Enhanced 911 (E911) Grant Program
Final Report

E911 Implementation Coordination Office

National Highway Traffic Safety Administration
National Telecommunications and Information Administration

Washington, DC

March, 2013

Introduction

Advances in telecommunications technology and mobility have put the nation's 911 system at a crossroads. The growing market penetration of both wireless telephones and Voice over Internet Protocol (VoIP) underscore the limitations of the current 911 infrastructure. In their attempt to make the transition from current 911 systems to an Internet Protocol (IP)-based Next Generation 911 (NG911) infrastructure, many Public Safety Answering Points (PSAP) do not have the funds necessary to meet the needs of their citizen callers. At the state level, 911 taxes and surcharges may not provide adequate funding for this transition, and many states are looking to Federal grant programs to help fund an update in technology and operations.

Statutory authority for the E911 Grant Program. In December of 2004, the E911 Implementation Coordination Office (ICO) was created as a joint effort of the U.S. Department of Transportation's National Highway Traffic Safety Administration (NHTSA) and the U.S. Department of Commerce's National Telecommunications and Information Administration (NTIA). In June 2009, the ICO announced[1] the availability of $41.325 million in grant funding to assist 911 PSAPs to implement next generation technologies. The grants were authorized under the *Ensuring Needed Help Arrives Near Callers Employing 911 Act of 2004* (ENHANCE 911 Act)[2] and allowed awardees to use funds for hardware, software, training, and/or consulting services directly relating to the upgrade of their 911 equipment and operations. The ENHANCE 911 Act was enacted ''to improve, enhance, and promote the Nation's homeland security, public safety, and citizen activated emergency response capabilities through the use of enhanced 911 services, to further upgrade PSAP capabilities and related functions in receiving E911 calls, and to support the construction and operation of a ubiquitous and reliable citizen activated system." Through a Memorandum of Understanding (MOU), NHTSA and NTIA agreed to house the administration of the grant program at NHTSA.

Grant appropriation. The E911 Grant Program was funded from the proceeds of an analog spectrum auction, conducted by the Federal Communications Commission. The total appropriation for the E911 Grant Program was $43.5 million[3]. In September of 2009, the E911 Grant Program awarded funds to 30 states and territories. These awards ranged from $200,000, in American Samoa, to $5.4 million, awarded to Texas, and totaled $41,325,000. The remaining $2,175,000, five percent (5%) of the total appropriation, was allocated for costs related to the administration of the grant program[4].

Application and award requirements. The application and reporting requirements for the E911 Grant Program were established by rulemaking, with the Final Rule published in the Federal Register on June 5, 2009. To qualify for funding, a state/territory was required to apply on behalf of all eligible entities within its jurisdiction and submit a plan detailing timetables and proposed projects and activities for the implementation and operation of either Phase II E911 services or migration to an IP-based network infrastructure. In addition, states/territories that diverted 911 fees in the 180 days prior to the application date for other purposes were not qualified to apply for a grant. During the period of

[1] Final Rule published June 5, 2009 in the Federal Register (74 FR 26965), available at: https://www.federalregister.gov/articles/2009/06/05/E9-13206/e-911-grant-program. The Final Rule is codified at 47 C.F.R. Part 400.
[2] ENHANCE Act of 2004, Pub. L. 108-494, codified at 47 U.S.C. 942, available at: http://www.gpo.gov/fdsys/pkg/PLAW-108publ494/html/PLAW-108publ494.htm
[3] Deficit Reduction Act of 2005, Pub. L. 109-171, available at: http://www.gpo.gov/fdsys/pkg/PLAW-109publ171/pdf/PLAW-109publ171.pdf
[4] Of these funds, $1,345,326.50 was used

performance, grantees were also required to "…certify that the state has not diverted and will not divert any portion of designated E911 charges imposed by the State for any purpose other than the purposes for which such charges are designated or presented." If a grantee either provided inaccurate information relating to the diversion of 911 fees, or decided to divert surcharge funds, the grantee was required to return all of their grant money. One such instance occurred in Arizona, as a result of the state deobligating 911 fees to their general fund.

Grant administration. The E911 Grant Program was established as a reimbursable grant program, requiring grantees to submit vouchers for reimbursement when expenses were incurred. Upon award, grantees were required to submit a spending plan, delineating the specific amounts to be spent in each of the eligible categories. Grantees were also trained on the use of the E911 Grants Tracking System (GTS), an online system used to submit data such as spending plans, and submitting vouchers for reimbursement. This electronic system enabled electronic payment of grantees once vouchers were approved.

In accordance with the implementing regulation for the grant program, awardees also submitted annual written performance reports to NHTSA, as well as quarterly financial reports. During the closeout process, each state or territory also submitted a final written report containing information on overall accomplishments, funds spent and remaining and challenges experienced by grantees.

The E911 grant program was productive in supporting local and state 911 Authorities in their efforts to update 911 technology and operations. Eighteen of the 30 awardees were able to take full advantage of their award amount, using their entire allotment. Of the $43.5 million appropriated for the grant program, the amount ultimately spent by grantees was over $35 million. Figure 1, below, displays the states and territories (in orange) that received grant funds.

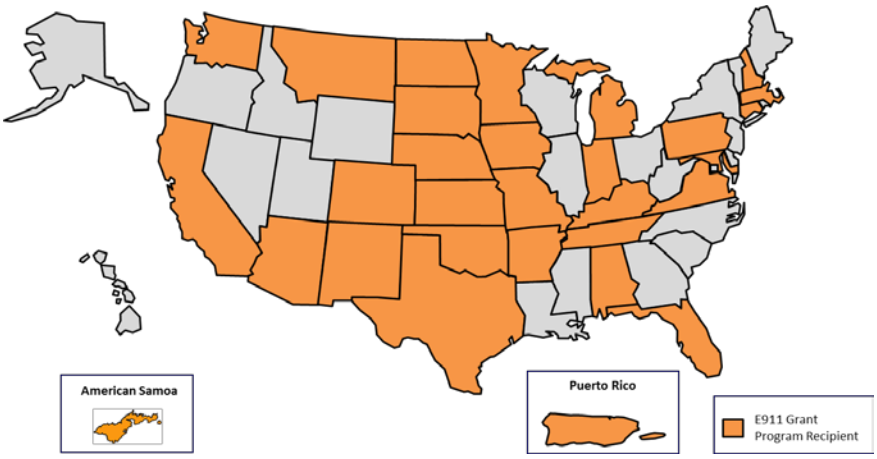


Figure 1 - E911 Grant Program Recipients

Purpose of this report. The E911 Grant Program allowed states to utilize Federal funds to upgrade their aging 911 systems to enable the delivery, implementation, and compliance with Phase II E911 services[5]

[5] Phase II E911 services means Phase II Enhanced 911 services, as described in 47 CFR 20.18.

or for migration to an IP-enabled emergency network[6], providing first responders and communities with improved public safety communication technologies and applications. This document serves as a "closeout" or "end of program" report and outlines key findings and lessons learned during the administration of the E911 Grant Program.

Use of Funds

As established by the grant regulation, eligible expenses fell into four categories: administrative expenses, training, consulting, and hardware and software. The regulation also required ninety percent (90%) of federal funds to be used directly for PSAP benefit in the training, consulting or hardware and software categories, with a ten percent (10%) maximum allotted for administrative expenses. Applicants were required to submit a project budget outlining the proposed expenses allocated for all activities. In addition, fifty percent (50%) of the total cost of the project was to come from non-Federal, state-matched funds. The four categories eligible for funding are described as follows:

Administrative

Of the funds awarded, a maximum of ten percent (10%) of the total federal award to each grantee could be used to cover costs to administer their grant funds and manage the projects and activities approved under the E911 grant program.

Training

Grant funds could also be used for the training of staff on the use of E911 or NG911 technologies. Funds for training were mostly used for acquainting staff with new technology or operational procedures within the PSAP. In one example, Florida used funding to procure E911 e-training classes and documents defining operational, organization procedures, and processes established for 911 and NG911 call taking. In another example, Washington State used funding for training staff on NG911 phone systems and related technology.

Consultant Fees

The third eligible use of grant funds was for consulting services. About 60% of the grantees chose to hire a consultant to manage aspects of grant projects. For example, Florida hired an E911 network consulting engineer to address call routing, database, redundancy and NG911 issues in order to migrate to a successful IP network. To help manage their grant project, Kentucky hired a consultant to support project management, training, implementation staging, and engineering design.

Hardware and Software

The last eligible use category was the procurement of hardware and software. Nearly all of the states, 96%, used grants funds for hardware and software purchases to upgrade PSAPs to Phase II E911 and IP-enabled networks. States used these funds to build infrastructure, install or enable lease of fiber optic cabling, upgrade computer aided dispatch (CAD)

Consulting Services in Montana

Montana entered into a contract with a consultant for emergency services IP network development. The consultant conducted an assessment of needs, recommendations, and procurement for a Next Generation Emergency Services IP Network (ESInet).

Hardware and Software in Kentucky

The City of Campbellsville, Kentucky updated computer and mapping/CAD hardware and software in their PSAP. In particular, the mapping software is critical in the wireless Phase II environment due to the need to locate wireless 911 calls by X/Y map coordinates.

[6] New and Emerging Technologies 911 Improvement Act of 2008, Pub. L. 110-283, available at http://www.gpo.gov/fdsys/pkg/PLAW-110publ283/pdf/PLAW-110publ283.pdf

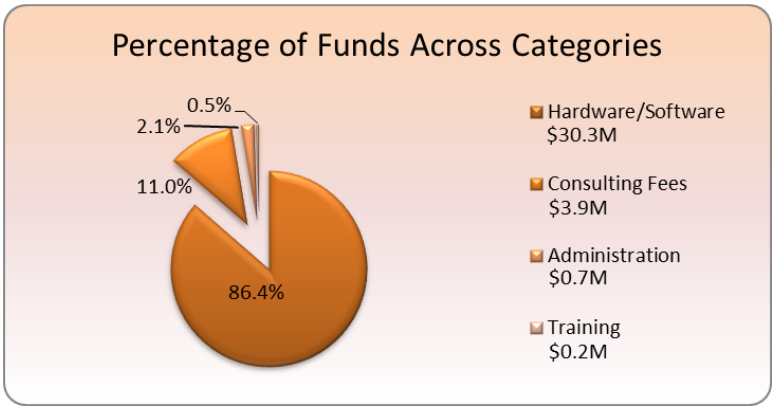
systems, installing geographic information system (GIS) systems, and multiple other uses directly related to the implementation of E911 and NG911. Hardware purchases comprised the largest use of funds, as necessary components in conducting system upgrades. In fact, in eight of the states receiving funds, all funds received went toward the procurement of hardware and software. In one example, Iowa used a portion of its grant funds to purchase equipment for their data centers and for installation at each PSAP, which was necessary to interface with the new IP network.

Key Findings

Four key findings were identified while analyzing state closeout reports, grant tracking system financials and vouchers, as well as changes made to state project plans. Analyzing these documents and assessing variables, such as allocation of funds, type of upgrades, and program type helped determine trends as well as an overall nationwide picture of 911 system capabilities.

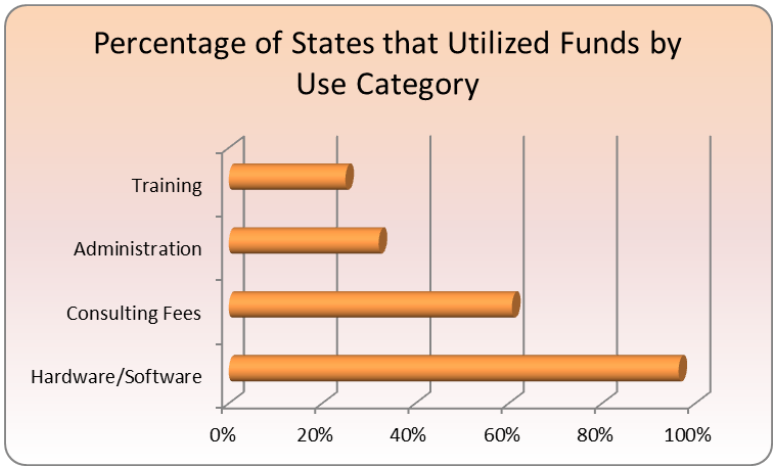
Finding 1: Majority of Grant Funds Were Used for Hardware/Software Purchases

Due to the varying needs of 911 jurisdictions across the country and differing levels of 911 service capabilities, it was anticipated that grant funds would be used mostly to enhance infrastructure and implement or improve location determination technologies. Each state has different needs and different approaches to meeting those needs. The charts below show the breakdown of how funds were used across eligible use categories. Despite these differences, the majority of funds across all states were used for the procurement and installation of hardware and software. Twenty-seven grantees used 86% of all grant funds for this purpose. Eight grantees used all of their allocated funds for this purpose.



The next largest use of funds was on consulting fees. Seventeen grantees spent 11% of the total funds on consultant fees. The State of Kansas used all of their funds for this purpose.

While 10% of allocated funds were available for administrative purposes to manage the state grant programs, just over two percent of all federal grant funding was used for this purpose. This provided over $2.7 million (ten percent less 2.1%) more dollars to be directly used to improve 911 systems.

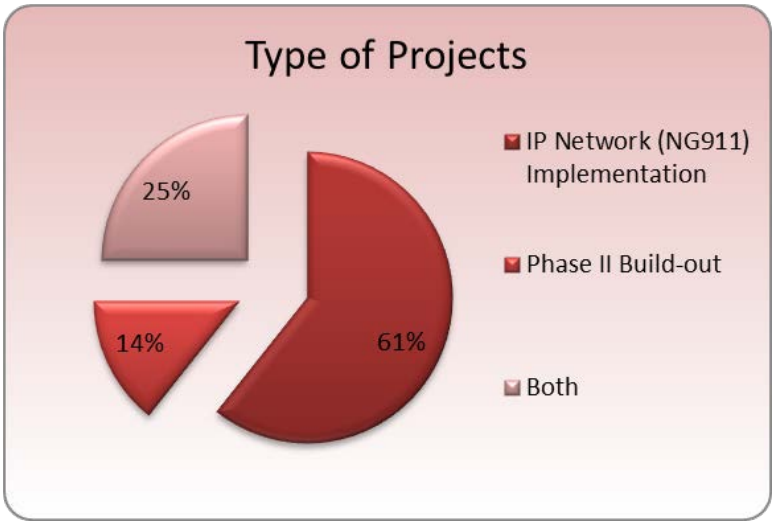


Finally, seven states chose to use grant funds for staff training

purposes. This accounted for just over $200,000 or 0.5% of the total eligible funds.

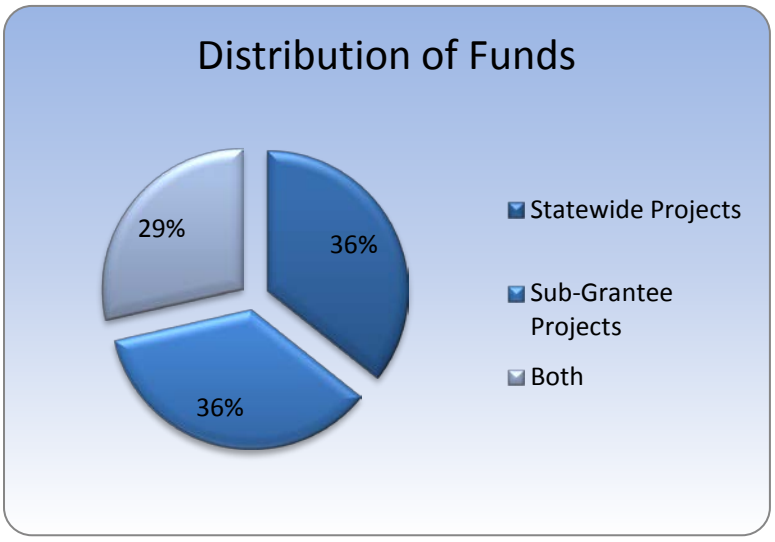
Finding 2: Majority of Projects Focused on IP Network Implementation

With the migration from legacy 911 to NG911, many states chose to use grant funds to build an IP-based network. Seventeen states, 61% of grantees, focused on IP network implementation, as many states are beginning to transition from E911 to the implementation of NG911 components. Funds for NG911 network implementation were used to set up Emergency Services IP networks (ESInets) that interconnect IP-capable PSAPs and regional IP networks. Twenty-five percent of projects focused on both Phase II and NG911, on a mixture of counties upgrading to equipment enabling Phase II E911 calls and counties transitioning to next generation capabilities. In Kentucky, the Commercial Mobile Radio Services Board hired a technical advisor to either assist PSAPs in their quest to become wireless Phase II compliant, or in their efforts to create regional IP-based 911 networks.



Finding 3: Equal Number of Statewide and Sub-grantee Projects

Under the grant regulation, grantees could use funding for projects at the state or local level, or a combination of both. In an assessment of project abstracts and closeout reports, there were an equal number of grantees conducting statewide and sub-grantee projects. Sub-grantees projects enabled collaboration and partnerships among cities, counties, and regional 911 authorities; thus meeting their requirements for community outreach to inform local jurisdictions about programs such as the local sub-grants and the data sharing agreements. Statewide projects posed interconnection opportunities among PSAPs, enabling statewide PSAP migration to an IP-enabled network within a shared network infrastructure.



As an example, Massachusetts used grant funds to build a fiber optic infrastructure and install hardware and software to connect PSAPs in the central and western part of the state directly to a statewide fiber optic ESInet. This infrastructure will facilitate the transition to NG911 and enhance PSAP interoperability. Michigan provided funding totaling more than one million dollars for

improvements to GIS road centerline data through two local sub-grant programs. Fifty-one (51) jurisdictions within the state received and used the local sub-grant funds to measure road centerline accuracy. These road centerline updates will help to improve the GIS data for today's 911 systems, as well as for future NG911 environments.

Finding 4: Multiple Modifications to Spending Plan Summary

Grantees followed an established process in implementing their plans to expend grant funds. This process was carried out using an online, electronic Grants Tracking System (GTS). All grantees received training on the use of the GTS and used the system to make all transactions in the approval and payment processes. First, grantees were required to submit a spending plan for approval. Once spending plans were approved, grantees were allowed to voucher for reimbursement as costs were incurred. If circumstances warranted a change, grantees used the GTS to submit a revised spending plan for approval. Almost every grantee modified their spending plan at least once, with an average of two changes per grantee. Oklahoma altered their plan the most, with eleven changes in a three year period due to the need to re-distribute unused sub-grantee funds. Twenty-three states changed their plans in 2012, and seven changed their plan in the last month of the program. For example, Tennessee needed to modify their spending plan when it was realized an additional connectivity step needed to be taken before the installation of routers could occur. This installation was necessary for the routers to be functional, and as the costs were eligible, the spending plan was modified.

E911 Grant Program – Challenges and Lessons Learned

While administering the E911 grant Program, lessons were learned by grantees and the ICO. These lessons can be used to make improvements to the regulation and administration of any future 911 grant program. The following represents a listing of challenges and issues experienced by grantees and NHTSA and are in no order of priority.

Grantees. One issue encountered by grantees was completing projects within the grant period. The period of performance for the E911 Grant Program was three years, ending on September 30, 2012. Grantees were allowed to establish their own milestones and deadlines for this three year period. As upgrades to PSAPs required equipment, technology, hardware and software, delays in the capital expenditures slowed some projects down or forced grantees to scale back their projects during the period of performance. Because projects included capital expenditures, the procurement process for many grantees was significantly longer than contracting for services. Requests for proposal, bidding, and entering into contracts sometimes took longer than expected, pushing back timelines and completion dates. These challenges required changes in grantee spending plans during the period of performance. For example, due to delays in procurement processes, Connecticut realized they would be unable to purchase equipment needed prior to the expiration of the grant period and identified alternate expenses for the purposes of migration to an IP-based NG911 network. Many states expressed the need to allow for extra time for these activities, as well as less pressing timeframes.

One possible solution would be to establish a longer period of performance for future grantees. Another would be to require more specific interim milestones during the period of performance. These interim milestones would require the states to plan the use of funding in greater detail and may avoid multiple changes to state spending plans.

Grantees experienced a variety of issues in completing their grant projects:

- One grantee required statutory authority to increase their spending cap in order to utilize the grant funds. The grantee was not successful in obtaining this authority until early 2012, significantly impacting their ability to complete their original project as proposed.
- As grantees and sub-grantees experienced financial challenges in their own jurisdictions, their ability to provide the required matching funds was impacted. In several instances, this resulted in the grantee or subgrantee being unable to utilize all federal grant funds, or making significant changes to spending plans.
- The availability of one grantee's matching funds was delayed as a result of legislative issues that took some time to resolve. This created an overall delay for the grantee in completing their project.
- One grantee (Arizona) became ineligible when legislation was passed transferring 911 surcharge funds to the Arizona General Fund.
- Many state 911 offices have minimal staffing to carry out the tasks required by the grant program. While they clearly need the funding, they had very limited capability to administer the grant.
- Multiple grantees experienced significant problems with their own procurement processes, resulting in major delays in completing projects.
- In one state, the State 911 Coordinator resigned midway through the period of performance. Since no one was qualified to continue serving as the state's grant administrator, the project lay dormant until another Coordinator was hired, causing significant delays in project completion.
- The turnover experienced by state offices administering the grant program was significant, in one case, resulting in four people administering the grant within the three year period of performance. With each turnover, a delay was experienced in project completion as successors became familiar with their job responsibilities and the tasks related to the E911 Grant Program.
- While the project management for many grantees was housed within the state's 911 office, many grantees worked jointly with other state agencies in providing financial oversight for their projects. In many instances, this complicated and delayed the processes used to complete the required administrative tasks associated with the E911 Grant Program.
- In a number of cases, states passed legislation or implemented regulations impacting the overall status and administration of the state's 911 system. In some cases, these changes required grant projects to be revised.

Being cognizant of potential challenges can be helpful in planning future grant administration requirements.

For many State 911 Coordinators, the E911 Grant Program was their first experience in receiving federal grant funds and administering a grant program. Regardless of their inexperience, the overwhelming majority of grantees met deadlines and submitted the required reports on time and requiring very little revision or addendum.

Administration. Training grantees in the use of the Grants Tracking System was conducted immediately after grant awards were made. Turnover in grantee staff during the three year period of performance was considerable, resulting in the need to train new grantee staff on an ongoing basis. This occurred as often as four times for one grantee within the three year period of performance. For many reasons (e.g., staff turnover, managers were trained while junior staff actually used the system, etc.), the grantees using the system were not always thoroughly trained. One solution to this issue would be to develop a

series of online training videos that can be accessed by grantees on demand allowing for ongoing training opportunities.

The E911 Grants Tracking System was adapted from an existing system, used by NHTSA to track highway safety grant expenditures. As the E911 system was developed, a three step process was used by E911 grantees to enter spending plan data and voucher expenditures against the established spending plan. While grantees overall were positive about their experiences in using GTS, NHTSA determined that the process could be shortened from three steps to two, simplifying the experience for grantees and requiring less training.

Conclusion

The E911 Grant Program was generally a success in meeting the requirements outlined in the ENHANCE 911 Act. States and territories used grant money to enhance their technology and operations for the benefit of public safety and PSAPs, as well as their citizen callers. Many states upgraded their systems to comply with Phase II wireless E911 requirements, implemented NG911 technologies, and used grant funding to make significant improvements in technology and emergency communication.

The lessons learned while administering this grant program will be beneficial in preparing to manage any future grant program, and allowing 911 jurisdictions to further improve their 911 capabilities.

Appendix A: Grant Awards and Final Expenditures by State

State	Final Rule Amount	Original Amount Requested	Supplemental Amount Awarded	Total Award	Amount Unexpended	Total Amount Spent	Percentage of Total Award Spent
American Samoa	$ 250,000.00	$ 200,000.00	$ -	$ 200,000.00	$ 90,123.98	$ 109,876.02	55%
Alabama	$ 686,230.25	$ 686,230.25	$ 263,769.75	$ 950,000.00	$ -	$ 950,000.00	100%
Arizona*	$ 627,067.26	$ 627,067.26	$ 623,658.13	$ 1,250,725.39	$ 1,250,725.39	$ -	0%
Arkansas	$ 594,060.05	$ 594,060.05	$ -	$ 594,060.05	$ 43,663.95	$ 550,396.10	93%
California	$ 2,841,352.77	$ 2,841,352.77	$ 1,505,000.00	$ 4,346,352.77	$ 233,121.51	$ 4,113,231.26	95%
Colorado	$ 662,637.98	$ 487,500.00	$ -	$ 487,500.00	$ 187.44	$ 487,312.56	100%
Connecticut	$ 500,000.00	$ 500,000.00	$ 292,125.65	$ 792,125.65	$ -	$ 792,125.65	100%
Florida	$ 1,579,728.30	$ 1,575,728.30	$ 1,094,000.00	$ 2,669,728.30	$ 2,334,936.31	$ 334,791.99	13%
Indiana	$ 783,700.36	$ 783,700.36	$ 779,439.67	$ 1,563,140.03	$ -	$ 1,563,140.03	100%
Iowa	$ 668,545.47	$ 668,545.47	$ 664,910.83	$ 1,333,456.30	$ -	$ 1,333,456.30	100%
Kansas	$ 770,896.23	$ 385,450.00	$ -	$ 385,450.00	$ 92,721.29	$ 292,728.71	76%
Kentucky	$ 584,385.38	$ 584,385.38	$ 581,208.30	$ 1,165,593.68	$ -	$ 1,165,593.68	100%
Maryland	$ 500,000.00	$ 500,000.00	$ 455,680.53	$ 955,680.53	$ -	$ 955,680.53	100%
Massachusetts	$ 527,000.57	$ 527,000.00	$ 524,135.47	$ 1,051,135.47	$ -	$ 1,051,135.47	100%
Michigan	$ 1,108,704.89	$ 1,108,704.89	$ 591,295.00	$ 1,699,999.89	$ -	$ 1,699,999.89	100%
Minnesota	$ 874,841.32	$ 874,841.32	$ 870,085.13	$ 1,744,926.44	$ 879,643.22	$ 865,283.22	50%
Missouri	$ 891,711.03	$ 891,711.03	$ 803,178.21	$ 1,694,889.24	$ 83,698.31	$ 1,611,190.93	95%
Montana	$ 500,000.00	$ 500,000.00	$ 371,597.80	$ 871,597.80	$ 339,482.11	$ 532,115.69	61%
Nebraska	$ 508,655.45	$ 484,000.00	$ -	$ 484,000.00	$ 25,084.56	$ 458,915.44	95%
New Hampshire	$ 500,000.00	$ 500,000.00	$ 142,948.39	$ 642,948.39	$ 1,016.49	$ 641,931.90	100%
New Mexico	$ 500,000.00	$ 500,000.00	$ 388,893.68	$ 888,893.68	$ -	$ 888,893.68	100%
North Dakota	$ 500,000.00	$ 500,000.00	$ 412,722.58	$ 912,722.58	$ -	$ 912,722.58	100%
Oklahoma	$ 700,339.78	$ 700,339.34	$ 696,532.29	$ 1,396,871.63	$ -	$ 1,396,871.63	100%
Pennsylvania	$ 1,242,455.97	$ 1,242,455.97	$ 1,235,701.20	$ 2,478,157.16	$ 63.35	$ 2,478,093.81	100%
Puerto Rico	$ 500,000.00	$ 500,000.00	$ -	$ 500,000.00	$ -	$ 500,000.00	100%
South Dakota	$ 500,000.00	$ 500,000.00	$ 410,365.39	$ 910,365.39	$ 714,845.39	$ 195,520.00	21%
Tennessee	$ 751,822.46	$ 751,822.46	$ 747,735.08	$ 1,499,557.54	$ -	$ 1,499,557.54	100%
Texas	$ 2,702,727.44	$ 2,702,727.00	$ 2,688,033.71	$ 5,390,760.71	$ 73,702.71	$ 5,317,058.00	99%
Virginia	$ 758,028.12	$ 758,028.12	$ 241,971.88	$ 1,000,000.00	$ -	$ 1,000,000.00	100%
Washington	$ 734,176.40	$ 734,176.40	$ 730,184.95	$ 1,464,361.35	$ -	$ 1,464,361.35	100%
Totals	**$ 24,849,067.48**	**$ 24,209,826.37**	**$ 17,115,173.63**	**$ 41,325,000.00**	**$ 6,163,016.01**	**$ 35,161,983.96**	**85%**

*Arizona became ineligible when legislation was passed transferring 911 surcharge funds to the Arizona General Fund

INTRODUCTION

Funding the operation of 9-1-1 systems has always been a challenge. It would have been difficult enough if the original, basic 9-1-1 network stayed the same; but the constant change in the public's choice of communication devices has required additional funds to pay for the adaptations to the 9-1-1 networks, to accommodate new forms of telecommunications technology. A wide variety of strategies have been employed by state and local governments to support the operation, maintenance and upgrade of their 9-1-1 systems, but funding remains a fundamental issue for most jurisdictions.

Overall, revenues to support emergency communications have increased since the mid-1990s. Wireless and VoIP fees and surcharges were added to the collection of wireline fees and surcharges, resulting in additional income for states and 9-1-1 authorities as the number of new communication devices used by consumers increased. Despite the additional revenue, however, there is increasing concern that existing funding models will not be adequate because of the changing mix of telecommunications devices, the leveling off of the number of devices, marketing diversity within the telecommunications industry, the growing number of devices not covered by surcharges and fees, and the diversion of 9-1-1 funds to other uses by state legislatures.

This document examines a number of issues related to 9-1-1funding and presents current funding issues, funding needs, current and future fee structures, and current and future funding sources. The intent is to identify areas needing further assessment and analysis.

FUNDING STUDIES: A SUMMARY OF WORK DONE TO DATE

National Emergency Number Association

One of the first in-depth studies related to funding 9-1-1 and Next Generation (NG) 9-1-1 was released in March 2007 by the National Emergency Number Association (NENA) in a report titled *Funding 9-1-1 Into the Next Generation: An Overview of NG9-1-1 Funding Model Options for Consideration*.[1] Written as a product of NENA's Next Generation Partner Program, the report reviewed and evaluated various funding models, including the following:

- Fixed amount surcharge on all calling services
- Surcharge on companies providing access to communications infrastructure
- Universal statewide communications surcharge (e.g., statewide Universal Service Fee)
- Universal federal communications surcharge (e.g., Federal Universal Service Fee)
- User fee
- General Fund tax

The report concluded that a combination of the above options would be most likely to be adopted by state and local governments, and asserted that any option must reflect the technological advancements certain to occur.

[1] National Emergency Number Association, *Funding 9-1-1 Into the Next Generation: An Overview of NG9-1-1 Funding Model Options for Consideration, March 2007*

9-1-1 Industry Alliance

In 2008, the 9-1-1 Industry Alliance published a report titled *Health of the US 9-1-1 System*,[2] with five policy recommendations for 9-1-1 funding:

- 9-1-1 services must be better aligned with the expectations and demands of consumers and citizens.
- Responsible policymakers must have a viable funding strategy for achieving NG9-1-1.
- The "public good" nature of 9-1-1 today suggests that 9-1-1 funding models should be augmented by financing that facilitates capital expenditures.
- Greater oversight should be used to monitor fund collection, deter 9-1-1 funding diversion, and ensure that 9-1-1 purchases reflect sound judgment.
- 9-1-1 surcharges should be assessed in a principled manner that promotes competition.

U.S. Department of Transportation NG9-1-1 Initiative

In June 2008, the United States Department of Transportation's (USDOT's) NG9-1-1 Initiative outlined issues related to funding NG9-1-1.[3] Recommendations of that report include the following:

- Ensuring NG9-1-1 upgrades are considered a fiscal priority for states and local jurisdictions and the Federal Government
- Transforming the current funding mechanisms to resolve the diminishing revenue base, disparities with cost recovery, and funding allocation models for shared resources
- Ensuring 9-1-1 funds are preserved for 9-1-1 and emergency communications systems

Another report under the USDOT's NG9-1-1 Initiative developed preliminary estimates of the benefits, risks, and costs of establishing an NG9-1-1 system of systems.[4] The cost estimates were based on the adoption of a model involving a mix of statewide versus "independent" local 9-1-1 systems, and the potential for cost savings by sharing costs among public safety and other agencies. While the cost estimates in this report are now dated and may not be directly applicable, they provide a template for state and local 9-1-1 authorities that wish to develop a business case for the implementation of NG9-1-1.

Federal Communications Commission

In March of 2012, an assessment of the transition to NG9-1-1 by the Federal Communications Commission's (FCC's) Communications Security, Reliability and Interoperability Council (CSRIC)[5] provided an extensive summary of NG9-1-1 funding challenges and recommendations, including the following:

1) There are unserved and underserved areas in the U.S. that still lack even the most basic emergency communications services. Future funding must find a way to bring a basic level of 9-1-1 emergency communications to those who do not have it today. The deaf and hard of hearing community must also be accommodated with improvements to text messaging.

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[2] 9-1-1 Industry Alliance, *Health of the US 9-1-1 System, 2008*

[3] U.S. Department of Transportation, Intelligent Transportation Systems, *Next Generation 9-1-1 (NG9-1-1) System Initiative: Transition Plan,* Washington, DC February 2, 2009

[4] U. S. Department of Transportation, Intelligent Transportation Systems, *Final Analysis of Cost, Value, and Risk,* Washington, DC March 5, 2009

[5] Federal Communications Commission, Communications Security, Reliability and Interoperability Council, *Transition to Next Generation 9-1-1, Working Group 4B, Final Report,* March 2011

2) Existing and new funding sources must be sufficient and sustainable for a new IP-based network and for legacy systems during the transition to NG9-1-1.

3) With the continued decline of wireline customers and an increase in wireless and VoIP subscribers, will funding levels based on surcharges and fees continue to be sufficient for the implementation and maintenance of NG9-1-1?

4) Good fund collection and management (collection methods, auditing, and use of funds collected) is essential.

5) How to collect fees from prepaid wireless is a major issue in many states. Some states have enacted legislation to collect prepaid wireless at the point of sale.

6) It may be difficult for states to enact changes to surcharges and fees for emergency communications, even if the public recognizes the value of 9-1-1 service and is willing to pay slightly more for a high quality of service.

7) A state Universal Service Fee for all communications services/devices may be possible provided such fee is coordinated with the Federal Universal Service Fee.

8) Grants in support of capital expenditures are good sources for one-time projects.

9) States and/or 9-1-1 authorities may issue bonds for capital improvement projects.

10) Surcharges and fees collected from subscribers that are intended for 9-1-1 use must be protected for that use. In 2009, 13 states reported to the FCC that diversion of funds intended for 9-1-1 use had occurred. Public safety organizations have recently urged Congress to consider withholding federal funds (e.g., for highway projects) from states that divert 9-1-1 funds.

The CSRIC report also pointed out the need to develop generic costs for specific NG9-1-1 functions and to develop funding models based on how key stakeholders could share those costs.

The CSRIC report recommended that the National 9-1-1 Program convene a Blue Ribbon panel to help address funding issues and to explore various funding models that would meet anticipated costs to move to an NG9-1-1 future.

In September of 2011, the FCC released a White Paper on NG9-1-1 costs, which focused on the estimates of ten-year costs for three items:

1. The network portion of the emergency communications system which delivers 9-1-1 calls,
2. Its connectivity to 9-1-1 systems nationwide, and
3. The 9-1-1 call routing portion of the nationwide NG9-1-1 network.[6]

Costs were estimated using a model containing an assumed ratio of small, medium, and large public safety answering points (PSAPs) for two different network architectures – dedicated and hosted. PSAPs using the dedicated solution own and operate all network, call routing, and call processing equipment and lease network connectivity. If a PSAP elects to use a hosted solution, a PSAP contracts with third-party providers for all network

[6] Federal Communications Commission, Public Safety and Homeland Security Bureau, *White Paper: A Next Generation 911 Cost Study: A Basis for Public Funding Essential to Bringing a Nationwide Next Generation 911 Network to America's Communications Users and First Responders,* September 2011

services and associated equipment, which are "hosted" off-site and are accessible by multiple PSAPs and other public safety entities.

An assumption by the FCC's in this NG9-1-1 cost model is that as the size and scope of PSAPs increase, a greater adoption of the dedicated solution will occur. A baseline model and a cost-effective model were developed for both the dedicated and hosted network architectures. Within each model, recurring and non-recurring costs were estimated. Ten-year costs varied from $1.44 billion for the cost-effective model to $2.68 billion for the baseline model. One must keep in mind that those costs represent only the network costs, exclusive of equipment, software, and service within the PSAP itself; and there was no estimate of labor costs within the FCC cost study.

FUNDING ISSUES

The migration to NG9-1-1 will cause a major shift in the 9-1-1 system nationwide. The original 911 "system" was in fact a disparate collection of approximately 6,000 PSAPs – all independently operated. This was necessarily the case, as the original circuit-switched, analog system did not allow PSAPs to connect. The transition to a digital, Internet-protocol based NG9-1-1 system will create a nationwide system if 6,000 interconnected PSAPs, and creates new possibilities for sharing costs and resources. But in adapting to this new model, local and state 9-1-1 authorities must make multiple policy, procedure and funding decisions, as they interact with a variety of new public and private agencies and organizations.

Multiple organizations have identified a number of issues with respect to funding NG9-1-1. The following list is in no particular order of priority.

1) Shared and Hosted Services
   With increased frequency, state and local governments are considering shared and hosted services in their broadband plans. Public safety communications can benefit from reduced costs for broadband in a shared services environment. The White House Wireless Initiative estimates that broadband costs for public safety communications can be reduced from $18 billion down to $10 billion from effective use of shared and hosted services, combined with adoption of long term evolution (LTE) technologies. Should state 9-1-1 authorities actively pursue shared and hosted services as a possible way to reduce costs?

2) Use of 700 MHz Auction Proceeds
   President Obama has indicated the intention of his administration that a portion of the funds from the auction of the 700 MHz portion of the spectrum be made available for installing broadband networks for public safety communications. In the Middle Class Tax Relief and Job Creation Act of 2012,[7] $115 million has been allocated for grants to accelerate the development of NG9-1-1 through 2022. Even with that amount, a strategic plan would be useful in outlining the actions necessary to build the broadband network. It is not known whether or not the auction proceeds will be targeted to wireless broadband funding for predominantly terrestrial broadband to provide transport resources for Emergency Services IP networks (ESInets)[8] intended to support NG9-1-1 and

[7] Middle Class Tax Relief and Job Creation Act of 2012 (H.R. 3630), February 2012

[8] As first defined by NENA in 2004, an ESInet is a managed IP network that is used for emergency services communications, and which can be shared by all public safety agencies. It provides the IP transport infrastructure upon which independent application platforms and core functional processes can be deployed, including, but not restricted to, those necessary for providing NG9-1-1 services. ESInets may be constructed from a mix of dedicated and shared facilities. ESInets may be

other emergency services applications in a shared services environment. How can public safety most effectively use that $115 million from auction proceeds for the installation of broadband networks to support NG9-1-1?

3) ESInet Costs
What are the costs for one or more ESInets in a given state? Can the costs for ESInets be established in a scalable model that could be applied to local, regional, and state 911 systems? Can costs for ESInets be shared as noted above? What are the quantitative implications of cost-sharing? What are the operational implications of cost sharing?

4) Changes in Subscriber Phone Service
What is the impact of revenue loss from the decrease in wireline services?

5) Diversion of Funds
What can be done to eliminate diversion of funds intended for use in emergency communications in those states that have currently diverted or plan to divert collected 9-1-1 funds? What are the alternatives, if the lack of protection for surcharge funds has a negative impact on the need to establish a sustainable funding model to enable the implementation of NG9-1-1?

6) Prepaid Telecom Services
9-1-1 is available to all those who purchase prepaid telecom services. Should surcharges and fees be assessed to prepaid telecom services that currently are not paying for emergency communications?

7) Cost Estimates
What are the cost components for NG9-1-1? Networks, ESInets, functional architecture, database applications, security features? How will service providers recover costs to provide NG9-1-1 level of service?

8) Information Transfer
What can be learned from early adopters of NG9-1-1? At least 15 states have completed state plans for NG9-1-1; many have begun to lay the foundation for the development of statewide or regional ESInets. Sharing of results and experiences can be of tremendous assistance to those states that have not yet begun to plan for NG9-1-1. What are the most effective methods for sharing lessons learned? How can the FCC and others promote "information transfer" between early adopters of NG9-1-1 and those who adopt at a later date, so that those who follow can benefit from previous experience?

9) Use of Surcharges and Fees Currently Collected
Over $2 billion is currently collected by states to support 9-1-1, as reported by states in the FCC Annual Report published in accordance with the NET 911 Improvement Act of 2008. Most of that revenue is used to maintain the operation of current 9-1-1 systems, payments to 9-1-1 system service providers for E9-1-1 and the network, support of 9-1-1 authority functions, PSAP equipment, and varying operational levels and maintenance costs. How much of that $2.5 billion can be devoted to capital costs associated with NG9-1-1 while still maintaining legacy systems? What are the overlapping components (e.g., geographic information system [GIS] data, back-up systems, and addressing systems) that will simply transfer to the NG9-1-1 environment, without additional funding beyond that already in place?

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interconnected at local, regional, state, federal, national and international levels to form an IP-based inter-network (network of networks). (Source: NENA Master Glossary)

ASSESSING FUNDING NEEDS

Much has been written in the past five years regarding the need for new funding models and methods to sustain and improve emergency communications.

Current funding levels, as documented by state annual reports filed with the FCC as required by the NET 911 Improvement Act,[9] are adequate to cover the non-labor costs of current 9-1-1 systems. Exceptions to this commonly held belief occur where the mix of wireline/wireless services is changing, where the number of subscribers in a given area is simply not sufficient to maintain the level of service (e.g., un-served and underserved areas), or where local subscribers must subsidize a large number of 9-1-1 callers who live outside the area and do not contribute funds for 9-1-1 service.

A key issue in assessing funding needs is the relationship between revenue and costs. States and 9-1-1 authorities know existing costs based on 9-1-1 systems in place today. Not known are detailed costs for the implementation of next generation emergency communications systems, including transition costs associated with maintaining parallel legacy systems as new IP-based systems are implemented.

Overall, the cost of implementing an NG9-1-1 system can be separated into several categories:

- Costs to develop IP-based NG9-1-1 systems – those that occur at a statewide or 9-1-1 authority level.
- Costs to develop the nationwide network of networks – those that occur as a result of integrating smaller systems. Integration of networks could be viewed as a cost to be incurred at the national/federal level, or by funding of a multi-state consortium formed for that purpose.
- Recurring costs to maintain the emergency communications system – typically those costs are funded at the state and/or local level.

Need for Cost Assessment by States

To assess funding needs, state, regional, and local 9-1-1 authorities are encouraged to develop a state 9-1-1 plan that includes cost estimates for developing IP-based NG9-1-1 systems, including transition costs. Estimated costs could be matched to current and projected revenues from all surcharges and fees, and could also address how costs might be shared among various stakeholders. A funding plan would then be developed to include recommendations for additional revenue generators. If updated on an annual basis, this plan could serve as a blueprint for implementation and maintenance of the jurisdiction's

Funding in North Carolina – A Case Study

North Carolina recently changed its funding method from a variable local-based wireline fee and a statewide wireless fee to a single fee for all wireless, wireline, and VoIP devices, with collection by a state 9-1-1 Board, which began distributing funds to 9-1-1 authorities in January 2012.

The North Carolina 9-1-1 Board commissioned East Carolina University to recommend a funding model for its current 9-1-1 system as well as an NG9-1-1 system. The model that has been adopted allows all local 9-1-1 authorities to receive funding at a level "no lower than" the average of expenditures incurred during the most recent five-year period.[10]

[9] Federal Communications Commission, Third *Annual Report to Congress on State Collection and Distribution of 911 and Enhanced 911 Fees and Charges,* November 8, 2011

[10] East Carolina University, Bureau of Business Research, *A Report on Findings and Recommendations on 911 Costs and Funding Models for the North Carolina 911 System,* January 6, 2010 with an Additional Report April 9, 2010

NG9-1-1 system.

EVALUATING CURRENT AND FUTURE FEE STRUCTURES

Significant bodies of work have been written over the past four to five years regarding current funding of 9-1-1 and future funding of NG9-1-1 systems. Taking these works into account, a number of identified funding issues have yet to be resolved:

1) Can state diversion of funds intended for 9-1-1 purposes be prevented?

2) What are the costs to develop state, regional, and local NG9-1-1 systems that will provide the national elements to ensure interoperability among NG9-1-1 statewide systems and the development of a nationwide interoperable NG9-1-1 system?

3) Once costs are known, are existing funding models sufficient to meet those cost needs, and are they fair and equitable? Can the annual revenues be effectively and efficiently managed to allow new IP-based systems to be developed while maintaining legacy systems until they are no longer needed?

4) What is the role of the Federal Government in the funding of NG9-1-1? Should it be focused on funding of national elements, and have states continue to collect surcharges and fees to support statewide and 9-1-1 authority funding as is currently in place?

5) Should federal and state Universal Service Fees replace or augment existing surcharges and fees?

6) How can existing or new funding models be modified to achieve parity between all areas within states?

Diversion of Funds

Historically, as 9-1-1 needs became known, states by statute provided for the collection of monthly fees and surcharges by 9-1-1 service providers. These fees and surcharges, paid by telecommunications users, usually are specified for use exclusively to provide 9-1-1 service. Some states, however, in recent years have broadened the intended use of collected fees and surcharges. In some states, diversion of 9-1-1 funds for purposes other than 9-1-1 has occurred. As reported by states to the FCC, in 2009 13 states reported that over $135 million of funds collected for 9-1-1 were diverted to support programs other than 9-1-1. Many states transferred funds collected for 9-1-1 to their general funds to help balance state budgets. By 2010, however, only seven states reported that diversion had occurred, with only about $40 million being diverted – a significant decrease from the previous year.[11]

How can states prevent the diversion of funds intended for 9-1-1 purposes to other uses? In an attempt to create a disincentive, Congress specifically precluded the National 9-1-1 Program from awarding 9-1-1 grants to states that had diverted 9-1-1 funds to other uses, and if a state did divert funds subsequent to grant award, the grant monies were to be returned to the Program office. Anecdotally, this tactic was successful in preventing a small number of states from diverting funds, and states eager to receive funding were prevented from doing so because 911 surcharged funds had been diverted .

[11] Other states refuse to appropriate back to 9-1-1 all of the revenues collected in order to meet overall constitutional balanced budget requirements.

Potential solutions include stronger incentives to sustain 9-1-1 funding as well as stronger disincentives for 911 surcharge diversion, and more aggressive state 9-1-1 programs to allocate and spend revenues intended for 9-1-1 capital expenditures to support E9-1-1 and NG9-1-1. In most cases, diverted funds had not been allocated to capital expenditures and/or operating expenses and were easily identified as excess (unspent and/or unallocated) funds for legislators to divert. Had there been well-planned expenditures for those funds, it may have been less likely that diversion would have occurred.

In the absence of higher penalties, greater incentives, or more effective use of funds as they are received specifically for E9-1-1 and NG9-1-1, diversion will likely continue as before and may even increase as states are hard-pressed to balance their annual or biennial budgets.

Congress has asked the Government Accountability Office to conduct an analysis of 9-1-1 fee diversion and present their recommendations to prevent diversion as part of the Middle Class Tax Relief and Job Creation Act of 2012.

EXAMINING CURRENT AND FUTURE FUNDING SOURCES

Historically, public safety 9-1-1 communications has been supported by surcharges and fees assessed by state and local governments. Equipment and labor are provided under state and local budgets. As a result of the manner in which 9-1-1 has been funded, state and local governments tend to operate on their own independent 9-1-1 systems – without a coordinated statewide and/or regional approach to funding or cost sharing.

Public safety 9-1-1 agencies have also traditionally relied on third-party service providers (e.g., Verizon, AT&T) to operate the networks over which emergency communications, including E9-1-1 systems, have been provided. This provided a relatively simple business model for state and local 911 authorities. As 9-1-1 systems migrate to NG9-1-1, a broader array of data and services become accessible to 9-1-1 systems, bringing with it a broader array of service providers – and expanding the 9-1-1 authority's job to include managing the operation of a multi-media network. It will be more complicated to plan, implement, and administer the costs associated with an NG9-1-1 network.

Wireless Innovation and Infrastructure Initiative

In his 2011 State of the Union address, President Obama called for public safety to shape the development of emerging broadband solutions to transition away from legacy equipment and networks. He suggested that the efficient use of wireless spectrum would free up spectrum for auction, which would generate revenue, part of which could be used to deploy a single 700 MHz nationwide network that carries voice and data.

In that context, public safety's need is for both terrestrial and wireless broadband resources, supporting a seamless system from end to end – from the routing and delivery of the 9-1-1 call and data to the appropriate PSAP through dispatch and responder actions using wireless capabilities. Various combinations of terrestrial and wireless broadband use could be applied to each component of the end-to-end system – NG9-1-1 and other emergency services running on terrestrial-based ESInets, likely with wireless broadband back-up, and responder communications running on wireless broadband with potential use of terrestrial broadband back-up and support approaches.

In the wireless broadband arena, the White House report, *The Benefits of Transitioning to a Nationwide Wireless Broadband Network for Public Safety,* recommended the development and deployment of LTE systems for greater levels of operability and interoperability in the mobile broadband arena.[12]

In addition to increased operability and interoperability, significant economies of scale and increased competition among commercial entities would combine with on-going innovation to drive down the cost for an LTE wireless broadband network for public safety. Additional cost savings for public safety communications would result from the opportunity to use infrastructure that can be shared between public safety and other users.

President Obama proposed four related measures to encourage investment and innovation in next generation communications technologies:

- Investment in a nationwide network based on 4G technology
- Rollout of 4G technology to 98 percent of the American population
- Proceeds of the auction of the D Block band of spectrum to be reallocated to public safety

[12] The White House, *The Benefits of Transitioning to a Nationwide Wireless Broadband Network for Public Safety,* June 2011

- Creation of a Wireless Innovation (WIN) Fund to support research that would enable LTE technology to meet the requirements of public safety for data, voice and video[13]

Additionally, standard setting activities need to ensure improved interoperability through non-proprietary, open standards.

The approach as outlined above is intended to result in long-term cost savings and improved functionality. Those savings result from the following:

- Reduced government spending to oversee and manage today's fragmented and inefficient networks
- Reduced device and infrastructure costs
- Increased innovation enabled by competition (e.g., new devices and applications)

Coordination

One issue is how the disbursement of federal dollars will be coordinated to build an end-to-end network that meets the needs of all users. Currently, multiple federal agencies administer grant programs:

- The Department of Homeland Security (DHS) awarded $2 billion in grants for preparedness and homeland security as part of the Fiscal Year (FY) 2011 budget – some of which was used for emergency communications.
- The National Telecommunications and Information Administration (NTIA) and the Federal Emergency Management Agency (FEMA) previously have allocated nearly $1 billion to fund interoperable communications.
- The USDOT National Highway Traffic Safety Administration (NHTSA) and NTIA awarded over $30 million in FY 2010 to state 9-1-1 entities for wireless Phase II and NG9-1-1 projects.

In order to further understand cost requirements for NG9-1-1, the federal agencies involved as members of the Emergency Communications Procedures Center (ECPC) are developing an assessment of the broadband communications requirements for public safety, and the FCC has identified the need for a detailed cost assessment of NG9-1-1. As costs become better known, alternative funding models may emerge.

As NG9-1-1 is developed in parallel with the operation of legacy systems, there will likely be an additional short-term increase in funding required to transition to NG9-1-1, while still maintaining those legacy systems. Once implemented, however, the primarily terrestrial broadband-based NG9-1-1 infrastructure will likely result in decreased network and operating expenses, with improved efficiency and interoperability.

The efforts to better understand costs associated with NG9-1-1 will bring into clearer focus the short-term increase in funding required as well as the longer-term cost savings from an IP-based NG9-1-1 system.

Adopting a Consistent, Sustainable Funding Model that Enables Transition to NG9-1-1

New funding methods are required as the nation transitions from legacy systems to a next generation emergency system capable of responding to public expectations associated with emergency communications. The extent to which new funding methods must vary from traditional funding methods is open to discussion and analysis.

[13] Ibid.

As presented earlier in this White Paper, traditional methods – primarily surcharges and fees – generate an estimated $2.5 billion in annual revenue solely to support emergency communications systems, including interconnection by providers via cost recovery, which can be significant. This is over $6 per person per year from every U.S. resident. Is more revenue needed, beyond the $2.5 billion already available annually, or is it possible for state and local governments to manage those resources effectively to transition to NG9-1-1?

Calculating the total funding needed must take into account the cost to transition from today's analog-based system to an IP-based interoperable NG9-1-1 system. This involves not only the cost of network and equipment upgrade, training and operational considerations, but also the cost of operating dual, parallel systems during the transition period. Can the transition to NG9-1-1 be funded from the existing funding models? Is it a management issue, amount of funding issue, or deployment of resources issue?

There are numerous options to consider in answering these questions:

- Fixed amount surcharges and fees on all calling services/devices
- Surcharge on access infrastructure providers
- General statewide communications surcharge or Universal Service Fee
- Federal Universal Service Fee
- Increased levels of federal grants to fund NG9-1-1 capital costs
- Bonding for capital costs

Also important are on-going operating expenses and maintenance funding for legacy and NG9-1-1 systems during and beyond the transition period.

The Role of Early Adopters

As is true in most change scenarios, early adopters play an important role in the advancement of new technologies or best practices. In the past, 9-1-1 authorities benefited from the lessons learned by the early adopters of Enhanced and wireless 9-1-1. As we move to NG9-1-1, that same phenomenon will occur. Indiana, Texas, California, Washington, and others have already begun to plan for and move toward NG9-1-1. As they do so, other states can learn from their efforts, until the national framework for NG9-1-1 is completed. A systematic method for sharing information and tracking progress would be of benefit to all 9-11 authorities.

A number of statewide efforts toward NG9-1-1 are underway across the nation. The status of these efforts ranges from study or planning to procurement to nearly completed installation and operation of a statewide NG9-1-1 system. Alabama, California, Colorado, Connecticut, Indiana, Kentucky, Maine, Michigan, Minnesota, North Carolina, Tennessee, Texas, Vermont, Virginia, and Washington are known to have formal initiatives that fall somewhere along that continuum. In addition, regional ESInets are being developed in areas such as Southern Illinois, where 19 counties have banded together to implement NG9-1-1, and Texas, where numerous regional efforts are in progress. The availability of an additional $115 million through 2022 under the Middle Class Tax Relief and Job Creation Act of 2012 will allow more states to move towards NG9-1-1.

Included in these NG9-1-1 planning and implementation efforts are cost studies for components of NG9-1-1, including network, data, and systems support, and other capital expenditures. One component of the move to NG9-1-1, however, that is usually not included in cost estimates is the cost of labor. It may be assumed that labor costs remain essentially unchanged from current levels – hence the emphasis on capital expenses.

In addition to government agencies, contractors, service providers, and others are paving the way for much more accurate cost estimates in the implementation of NG9-1-1, as these early state and regional ESInets and NG9-1-1 systems are being developed. While there will be state and regional variances in costs, an average cost level or cost range could be established, thereby allowing for more accurate estimates of implementation costs. A coordinated effort to gather, analyze, and share all cost data from early adopters is required. Collaboration among national and federal organizations could yield the necessary information to make cost information widely available for 9-1-1 authorities at the state, regional, and local levels.

Use of Surcharges and Fees Currently Collected

Of the estimated $2.5 billion currently collected by states to support 9-1-1, most is for capital expenses related to maintaining the level of service of current 9-1-1 systems. In practice, only a few states allocate fees and surcharges to non-capital expenses, such as wages and salaries of staff in 9-1-1 centers. An important question is how much of that $2.5 billion can be devoted to capital costs and operating expenses associated with NG9-1-1, while still maintaining legacy systems? Expanding eligible uses of funds, either for capital costs associated with NG9-1-1 or for operations, may support the transition to NG9-1-1 in many states.

At the 2011 Association of Public-Safety Communications Officials (APCO) Conference in Philadelphia, FCC Chairman Julius Genachowski announced a five-step action plan to improve the deployment of NG9-1-1.[14] Step five of this plan directs the FCC's Public Safety and Homeland Security Bureau to "prepare a cost model focused on the cost-effectiveness of the NG9-1-1 network infrastructure linking PSAPs and system service providers." The FCC is currently working with the National 9-1-1 Program to move forward with this cost study. The results of that analysis will assist 9-1-1 authorities and Congress in considering NG9-1-1 funding options.

The cost of labor to staff PSAPs is another important funding consideration. Most cost models focus on network and equipment costs, rather than labor costs. In making the transition to NG9-1-1, it is difficult to estimate staffing requirements. Cost sharing may include PSAP consolidation and a reduction in staffing. 9-1-1 authorities may be reluctant to drastically reduce staffing, as no studies have been done to date that show the effect of introducing text, video, and other forms of digital media on the amount if time it takes to process 9-1-1 calls. Without evidence, it is difficult to gauge the cost of labor to staff NG9-1-1 PSAPs.

To date, only rough estimates for the costs of labor have been made. In May 2010, the Bureau of Labor Statistics estimated there were approximately 100,000 employees in emergency telecommunications.[15] That employment figure seems reasonable if one were to assume an average of approximately 15 telecommunicators per PSAP in the U.S. Using the mean annual salary per employee of nearly $37,000, the cost of labor is $3.7 billion per year.

If one assumes that most of the $2.5 billion collected each year from subscribers (fees and surcharges) is used to meet capital expenses, and approximately $3.7 billion per year is from local and state budgets to support the cost of labor, the total cost to provide 9-1-1 service is approximately $6.2 billion per year. More detailed cost analysis should be undertaken to substantiate these numbers, and the implications for sustainable funding of the 9-1-1 system.

[14] APCO Annual Conference and Trade Show, August 2011

[15] U.S. Department of Labor, Bureau of Labor Statistics, at http://www.bls.gov/oes/current/oes435031.htm The reported number for May 2010 is 97,740

SUMMARY

Many of the necessary elements are in place for an acceleration of implementation efforts for NG9-1-1. First, there is general agreement within public safety on how a NG9-1-1 "system of systems" will eventually be developed using IP-based ESInets. Second, a number of states are already taking the lead in the development of ESInets and NG9-1-1 systems at either a statewide or regional level. These efforts will serve as success models for other states to follow. Third, there is increased likelihood that the development of ESInets can benefit from the implementation of a National Broadband Plan to bring broadband service to all states in a relatively short period of time. Public safety and 9-1-1 will benefit from that investment, especially if shared services among public safety entities occur. But in order for progress to continue, there is also consensus among 9-1-1 stakeholders that the issue of funding must be adequately addressed. As stated by CSRIC II's Working Group 4B, "There is an extremely urgent, essential need to examine existing 9-1-1 fee structures and identify a funding model that will support NG9-1-1. The transition to NG9-1-1 will be significantly delayed and the full benefit of NG9-1-1 will not be realized without consistent, reliable funding."

This White Paper has examined many issues related to the funding of 9-1-1, including the cost of transitioning to NG9-1-1 from the current E9-1-1 system. What is unknown today is the projected total cost to provide NG9-1-1 services in the future. While much has been written about the various 9-1-1 funding models available, far less has been accomplished to provide accurate cost estimates for networks, database, customer premise equipment (CPE), and other equipment costs, either on a national, statewide, or regional basis.

There are many combinations of governance under which cost models can be developed. These have been highlighted most recently in the FCC White Paper on NG9-1-1 cost models. Until more is known about which governance models will prevail, it is difficult to estimate costs with certainty.

The industry is just now beginning to develop better cost models based on the experience of several "early adopters." States and early adopters are encouraged to estimate costs on the basis of the total cost of doing business, including labor costs. Labor savings through consolidation or effective management and administrative practices should be identified and documented so that others can benefit from those efforts. That information will be valuable to mid and late adopters of NG9-1-1 systems.
It is essential to examine the extent to which the current funding model – 9-1-1 surcharges and fees – can provide sufficient revenue to not only maintain existing 9-1-1 systems, but to bring NG9-1-1 to all states and communities, both urban and rural, so that all Americans have access to NG9-1-1 service. More accurate cost models are needed before that question can be answered. New funding models have been proposed, but may be difficult to adopt given today's funding environment, especially at the state level where funding changes are frequently dependent on state legislation.

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