

Enhanced 911 (E911) Grant Program Final Report



E911 Implementation Coordination Office

National Highway Traffic Safety Administration
National Telecommunications and Information Administration

Washington, DC

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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 announced¹ 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 million³. 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 program⁴.

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

or for migration to an IP-enabled emergency network⁶, 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.

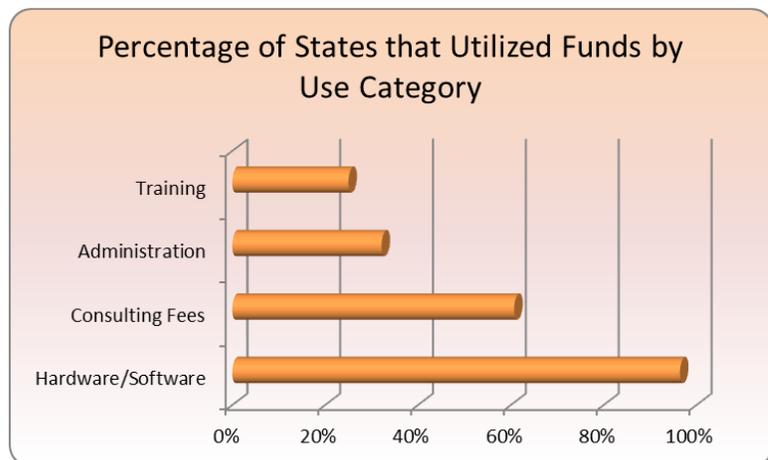
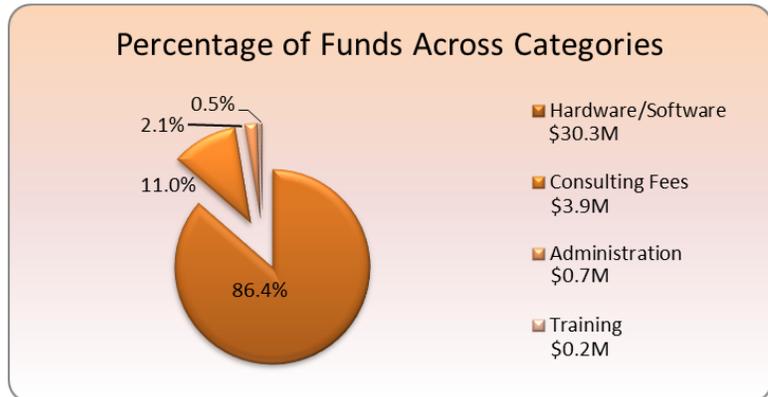
Finding 1: Majority of Grant Funds Were Used for Hardware/Software Purchases

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.

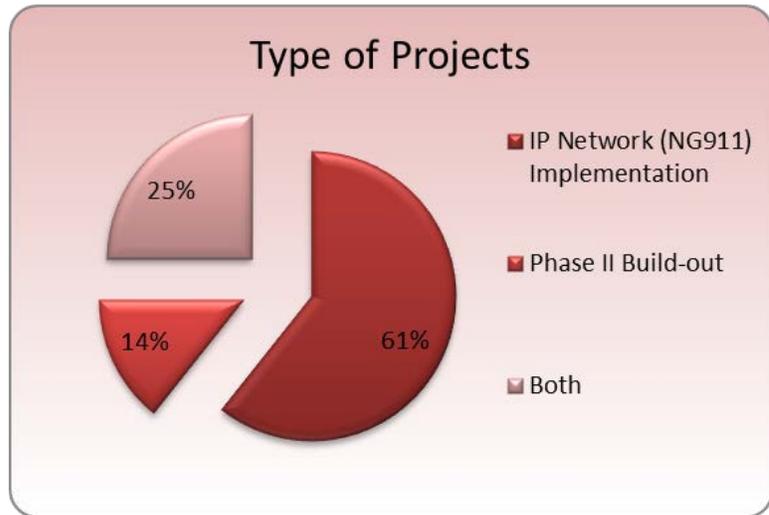
Finally, seven states chose to use grant funds for staff training



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

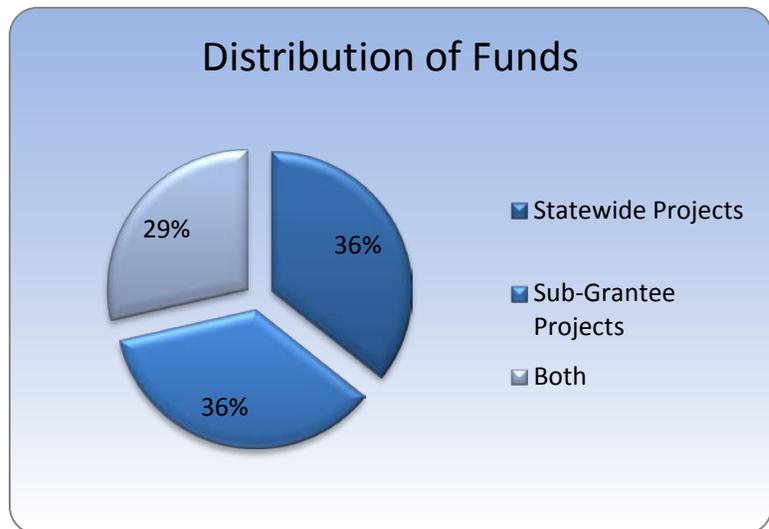
Finding 2: Majority of Projects Focused on IP Network Implementation

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