have Completed Phases I and II of Wireless E911, as of December 2012

State	Percentage of counties that have completed phase I	Percentage of counties that have completed phase II
Alabama	100%	100%
Alaska	34%	28%
Arizona	53%	53%
Arkansas	99%	96%
California	100%	100%
Colorado	98%	88%
Connecticut	100%	100%
District of Columbia	100%	100%
Delaware	100%	100%
Florida	100%	100%
Georgia	95%	89%
Hawaii	100%	100%
Idaho	84%	73%
Illinois	85%	82%
Indiana	100%	100%
Iowa	100%	100%
Kansas	100%	100%

State	Percentage of counties that have completed phase I	Percentage of counties that have completed phase II
Kentucky	100%	100%
Louisiana	95%	75%
Maine	100%	100%
Maryland	100%	100%
Massachusetts	100%	100%
Michigan	100%	100%
Minnesota	100%	100%
Mississippi	90%	68%
Missouri	74%	67%
Montana	98%	95%
Nebraska	99%	96%
Nevada	47%	35%
New Hampshire	100%	100%
New Jersey	100%	100%
New Mexico	100%	100%
New York	98%	95%
North Carolina	100%	100%

State	Percentage of counties that have completed phase I	Percentage of counties that have completed phase II
North Dakota	100%	100%
Ohio	100%	98%
Oklahoma	73%	68%
Oregon	100%	92%
Pennsylvania	100%	100%
Rhode Island	100%	100%
South Carolina	100%	98%
South Dakota	95%	92%
Tennessee	100%	100%
Texas	100%	99%
Utah	100%	90%
Vermont	100%	100%
Virginia	99%	99%
Washington	100%	100%
West Virginia	95%	82%
Wisconsin	97%	97%
Wyoming	87%	39%

Source: GAO analysis of NENA data.

Note: Based on NENA data as of December 2012, however, all NENA data are not updated at the same time. County information is updated individually whenever NENA receives new information about a change in implementation status for the county. If a county gains access to Phase I or Phase II wireless E911 service and does not inform NENA of the change, it may not be reflected in their data. NENA periodically checks with county officials in counties that have not fully implemented wireless E911 for status updates.

According to FCC's Reporting, Some States Have Used 911 Funds for Other Purposes, but FCC's Reporting Could Be More Useful

State Methods for Collecting 911 Funds

As we reported in 2006, all 50 states and the District of Columbia collect—or have authorized local entities to collect—funds for 911.²⁴ State methods for collecting funds vary in structure, fee amounts, and services covered, among other things. For example, some states collect fees or charges for 911 and administer a statewide 911 program. Other states authorize local entities to collect fees or charges for 911 and to administer 911 programs at the local level. Still other states use a combination of these approaches. However, some local jurisdictions have not begun collecting 911 funds even though they are authorized by their state to do so.²⁵ Representatives from a rural county with a population under 5,000 told us that their county had not begun collecting 911 funds—even though they have state authorization to do so—because they would have had to collect \$10 per line per month to obtain enough funding to implement E911.

Overall, in response to FCC's request that states report the total amount of 911 funds collected in calendar year 2011, 43 states reported collecting—or authorizing local entities to collect—a total of about \$2.3 billion, although because of how this information was collected, the actual

²⁴[GAO-06-338](#).

²⁵For example, in Nevada, which authorizes local jurisdictions to collect funds for 911, only 6 of the 18 local entities that responded to FCC's information-collecting effort collect funds for 911.

amount collected may be higher.²⁶ States also reported a range of fees collected. For example, states reported wireline and wireless fees ranging from \$0.08 to \$5.00 per customer per month.²⁷

States' Use of 911 Funds

According to FCC's report, most states reported using 911 funds for purposes consistent with their funding statutes in 2011.²⁸ In addition to spending 911 funds on implementing wireless E911 service, states and localities use 911 funds for operations, maintenance, personnel, and NG911 preliminary activities, among other things. However, six states—Arizona, Georgia, Illinois, Maine, New York, and Rhode Island—reported using almost \$77 million²⁹ of funds collected for E911 implementation for other purposes in 2011, as detailed below.³⁰ State laws permit using funds for these purposes.

²⁶FCC is mandated to complete this report on state 911 funds, but the mandate does not flow through to the states. FCC can only request that states report. Two states did not submit a report to FCC. Six states that did report to FCC did not provide any dollar amount of funds collected. For example, Arkansas and Oklahoma reported that at least some local entities collect funds but did not provide any information about the amount collected. Further, one state reported collecting funds at both the state and local level, but did not provide any information on the amount collected. Of the states that did provide dollar amounts collected, some states specifically stated that funds collected at the local level were not included in the amount reported. For example, New York reported over \$190 million in funds collected at the state level, but did not provide any information about the amount of funds collected at the local level. Furthermore, several states specified that the amount provided was an estimate.

²⁷Not all states reported the fees or charges for 911 in terms of a dollar amount. For example, some states reported that the fees were based on the percentage of the phone bill. The range reported here reflects the answers from 21 states that reported a dollar-amount statewide fee on wireline service, from 31 states that reported a dollar-amount statewide fee on wireless service, from 17 states that reported a dollar-amount local fee on wireline service, and from 12 states that reported a dollar-amount local fee on wireless service.

²⁸With respect to U.S. territories, Guam reported to FCC that it used over \$486,000 for lease payments for ambulances and for maintenance/repair services for its public safety radio communications system. Puerto Rico reported that it used 911 funds only for 911 purposes. The rest of the territories did not respond to FCC's request for information.

²⁹New York's response to FCC indicates a transfer of \$22.8 million in state fiscal year 2011–2012 and FCC included this amount in its annual report. However, when we spoke with state officials, they stated that \$45 million had been transferred in calendar year 2011.

³⁰In some states, 911 funds are collected and expended at the local level and states are unable to assess whether these funds have been used for other purposes.

-
- *Arizona*. The state reported transferring 13 percent (or about \$2.2 million) of funds collected for 911 purposes to its general fund to help address the state's budget crisis. Arizona also transferred 911 funds to its general fund in 2009 and 2010. According to state officials, these transfers occurred as part of a state budget bill that authorized the transfers. Once funds were transferred to the general fund, Arizona 911 officials could not be certain how they were spent. An Arizona official said that, because of the transfers to the general fund, Arizona had to return a \$1.25 million grant to NHTSA and NTIA that would have been used to help Arizona with its deployment of Phase II of wireless E911.
 - *Georgia*. The state reported collecting \$13.7 million in 911 fees for prepaid wireless phones and did not allocate any of these funds for 911 use. Georgia also collected fees on prepaid wireless phones in 2009 and 2010 but did not allocate these funds for 911 use. According to a written response from a Georgia official, Georgia law does not require that these funds be appropriated for 911 purposes. The funds were collected and deposited into the state's general fund in accordance with state law.
 - *Illinois*. The state reported legislatively transferring \$2.9 million out of the state's 911 fund in state fiscal year 2012, which is funded by a statewide fee on wireless subscribers and from which the state makes monthly distributions to local 911 authorities. According to state officials, these funds were transferred to another fund to maintain that fund's liquidity. Moreover, in calendar years 2010 and 2011, the state borrowed \$1.4 million and \$5.2 million from the state's fund used to reimburse wireless carriers for E911-related expenses, which is also funded by the statewide fee on wireless subscribers. These borrowed funds were repaid within 18 months, as required by Illinois law.³¹
 - *Maine*. As part of personnel service reduction initiatives, the state reported imposing across-the-board furloughs and benefit reductions on state employees, including personnel in the state 911 office, and a little less than \$25,000 was transferred from the state's 911 fund to the state's general fund in 2010 and 2011. Because the salaries and benefits for employees in the state 911 office are paid for exclusively through 911 funds, the funds that went to the state's general fund for

³¹30 ILCS 105/5h(b).

the furlough days and benefit reductions constituted using 911 funds for purposes other than 911, in accordance with state law according to the state's submission to FCC. As a result, Maine was ineligible for 911 grant funds from NHTSA and NTIA.

- *New York.* According to state officials, New York transferred \$45 million from the State Wireless Telephone Emergency Account to the state's general fund, and made similar transfers to the general fund in 2009 and 2010.³² According to state officials, the transfer of these funds, authorized by state statute, did not affect the ability of the state to reimburse municipalities for approved 911 expenditures or to otherwise support its 911 programs.
- *Rhode Island.* Per the state's method of funding 911, as provided for in state statute according to state officials, revenues from the state's 911 fees are deposited into the state's general fund, and the 911 program receives its budget from the general fund. In 2011, approximately \$17.3 million was collected, but only approximately \$4.8 million was appropriated for the 911 program leaving about \$13 million in the general fund. Fee revenues were similarly distributed in 2010 and 2011.

The District of Columbia and Louisiana did not report to FCC on their use of 911 fees and charges for calendar year 2011. We made several attempts to obtain this information, but officials did not respond to us. However, we can provide information from their reports to FCC in previous years.

- *District of Columbia.* The District of Columbia reported to FCC in 2011 and 2010 on its collection and use of 911 taxes and fees. FCC did not report that funds were used for purposes other than 911.
- *Louisiana.* Louisiana did not submit a report to FCC on its taxes and fees in 2010, but did in 2011. In that report, Louisiana did not directly state whether funds were used for anything other than 911 purposes, and FCC did not report that the state had used funds for other purposes.

³²New York's response to FCC indicates a transfer of \$22.8 million in state fiscal year 2011–2012, and FCC included this amount in its annual report. However, when we spoke with state officials, they stated that \$45 million had been transferred in calendar year 2011.

We have previously reported that misalignment between fees and services for which they are charged reduces both equity and economic efficiency.³³ Moreover, stakeholders in other industries have reported that misalignment between the amount of fee collections and expenditures undermines the credibility of the fee.³⁴ As states collect funds for 911 purposes and then use those revenues for other purposes, there is risk of confusing stakeholders and members of the public who pay these fees and undermining the credibility of 911 fees. However, states occasionally pass laws allowing the use of 911/E911 fees for non-E911 purposes. FCC officials have stated that they do not have the authority to override state law in this regard.

Limited Usefulness of FCC's Reporting

We have identified three features of FCC's approach to collecting and reporting information from states that are contrary to best practices set forth in our previous reports on data collection and analysis, which have limited the usefulness of FCC's reports. Specifically, in its approach, FCC (1) uses only open-ended questions to solicit information from states, (2) lacks written guidelines for interpreting states' responses and ensuring that results can be reproduced, and (3) does not describe the methodology used to analyze the information in states' reports.

FCC Used Only Open-Ended Questions

FCC has used only open-ended questions to solicit information on state fees and charges for 911 services. FCC officials stated that they regard this approach as the most effective way to elicit responsive information from the states because it requires the states to explain their definitions and procedures in plain language rather than responding to "yes/no" questions or submitting purely quantitative data. We have previously reported that while open-ended questions may be unavoidable when engaged in exploratory work and can be useful to obtain responses that might further clarify the meaning of answers to close-ended questions, open-ended questions have several limitations.³⁵ When answering open-ended questions, respondents may provide wide-ranging responses that vary and may result in inconsistent information, making it very difficult to

³³GAO, *Federal User Fees: Substantive Reviews Needed to Align Port-Related Fees with the Programs They Support*, [GAO-08-321](#) (Washington, D.C.: Feb. 22, 2008).

³⁴GAO, *Federal User Fees: A Design Guide*, [GAO-08-386SP](#) (Washington, D.C.: May 29, 2008).

³⁵[GAO/PEMD-10.1.7](#).

consistently and completely tabulate or aggregate responses. Closed-ended questions, on the other hand, can yield data that may be easier to meaningfully track and compare. FCC asks states to report, among other things, the amount of 911 fees or charges imposed and the total amount collected. States' responses to this question varied widely and respondents often omitted relevant information. For example, some states clearly identified the services—wireline, wireless, pre-paid, and VoIP—to which fees applied, while other states did not specify the services to which fees applied. Because states were not specifically asked whether they collected fees for specific services, it is unclear whether these counts are inclusive or exclusive of these specific services. If FCC had asked closed-ended questions that required respondents to address such distinctions, FCC would have been better able to consistently track fees for various services over time, which could address matters such as whether 911 funding is evolving with changing technology. However, since this information has not been asked in a way that it can be tracked, trend analysis is not possible.

Moreover, when reporting the total amount of funds collected, states vary widely in their manner of reporting. Some states provide a total amount without any distinguishing features. Some states break out the amount collected by state and local authorities; others break out the amount collected by type of service. Some states provide an actual number whereas others provide an estimate. Because of the open-ended question format, it is nearly impossible to aggregate these results in a useful manner. FCC does provide all state responses in an appendix to its annual reports, and FCC officials stated that doing this facilitates public review and discussion. The inclusion of these state submissions can support public review, particularly in examining the relationship among responses in a particular state. However, the provision of the state reports may not readily lend itself to obtaining specific or discrete types of information from the responses to the open-ended questions. For example, one item asks whether the state has written criteria regarding the allowable uses of the collected funds. This item is embedded in a request for multiple pieces of information. If any interested parties wanted to know how many states and which ones reported having written criteria, they would have to read through all the responses to that item for all submitting entities to obtain the information sought. A closed-ended item could readily capture which state does and does not have written criteria.

FCC Lacks Written Guidelines for Interpreting States' Responses

We have previously reported that with open-ended questions, the responses are often textual and not easily tabulated, and a process called “content analysis” must be used to classify or code the responses.³⁶ As part of the process of conducting content analysis, a coding manual should be prepared for use by those classifying the responses. A good coding manual is viewed as indispensable in ensuring coding of the highest quality, and an important measure for judging the quality of a content analysis is the extent to which the results can be reproduced. However, FCC officials told us that, while they describe the methodology used to collect the data from states, they do not have an internal written coding manual or similar document that describes how the content of a state’s responses are interpreted or coded. FCC officials noted that this had not been problematic to date because the same FCC staff members had conducted the analysis each year but indicated that development of such a manual would be helpful to ensure future continuity. Because there is no written documentation on how this analysis was conducted, nor the decisions rules that FCC followed in developing its summary classification of responses, there is no basis for independently reproducing the results of FCC’s analysis.

We also found that FCC has not been consistent in how it makes certain characterizations in its report. For example, we identified three states—Georgia, Maine, and New York—that provided similar responses each year but FCC characterized the responses differently in different years. For example, Maine reported that it had transferred funds from the 911 fund to the general fund in calendar years 2010 and 2011 as part of a statewide personnel reduction initiative, as described above. FCC characterized Maine as using 911 funds for other purposes in its 2012 report but not in its 2011 report. In another example, Georgia reported that 911 fees on prepaid wireless devices remained in the state’s general fund rather than being allocated for 911 use in its 2010, 2011, and 2012 reports to FCC. FCC identified Georgia as having used funds for other purposes in its 2010 and 2012 reports but not in its 2011 report. FCC officials acknowledged that these three states should have been identified as using funds for other purposes in its 2011 report, but that officials corrected this in the 2012 report. However, FCC did not indicate in the 2012 report that a mistake was made in the 2011 report. A reader who

³⁶GAO/PEMD-10.3.1. “Content analysis” is a systematic research method for analyzing textual information in a standardized way that allows evaluators to make inferences about that information.

noted that the states were not listed as having used funds for other purposes in the 2011 report, might believe that these states changed their practices from one year to the next, when, in fact, the states reported essentially the same information each year.

We also identified inconsistent characterizations in FCC's summary table, which indicates whether states used 911 fees or charges for other purposes. In 2012, FCC used four ways of coding whether states used funds for other purposes—"Yes," "No," "No information," and "DNP" (defined in FCC's report as "did not provide"). However, "DNP" was used in three very different circumstances: when the state did not submit a report to FCC, such as in Louisiana and the District of Columbia; when the state did not provide an answer to the question of whether the state used funds for other purposes; or when the state indicated that all or a portion of the funds are controlled by local entities and that the state could not be certain how the funds were used. As an example of this last case, several states indicated that local entities control some expenditure decisions, which in some cases received the "DNP" designation, but in other cases received the designation "No" or "No information." If FCC had written guidelines for interpreting state responses, it could have ensured more consistent characterization of state responses.

FCC Did Not Report Changes in Analysis Methodology

According to FCC's Information Quality Guidelines—which are meant to ensure that all data FCC disseminates reflect a level of quality commensurate with the nature of the information—quality is demonstrated through the incorporation of a methodological section or appendix that describes, at a minimum, the design and methods used during the creation, collection, and processing of the data, as well as the compilation or analysis of the data in products including reports prepared for Congress.³⁷ In its annual reports, FCC included a detailed description of its methodology for collecting responses from states. For example, FCC describes how, in addition to the public notices, FCC sent letters to the Office of the Governor of each state and territory and the Regional Directors of the Bureau of Indian Affairs requesting the information sought in the public notices. FCC sent second notice letters and placed calls to those states and territories that had not responded. However, FCC has

³⁷*In the Matter of Implementation of Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Pursuant to Section 515 of Public Law No. 105-554*, Notice of Information Quality Guidelines: *CORRECTED*, 17 FCC Rcd 19890 (2002).

not published its methodology for how the report's analysis was conducted. In particular, FCC has not included in its annual report a description of the decision rules used in determining whether a state used 911 funds for other purposes. As stated in the previous section, FCC does not have an internal written procedures manual or similar document that describes how the content of a state's responses are interpreted or coded. If FCC had one, it could use information from that coding manual to explain its analysis and decision rules in its annual report.

The lack of a description of the methodology for FCC's analysis is particularly problematic as FCC officials told us that FCC changed its method of making analysis decisions in its most recent report. FCC officials stated that based on their experience with the first three information collections and associated reports, FCC revised the questions included in their 2012 information request. Specifically, one question was modified to elicit specific information on the programs and activities for which 911 funds were used along with how those programs and activities support 911. According to FCC officials, this modification enabled FCC to classify states' responses with greater accuracy. While FCC's 2012 report clearly states that modifications were made to the questions and each annual report includes the questions included in that year's information request, the effects of these changes are not clear to the reader. In some cases, this methodological change resulted in differing characterizations from reports issued in 2011 to 2012, and it is not clear to the reader whether states no longer characterized as having used funds for other purposes had changed their practices of using funds for other purposes or whether the different characterization was a result of FCC's change in methodology. For example, in FCC's 2011 report, FCC identified both Virginia and West Virginia as states that had used 911 funds for other purposes. However, based on the additional information provided by these states in 2012, FCC determined that Virginia and West Virginia spent 911 funds in accordance with their respective state statutes governing 911 funding and therefore were not identified as using funds for other purposes. According to FCC officials, in gathering information for 2012, FCC asked additional questions to identify the specific uses of 911/E911 funds that were authorized under state law. They also characterized a state as using E911 funds for purposes other than E911 only if the state reported that it used 911/E911 funds for purposes not designated by the state's funding statute. Because FCC has not published its methodology for analysis and decision rules for determining whether a state used 911 funds for other purposes and further never explicitly stated that a different method was used in 2012, this lack of disclosure could lead report users to misinterpret the results shown in the

report. In particular, although it would appear that as time has passed, fewer states were using funds for other purposes, at least some of this difference is attributable to FCC's change of methodology.

We have previously reported that results-oriented organizations make sure that the information they collect are sufficiently complete and accurate to support decision making.³⁸ FCC officials stated that seeking narrative responses from each state and publishing those responses demonstrate transparency. However, several pages of individual and varied responses may have limited usefulness to decision makers, who may need high-level descriptions and aggregated information. Furthermore, FCC is missing an opportunity to analyze funding trends because its method of asking questions does not result in answers that can be readily tracked from year to year. FCC is also missing an opportunity to provide more detailed aggregated information in its reports—such as amounts of fees, services covered, and total amount of funds collected—that would be helpful to decision makers who are trying to understand current methods of financing 911. FCC officials told us that they are seeking comment from stakeholders on FCC's required annual report to Congress, as well as on information provided by states and other reporting entities, and that they will use this information to improve reporting.³⁹

³⁸GAO, *Executive Guide: Effectively Implementing the Government Performance and Results Act*, [GAO/GGD-96-118](#) (Washington, D.C.: June 1996).

³⁹See, *FCC Seeks Public Comment On Fourth Annual Report To Congress On State Collection And Distribution Of 911 And Enhanced 911 Fees And Charges*, Public Notice, 28 FCC Rcd 183 (2013).

Although NG911 Is in Preliminary Stages and Faces Challenges, the Federal Government Is Supporting NG911 Activities

NG911 Challenges and State Activities

To implement NG911 nationwide, states must address technology, regulatory, and funding challenges, according to multiple government officials. For example, technological changes need to be made at PSAPs since existing call centers are incapable of some critical functions, such as linking with one another during emergencies. As such, PSAP calls currently cannot be transferred so PSAPs have limited means to act as back-up for one another when operations in one part of the country become overloaded or shut down because of circumstances such as hurricane evacuations or wildfires, according to DOT's Research and Innovative Technology Administration. With respect to regulatory challenges, current laws and regulations in most states do not effectively enable the implementation of new technologies or allow the level of coordination and partnerships among government and public safety stakeholders, service and equipment providers, PSAPs, and 911 authorities that is necessary to implement IP-enabled 911 systems, according to NHTSA. Moreover, in the *National Broadband Plan*, FCC noted 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 NG911.⁴⁰ For example, state, association, and industry officials have expressed concern about uncertainty regarding liability protection related to NG911. Stakeholders also expressed concerns about funding mechanisms for NG911. State revenues from long-established funding methods tied to wireline services are decreasing as more consumers disconnect their traditional home

⁴⁰FCC, *Connecting America: The National Broadband Plan* (Washington, D.C.: Mar. 16, 2010).

phones in favor of wireless devices or other services such as mobile VoIP.

Despite NG911 implementation challenges, many states have started funding preliminary NG911 activities, and some areas have developed regional NG911 projects. For example, in responding to FCC's data collection effort, 33 states reported that expenditure of 911/E911 funds for NG911 activities is permissible under current state law. Of these, 16 states reported that funds had been expended in 2011 for some NG911 activities including planning, network development, and equipment acquisition. As examples of regional NG911 projects, the Counties of Southern Illinois Next Generation 911 project has been identified by NENA as an early adopter of a regional approach to NG911. The project includes connecting 21 PSAPs through an Emergency Service IP Network, creating identical data centers in 2 counties, and obtaining NG911 equipment and information for a 15-county region in southern Illinois. Similarly, the state of Texas is conducting an NG911 project that is partially funded with federal grants from NHTSA and NTIA. The project involves constructing a detailed geospatial database of over 200 Texas counties that will be needed for a statewide NG911 system. The database should allow the new system to pinpoint the PSAP that needs to respond to a caller based on location.

Federal Efforts to Address Challenges and Facilitate NG911 Implementation

Even though 911 services remain primarily a state and local government responsibility and NG911 overall is in the early planning stages, FCC is working with federal, state, and private sector partners to help states address NG911 implementation challenges. For example, one of FCC's federal advisory committees—the Communications Security, Reliability, and Interoperability Council (CSRIC)—makes recommendations to FCC to promote reliable 911 service and issued a report in March 2011 framing the transitional issues to NG911.⁴¹ CSRIC members are selected from public safety agencies, consumer or community organizations or other nonprofit entities, and the private sector. FCC also released a 5-point plan, based on recommendations made in the *National Broadband Plan*, to encourage NG911 implementation and to help states address some of the technology, regulatory, and funding challenges to implementation. Key elements of FCC's 5-point plan include:

⁴¹CSRIC Working Group 4B, *Transition to Next Generation 9-1-1: Final Report*, (Washington, D.C.: March 2011).

-
- *Develop location accuracy mechanisms for NG911.* Existing location technologies do not perform effectively in all environments. For example, global positioning technologies may not work deep inside a steel-and-concrete building, or even in a suburban residential basement, but may work in wood frame construction or near office windows. FCC officials said CSRIC plans to release a report in 2013 on indoor location accuracy.
 - *Enable consumers to send text, photos, and videos to PSAPs.* In December 2012, FCC issued a notice of proposed rulemaking examining rule changes meant to enable people to send text messages to 911.⁴² The proposal was based on the voluntary commitment by the four largest U.S. wireless carriers to make text-to-911 available to their customers by May 15, 2014. The proposed rulemaking would also require all wireless carriers and interconnected text-messaging providers to send automatic “bounce back” error messages by June 30, 2013, to consumers attempting to text 911 when the service is not available in order to inform consumers and prevent confusion.

Additionally, NHTSA and NTIA have made more focused efforts to address NG911 technology challenges. As required in the New and Emerging Technologies 911 Improvement Act of 2008, NHTSA’s and NTIA’s National E911 Implementation Coordination Office developed a national plan in September 2009 for migrating to IP-Enabled 911 Systems, which lays a foundation for addressing technological challenges associated with enabling consumers to send text, photos, and videos to PSAPs.⁴³

- *Facilitate completing and implementing NG911 technical standards.* CSRIC has identified technical standards, related technical gaps, and the overall readiness of the NG911 applications. In addition, CSRIC has classified the importance and urgency of resolving the identified technical gaps.

⁴²*In the Matter of Facilitating the Deployment of Text-to-911 and Other Next Generation Applications, Framework for Next Generation 911 Deployment, Further Notice of Proposed Rulemaking, 27 FCC Rcd 15659 (2012).*

⁴³Pub. L. No. 110-283, § 102, 122 Stat. 2620, 2623 (2008).

-
- *Develop a governance framework for NG911.* As required by the Next Generation 911 Advancement Act of 2012,⁴⁴ FCC released a report in March 2013 with detailed recommendations to Congress to create a new legal and regulatory framework for transitioning from legacy 911 to NG911 networks.⁴⁵ The report includes detailed information on the major NG911 challenges and 24 specific recommendations to Congress and others, such as state and local public safety authorities, to address the challenges. For example, FCC recommended 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; appropriate liability protection to encourage technological innovation and rapid deployment of NG911; and provisions to make NG911 fully accessible to people with disabilities. In addition, NHTSA has developed guidelines for state NG911 legislative language to help address state regulatory challenges. In doing so, NHTSA obtained input from local, regional, state, and federal public-sector stakeholders, as well as private-sector industry representatives and advocacy associations. NHTSA has also worked with the National Conference of State Legislatures to create a database of 911 bills that have been introduced in the 50 states and the District of Columbia. The information is updated bi-weekly and includes information on multiple topics including funding and appropriations.
 - *Develop a funding model for NG911.* Based on a CSRIC recommendation, NHTSA is currently working with a contractor with expertise in economics and a Blue Ribbon Panel to help states develop new options for funding 911. According to NHTSA officials, a report on this effort is expected to be released in 2014. In addition, in FCC's 2013 report to Congress on the legal and regulatory framework for NG911 services, FCC made three recommendations to Congress for updating NG911 funding mechanisms. Specifically, FCC recommended that Congress should (1) develop incentives for states to broaden the base of contributors to NG911 funding to more

⁴⁴Title VI, subtitle E of the Middle Class Tax Relief Act of 2012, § 6509, Pub. L. No. 112-96, 126 Stat. 156, 244.

⁴⁵Although the report was mandated to be issued February 22, 2013, FCC officials said the report was not released to Congress until March 1, 2013. See, Federal Communications Commission, *Legal and Regulatory Framework for Next Generation 911 Services, Issued Pursuant to the Next Generation 911 Advancement Act of 2012 (Pub. L. No. 112-96 (2012))*, (2013).

accurately reflect the benefits derived from NG911 service, (2) encourage states to provide funding for NG911 as well as legacy 911 purposes as part of any existing or future funding mechanism, and (3) condition grants and other appropriate federal benefits on a requirement that funds collected for 911/NG911 funding be used only for 911 or NG911 purposes and provide for appropriate enforcement of such requirements.

Conclusions

Most of the country has now implemented wireless E911 services, but this took over a decade to accomplish. New technology and eroding funding mechanisms have highlighted the need for 911 to evolve to a new system that can accommodate next generation technologies and that is based on an adequate source of funding to maintain the system. For NG911 to avoid the slow start that wireless E911 experienced, networks will need to be formed that will require regulatory changes at multiple levels of government. Although NG911 is still in nascent form, FCC, DOT, and others in the federal government are working together to conduct the research and planning needed to provide the foundation for states to address the technology, regulatory, and funding challenges to implement NG911 more efficiently than they implemented E911. Notably, FCC's March 2013 report identified 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. The report provided 24 specific recommendations to Congress and others, such as state and local public safety authorities, to address the challenges of implementing NG911.

FCC has been collecting and reporting information on states' use of 911 and E911 funds on an annual basis for 4 years and, as mandated by law, will continue to do so. Collecting and reporting this information requires resources from both FCC and the states, so it is in the best interest of all parties for the information to be presented in the most useful way possible. Given that FCC's future annual reports will likely include information on the transition to NG911 services, it is important that FCC collect information in a way that provides information that can be tracked over time. For example, as the federal government provides information for states as they transition to a potential new funding system, it would be helpful to have information that tracks current trends and patterns in state funding. However, because FCC's method of asking questions does not result in answers that can be tracked from year to year, there is no federal tool that can be used at this time to understand how or if states are adjusting their funding for the transition to NG911. Furthermore, FCC is

missing an opportunity to provide more detailed aggregated information in its reports—such as amounts of fees, services covered, and total amount of funds collected—that would be helpful to decision makers. For example, having more readily accessible, detailed information about the current status of 911 funding would provide decision makers with a better understanding of how to address the challenges that arise in funding NG911 services. Following best practices for data collection and analysis—such as using closed-ended questions when possible and clearly communicating how open-ended information is coded and analyzed—would help ensure that the information FCC collects is measureable and could be tracked, resulting in more useful information for Congress and others who are researching funding mechanisms for the future of 911 services.

Recommendation for Executive Action

We recommend that the Chairman of FCC follow best practices for data collection and analysis to improve FCC's current method of collecting and reporting information on states' use of 911 funds, by, for example, using closed-ended questions when possible, developing written internal guidance for analyzing data, and fully describing the methodology for its report.

Agency Comments

We provided a draft of this report to FCC and DOT for their review and comment. In response, FCC concurred with our recommendation to improve its current method of collecting and reporting information on states' use of 911 funds. FCC stated that it is examining ways to augment current collection of information to yield more precise information and to provide more quantitative data in future reports. Specifically, FCC noted that it will (1) consider using closed-ended questions as part of future data collections to facilitate tracking and analyzing data, (2) provide greater clarity in its guidelines for analyzing data, and (3) include a more detailed description of its methodology in future reports. FCC further stated that it has taken a variety of steps to enhance the transparency and usefulness of the information it gathers and has sought comment on the accuracy and completeness of state responses to FCC's information collection. FCC officials believe these steps will also improve the accuracy and efficacy of its reporting. FCC's written comments are reprinted in appendix II. DOT provided technical comments which we incorporated as appropriate.

We are sending copies of this report to the Chairman of FCC, the Secretary of Transportation, and interested congressional committees. In

addition, the report is available at no charge on our website at <http://www.gao.gov>.

If you or your staff have any questions concerning this report, please contact me at (202) 512-2834 or goldsteinm@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. Key contributors to this report are listed in appendix III.

A handwritten signature in black ink, appearing to read 'Mark Goldstein', with a long, sweeping horizontal line extending to the right.

Mark Goldstein
Director, Physical Infrastructure Issues

Appendix I: Objectives, Scope, and Methodology

The Next Generation 911 Advancement Act of 2012 mandated that we review states' collection and use of 911 funds. This report presents information on (1) the progress that has been made in implementing wireless Enhanced 911 (E911) in the last decade, (2) the extent to which states are collecting and using 911 funds for 911 purposes and the usefulness of FCC's reporting about this issue, and (3) challenges to implementing NG911 services and federal efforts to facilitate its deployment.

To address these issues, we interviewed federal, state, regional, and association representatives. We interviewed officials from the Federal Communications Commission (FCC) regarding states' collection and use of E911 funds and the progress made in deploying wireless E911 and NG911 throughout the country. We also interviewed officials from offices within the Departments of Transportation (DOT) and Agriculture about E911 and NG911 deployment. We interviewed representatives from associations including the National Emergency Number Association (NENA), the National Association of State 911 Administrators, the Association of Public-Safety Communications Officials, CTIA-The Wireless Association, and the Competitive Carriers Association about states' collection and use of E911 funds and about E911 and NG911 deployment. We visited Illinois, where we interviewed officials from the State 911 Office, officials associated with a regional NG911 project, and representatives from rural counties in southern Illinois that have not yet begun E911 implementation. We obtained and examined relevant reports and materials from these officials and representatives. We selected Illinois because we were informed about the regional NG911 project in southern Illinois from stakeholders and because Illinois reported using 911 funds for other purposes to FCC in its 2010, 2011, and 2012 reports. We also interviewed Texas officials with responsibility for the state's NG911 pilot project because Texas received the largest E911/NG911 grant from NTIA and NHTSA and because stakeholders mentioned that the state was making progress on implementing NG911. Information obtained from Illinois and Texas is not generalizable to any other states. In addition, we gathered further information from state officials in the five other states that reported using E911 funds for other purposes in their 2012 reports to FCC: Arizona, Georgia,¹ Maine, New York, and Rhode

¹Officials in Georgia provided written responses.

Island.² In addition, we attempted to contact jurisdictions that did not respond to FCC's request for information—Louisiana, District of Columbia, American Samoa, Northern Mariana Islands, and U.S. Virgin Islands—but none responded to our request.

To understand the progress that has been made in deploying wireless E911 services throughout the country, we reviewed our previous reports on wireless E911 implementation in 2003 and 2006, and we obtained and analyzed county- and state-level E911 deployment data collected by NENA as of December 2012. To determine the reliability of this data, we reviewed relevant documentation and interviewed cognizant officials about their processes for reviewing the data and ensuring their accuracy. We determined that the NENA data were sufficiently reliable for the purposes of our report. To determine the extent to which states are collecting and using E911 revenues for E911 purposes and the usefulness of FCC's reporting about this issue, we obtained FCC's 2010 through 2012 annual reports on state collection and distribution of 911 and E911 fees and charges as well as states' responses to FCC's information-collecting effort upon which the FCC's annual reports are based.³ We analyzed the states' reports to FCC, comparing the information that the states provided to the information FCC reported. We also performed year-to-year comparisons, identifying differences in how FCC characterized states' responses in different years. To determine the reliability of this data, we reviewed relevant documentation, and interviewed cognizant officials about their processes for reviewing the data and ensuring their accuracy. Except where we have noted some inconsistencies and concerns with FCC's analysis of state-reported information, we consider the data sufficiently reliable for the purposes of this report. In assessing the usefulness of FCC's reporting, we reviewed best practices set forth in our previous reports and other professional literature on methods for collecting, analyzing and reporting information

²Guam also reported using 911 funds for other purposes in 2011. We contacted Guam officials and asked for further information in writing, but Guam did not respond to our request for information.

³FCC's reports cover state activities from the previous calendar year. For example, FCC's 2012 report covers state activities for the calendar year ending December 31, 2011. We did not review FCC's 2009 report and related state reports because we determined that 3 years would be sufficient for our purposes and because the 2009 report was FCC's first report on the subject and as such was more prone to start-up issues that would impede our purposes for using this information.

and data.⁴ To identify federal efforts to facilitate NG911 services, we reviewed FCC's report to Congress entitled *Legal and Regulatory Framework for Next Generation 911 Services*⁵ as well as associated stakeholders' responses to FCC's public notice on NG911. In addition, we reviewed relevant laws and regulations pertaining to E911 and NG911, including the Wireless Communications and Public Safety Act of 1999, the ENHANCE 911 Act of 2004, the New and Emerging Technologies 911 Improvement Act of 2008, and various state laws governing the collection and use of 911/E911 fees. We also reviewed relevant reports from FCC, DOT, the Congressional Research Service, industry, and other stakeholders, including FCC's *National Broadband Plan*.

⁴[GAO/PEMD-10.1.7](#) and [GAO/PEMD-10.3.1](#).

⁵Federal Communications Commission, *Legal and Regulatory Framework for Next Generation 911 Services*, Issued Pursuant to the Next Generation 911 Advancement Act of 2012 (Pub. L. No. 112-96 (2012)), (2013).

Appendix II: Comments from the Federal Communications Commission



Federal Communications Commission
Washington, D.C. 20554

April 9, 2013

Mark Goldstein
Director
Physical Infrastructure Issues
Government Accountability Office
441 G Street, NW
Washington, DC 20548

Dear Mr. Goldstein:

Thank you for the opportunity to review and comment on the U.S. Government Accountability Office's (GAO) draft report entitled, "911 Services: Most States Have Used 911 Funds for Intended Purposes, but FCC Could Improve Its Reporting on States' Use of Funds" (GAO Report). Our comments are limited to the recommendations that GAO provided regarding the Federal Communications Commission's (FCC) annual "Report to Congress On State Collection and Distribution of 911/E911 Fees and Charges" (Fee Report).

As noted in the draft GAO Report, the FCC has taken a variety of steps to enhance the transparency and usefulness of the information it gathers pursuant to its annual Fee Report. These efforts include making all information submitted by the states in response to our data collection publicly available, so that policymakers and the public can examine each response and determine for themselves the accuracy and completeness of the state submitted data; obtaining expanded authority under the Paperwork Reduction Act in 2012 to gather more specific and useful information from states as to how the programs for which 911 fees are used actually support 911 services; and presenting questions designed to elicit plain English narrative answers in order to facilitate public analysis and discussion. In addition, on January 14, 2013, the FCC released a Public Notice seeking comment on the 2012 Fee Report and on the accuracy and completeness of state responses to the FCC's information collection. The FCC believes that this will also improve the accuracy and efficacy of the Fee Report.

GAO has identified several areas it believes could enhance the FCC's collection of data and ongoing analysis for future Fee Reports. Specifically, the GAO Report recommends that the FCC not rely solely on open-ended questions, develop written guidelines for analyzing data, and provide a more extensive description of the methodology used in its reports.¹ We appreciate these recommendations, and note the following in response.

First, on the manner in which data is elicited from states, the draft report recognizes that the FCC "can only request" that states provide it with data about their use of 911 fees. We are examining ways to augment our current information collection in order to yield more precise information and to provide more quantitative data in future Fee Reports. As the draft report notes, the Commission has framed questions in narrative format so that states must explain their procedures in plain English, rather than submitting, for example, simple expenditure data. Our

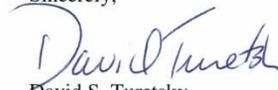
¹ GAO Report at 25.

intent has been and will remain to facilitate public analysis and discussion through such narrative questions and responses, and inclusion of such responses as an appendix to our reports. Nevertheless, we will also consider inclusion of closed-ended questions as part of future data collections to facilitate data tracking and analysis. We note that adding such questions to our data collection will require modification of our current data collection authorization pursuant to the Paperwork Reduction Act (PRA), including solicitation and consideration of public comment as mandated by the PRA.

Second, we concur with GAO's view as to the usefulness of written guidelines for analyzing data and providing a description of the methodology used in our Fee Reports. While we believe that the information provided in our prior Fee Reports has been sound – as evidenced by GAO's extensive reliance on this information in preparing its own report – we will seek to provide greater clarity in our guidelines (e.g., to differentiate, as the draft GAO Report suggests, among non-responders, non-responses to specific questions, and failure of responders to distinguish between state and local fee collections) and a more detailed description of our methodology in future Fee Reports.

We thank the GAO for its time and effort in working with the FCC on this important matter and appreciate the opportunity to review and comment on the draft GAO Report.

Sincerely,



David S. Turetsky
Chief, Public Safety and Homeland
Security Bureau

Appendix III: GAO Contact and Staff Acknowledgments

GAO Contact

Mark L. Goldstein, (202) 512-2834 or goldsteinm@gao.gov

Staff Acknowledgments

In addition to the contact named above, Sally Moino, Assistant Director; Thomas Beall; Amy Higgins; David Hooper; SaraAnn Moessbauer; Joshua Ormond; Amy Rosewarne; and Rebecca Rygg made key contributions to this report.

GAO's Mission

The Government Accountability Office, the audit, evaluation, and investigative arm of Congress, exists to support Congress in meeting its constitutional responsibilities and to help improve the performance and accountability of the federal government for the American people. GAO examines the use of public funds; evaluates federal programs and policies; and provides analyses, recommendations, and other assistance to help Congress make informed oversight, policy, and funding decisions. GAO's commitment to good government is reflected in its core values of accountability, integrity, and reliability.

Obtaining Copies of GAO Reports and Testimony

The fastest and easiest way to obtain copies of GAO documents at no cost is through GAO's website (<http://www.gao.gov>). Each weekday afternoon, GAO posts on its website newly released reports, testimony, and correspondence. To have GAO e-mail you a list of newly posted products, go to <http://www.gao.gov> and select "E-mail Updates."

Order by Phone

The price of each GAO publication reflects GAO's actual cost of production and distribution and depends on the number of pages in the publication and whether the publication is printed in color or black and white. Pricing and ordering information is posted on GAO's website, <http://www.gao.gov/ordering.htm>.

Place orders by calling (202) 512-6000, toll free (866) 801-7077, or TDD (202) 512-2537.

Orders may be paid for using American Express, Discover Card, MasterCard, Visa, check, or money order. Call for additional information.

Connect with GAO

Connect with GAO on [Facebook](#), [Flickr](#), [Twitter](#), and [YouTube](#). Subscribe to our [RSS Feeds](#) or [E-mail Updates](#). Listen to our [Podcasts](#). Visit GAO on the web at www.gao.gov.

To Report Fraud, Waste, and Abuse in Federal Programs

Contact:

Website: <http://www.gao.gov/fraudnet/fraudnet.htm>

E-mail: fraudnet@gao.gov

Automated answering system: (800) 424-5454 or (202) 512-7470

Congressional Relations

Katherine Siggerud, Managing Director, siggerudk@gao.gov, (202) 512-4400, U.S. Government Accountability Office, 441 G Street NW, Room 7125, Washington, DC 20548

Public Affairs

Chuck Young, Managing Director, youngc1@gao.gov, (202) 512-4800 U.S. Government Accountability Office, 441 G Street NW, Room 7149 Washington, DC 20548

