



# **WIRELESS E-911 EMERGENCY SERVICES PROGRAM**

**A SPECIAL PERFORMANCE AUDIT OF THE  
PENNSYLVANIA EMERGENCY MANAGEMENT AGENCY**

**OCTOBER 2008**

**JACK WAGNER, AUDITOR GENERAL**

**PENNSYLVANIA DEPARTMENT OF THE AUDITOR GENERAL  
BUREAU OF SPECIAL PERFORMANCE AUDITS**

October 22, 2008

The Honorable Edward G. Rendell  
Governor  
Commonwealth of Pennsylvania  
225 Main Capitol Building  
Harrisburg, Pennsylvania 17120

Dear Governor Rendell:

Enclosed is our special performance audit of the Pennsylvania Emergency Management Agency (PEMA) and its administration of the Wireless E-911 Emergency Services Program for the period of December 30, 2003, through June 30, 2007, with some updates through August 2008.

The wireless E-911 system is significant because it enables 911 call centers to pinpoint the location of cell phone callers who need help in times of emergency. An effective system can save lives and property by enhancing the ability of the Commonwealth and local jurisdictions to respond more quickly to life-threatening situations, and also to respond to the right location even if callers are unable to provide that location.

We began our work with the objective of determining how effectively PEMA managed the statewide deployment of the wireless E-911 system, particularly in making sure that it is operational for all of Pennsylvania's 69 emergency call centers. Our objectives, scope, and methodology are further explained in the report beginning on page 14. We conducted our audit under generally accepted government auditing standards.

The report includes 3 findings and 16 recommendations, along with sufficient and appropriate evidence to support our work. During our audit period, the state collected a total of more than \$235 million from wireless consumers via a \$1 per month surcharge; \$214 million of that amount was then disbursed to the emergency call centers responsible for answering 911 calls. We found that PEMA fell short of its goal of having all 69 call centers capable of pinpointing the location of wireless 911 callers by June 30, 2008. In fact, at least 11 of the 69 call centers did not have this capability as of that date.

In Finding One, we discuss staffing issues at PEMA that resulted in program control weaknesses and an over-reliance on PEMA's external telecommunications consulting firm. We make five recommendations to address this issue and are pleased to report that

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PEMA has already begun to implement many of these recommendations. Specifically, PEMA underwent a reorganization that included the creation of a bureau for the 911 programs and is in the process of hiring personnel to fill key positions in this bureau.

In Finding Two, we report that PEMA did not ensure that the \$214 million collected from the consumers was distributed to emergency call centers prudently. Specifically, we report that PEMA approved funding applications without supporting documentation; that PEMA had no standard written procedures for processing applications, thereby causing confusion among the emergency call centers regarding allowable expenditures; and that PEMA could not be sure if wireless providers violated current law by recovering costs from both PEMA and consumers. We also reported that the law did not authorize PEMA to set spending limits on the emergency call centers' program expenditures. We make four recommendations for PEMA to address these concerns.

In Finding Three, we report that PEMA has not taken action to address concerns that will have a significant impact on the wireless E-911 program in the future. These concerns include how to continue program funding, how to incorporate technological advances into the state's existing system, and how PEMA can aggressively advocate to eliminate coverage gaps that exist throughout the Commonwealth. We make seven recommendations to address these concerns.

I appreciate PEMA's acceptance of the majority of our recommendations and am pleased that PEMA has already begun to take corrective actions. In fact, we have had to make further comments to PEMA regarding its response to only three of our recommendations—Recommendation 7 regarding PEMA's procedures for approving applications for funding from emergency call centers, Recommendation 9 regarding the recovery of costs by wireless providers, and Recommendation 16 about public education efforts. Our detailed comments are presented on page 56 of this report.

I also appreciate the professionalism and courtesy extended to our audit team by PEMA's management and staff over the course of our audit work. As provided by government auditing standards under which this audit was conducted, we will follow up on our findings and recommendations to determine whether they are being addressed. Accordingly, we will contact PEMA management within the next 12 to 24 months.

Sincerely,

**JACK WAGNER**  
Auditor General

Enclosure

cc: Robert P. French, Director, PEMA



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**Results in Brief**

Pennsylvania's wireless E-911 emergency services program was created to upgrade existing technology so that 911 operators could pinpoint the location of callers who use wireless phones to place emergency calls. Our special performance audit found that the state must improve its administration of this program. Such improvement is especially important as more and more people become reliant on cell phones.

Established in 2003, the E-911 program is a critical tool in the hands of emergency responders for whom seconds count when lives are at stake. No longer should precious response time be wasted in cases when callers cannot communicate their locations clearly due to disorienting conditions such as panic or injury.

The Pennsylvania Emergency Management Agency, often referred to as PEMA, developed and implemented Pennsylvania's wireless E-911 emergency services program and is the entity whose performance we evaluated in this special performance audit. Our work was conducted in accordance with generally accepted government auditing standards and covers the period from December 30, 2003, through June 30, 2007, with updates through June 30, 2008, where indicated.

Since April 2004, wireless providers have imposed users with a surcharge of \$1.00 a month for each wireless device. This surcharge funds the E-911 program.

During our audit period, the state collected a total of more than \$235 million from customers via the surcharge; \$214 million of that amount was then disbursed to the emergency call centers responsible for answering 911 calls. According to the Public Safety Emergency Telephone Act, or Act 78 of 1990, as amended, such centers are known as "public safety answering points." Sometimes referred to by the acronym

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“PSAPs,” these entities are part of each county’s emergency management center, of which there are 67. In addition, the cities of Allentown and Bethlehem each maintain an emergency management center of their own, bringing the total number of emergency call centers/public safety answering points in Pennsylvania to 69.

It was the goal of PEMA to have every one of the state’s 69 emergency call centers capable of identifying the precise location of wireless 911 callers by June 30, 2008. However, we found that at least 11 of the emergency call centers did not have that capability as of June 30, 2008.

We also found that PEMA’s staffing of the E-911 program caused program control weaknesses and an over-reliance on PEMA’s outside telecommunications consulting firm. Additionally, we found some weaknesses in PEMA’s review and approval of funding requests made by the emergency call centers, as well as weaknesses in PEMA’s preparedness to address the evolution of telecommunications technologies that will impact the E-911 program in the future.

Because it is so critical for PEMA, as the administrator of the wireless E-911 program, to manage the program efficiently, we have made recommendations for PEMA to improve its current staff support, funding procedures, and planning efforts. Those improvements will help PEMA in its management of the program overall, thereby also improving PEMA’s accountability to—and the safety of—those who live and travel in Pennsylvania.

Summarized in the paragraphs that follow are our three findings and 16 recommendations.



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**Finding One, pp. 17-30**

PEMA has inadequately staffed the wireless E-911 program, thereby causing some weaknesses in program controls and an over-reliance on its external consultant.

To address these issues, we recommend the following:

1. PEMA should immediately fill both of the vacant positions in its 911 section.
2. PEMA should reclassify certain positions in its 911 section requiring them to meet minimum financial experience standards. If current employees who fill those positions need training, PEMA should provide that training.
3. PEMA should determine the appropriate number of staff necessary to provide sufficient accountability and oversight of the wireless E-911 program, and then request that the governor's Office of Administration address the staffing issue.
4. PEMA should strengthen its oversight procedures by requiring that annual site visits be conducted of every one of the 69 emergency call centers and by maintaining a computerized master inventory program.
5. PEMA itself should conduct the fiscal year-end reconciliations that instead have been conducted by an accounting firm with ties to PEMA's telecommunications consulting firm that provides deployment services to the emergency call centers. If staffing or other limitations prohibit PEMA from conducting the reconciliations on its own, PEMA should contract directly with an accounting firm that has no ties to the consulting firm. Additionally, PEMA

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must increase its involvement in the reconciliation process and in reviewing eligible expenses.

**Finding Two, pp. 31-40**

PEMA did not ensure that the \$214 million collected from consumers via surcharges was distributed to emergency call centers prudently.

To address this finding, we recommend the following:

6. PEMA should continue efforts to clarify, enhance, and standardize its wireless E-911 application procedures and processes to ensure that emergency call centers receive an equitable, efficient, and accurate disbursement of taxpayer dollars.
7. PEMA should develop procedures to document clearly the line of authority to follow for approving applications submitted by the emergency call centers, including documentation that PEMA's executive management has reviewed and approved the funding decisions made by its 911 staff.
8. PEMA should seek to amend the Public Safety Emergency Telephone Act for authorization to establish maximum spending limits for expenditures made by emergency call centers, thereby better ensuring the prudent use of taxpayer dollars.
9. PEMA should implement procedures to prevent wireless providers from recovering costs both from the fund *and* directly from wireless customers.

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**Finding Three, pp. 41-49**

PEMA has not taken definitive action to address concerns that will have a significant impact on the wireless E-911 program in the future.

To address these issues, we recommend the following:

10. PEMA should assess its future needs for administering the wireless E-911 program and determine the role of its telecommunications consulting firm *before* structuring any future contracts with that firm.
11. PEMA should immediately begin developing a transition plan with a timeline so that the agency can have its own qualified and trained staff to manage the wireless E-911 program, instead of having the telecommunications consulting firm manage the program.
12. PEMA should work with local and state officials as well as wireless providers to determine the future funding needs of the wireless E-911 program.
13. PEMA should seek to amend state law in order to expand the surcharge to *all* users of telecommunications devices that utilize 911 services (if the surcharge is continued).
14. PEMA should engage local and state officials as well as wireless providers to formulate ideas for minimizing or, ideally, completely eliminating the gaps in wireless coverage throughout the state. Furthermore, even though wireless providers are regulated by the federal government, PEMA should also do what it can to encourage wireless providers to expand access to wireless communication throughout the state.

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15. PEMA should evaluate its evolving role as the state's E-911 program administrator in anticipation of future telecommunications technologies that may result in additional responsibilities.
  16. PEMA should increase awareness among 911 coordinators that wireless E-911 funds are available for public education; in addition, PEMA should encourage 911 coordinators to utilize these funds to inform the public about gaps in service coverage and use of the system overall.

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Across the nation, beginning in the 1970s, governments began to implement “enhanced” 911 (E-911) systems, meaning that operators at emergency call centers<sup>1</sup> could identify the street address of callers who dialed 911 from landlines (i.e., telephones hard-wired into a structure). The identification of the street address was in addition to the identification of the caller’s phone number itself.

In Pennsylvania, emergency call centers have been able to receive that additional information from *landline* callers since the early 1990s, but not until recently could the centers get that same information from callers who dialed 911 from their wireless/cell phones. In fact, on some occasions, 911 callers were mistakenly transferred by their wireless providers to emergency call centers far from the callers themselves, meaning that emergency operators would not know automatically which emergency responders were located closest to the callers. In such cases, the arrival of emergency response personnel might have been unnecessarily delayed.

According to an April 2007 *USA Today* article, people make more 911 emergency calls from wireless telephones than from landlines, and police and firefighters have increasingly worried about finding those callers in distress. The article goes on to report that CTIA-The Wireless Association,<sup>2</sup> an industry

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<sup>1</sup> The Public Safety Emergency Telephone Act (Act 78 of 1990, as amended; 35 P.S. § 7011 *et seq.*) uses the term “**public safety answering point**,” or “**PSAP**,” to refer to the first point at which calls are answered 24 hours a day from individuals seeking emergency assistance. Because the term “public safety answering point” and its acronym of “PSAP” are not necessarily familiar terms, we have used them sparingly throughout this report, instead opting for more recognizable language such as “emergency call centers.” In Pennsylvania, these entities are part of each county’s emergency management center, of which there are 67. In addition, the cities of Allentown and Bethlehem each maintain an emergency management center of their own, bringing the total number of emergency call centers/public safety answering points in Pennsylvania to 69. When operators receive emergency calls at any one of these 69 points, the operators contact the appropriate local response providers—such as fire or police departments—who in turn dispatch emergency personnel to provide assistance.

<sup>2</sup> According to CTIA’s Web site at <http://www.ctia.org/aboutCTIA/>, accessed most recently on July 3, 2008, “CTIA-The Wireless Association®,” is an international nonprofit membership organization founded in 1984,

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lobbying group, reported that 230,000 calls to 911 were made nationally from wireless phones each day and that an estimated 8.4 percent of households are “wireless only.”<sup>3</sup>

More recently, in May 2008, the National Center for Health Statistics reported that an estimated 14.5 percent of all adults used their cell phones as their primary source of contact.<sup>4</sup>

Beginning in 1996, the Federal Communications Commission, or FCC, took steps to develop a process for applying E-911 services to wireless phones. The agency’s action was in response to the nationwide increase in wireless phone usage and the subsequent expanding need for emergency call-takers to receive information about wireless 911 callers.

Pennsylvania, too, recognized the importance of having call-takers be able to obtain information about the location of 911 wireless callers. As a means to develop such a system, Pennsylvania enacted Act 56 of 2003. Act 56 amended the original Public Safety Emergency Telephone Act that had established the landline 911 system about twelve years earlier.<sup>5</sup> Act 56 also required that the Pennsylvania Emergency Management Agency, known as PEMA, develop and oversee a statewide wireless E-911 system. Ideally, when fully deployed, that statewide system would not only route a wireless emergency call to the appropriate emergency call center/public safety answering point, but it also would show the phone number and nearly exact location of the caller according to latitude and longitude coordinates.

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representing all sectors of wireless communications – cellular, personal communication services and enhanced specialized mobile radio.”

<sup>3</sup> John Dunbar, “FCC seeks to reform 911 call tracking,” *USA Today*, April 5, 2007, Accessed January 7, 2008, and verified April 22, 2008, at <[http://www.usatoday.com/news/washington/2007-04-05-2188118542\\_x.htm](http://www.usatoday.com/news/washington/2007-04-05-2188118542_x.htm)>.

<sup>4</sup> Scott Keeter, “Research Roundup: Latest Findings on Cell Phones and Polling,” May 22, 2008, Accessed June 26, 2008, at <<http://pewresearch.org/pubs/848/cell-only-methodology>>.

<sup>5</sup> Responsibilities for this 911 program originally fell to Pennsylvania’s Department of Community Affairs but were transferred to the Pennsylvania Emergency Management Agency when the Department of Community Affairs was abolished in 1996.

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**A state plan is required:  
Phase I is the first step, but Phase II is the goal**

As amended, the Public Safety Emergency Telephone Act<sup>6</sup> requires PEMA to prepare and maintain a state plan for the development, implementation, operation, and maintenance of an integrated statewide wireless E-911 system<sup>7</sup> while still allowing the 69 emergency call centers to retain autonomy and control over the day-to-day E-911 operations.<sup>8</sup>

PEMA’s plan is intended to provide all involved parties—PEMA, local government officials, statewide 911 coordinators, and the wireless providers—with the guidance they need to achieve this integrated system statewide. Ultimately, as discussed previously, this integrated system will provide emergency call-takers with the phone number and nearly exact location (latitude and longitude coordinates) of the wireless 911 caller.

There are two phases in the deployment of Pennsylvania’s wireless E-911 system. These phases are modeled after the deployment process used by the Federal Communications Commission:

**Phase I - A caller’s general location is provided to emergency call-takers.**



Wireless providers can connect wireless 911 callers with the nearest emergency call center. For each call, the emergency call center can receive the address of the cellular tower processing the wireless 911 call and the wireless 911 caller’s phone number.<sup>9</sup>

<sup>6</sup> In this report, the term “Public Safety Emergency Telephone Act” from this point forward refers to Act 78 of 1990, as amended; 35 P.S. § 7011 *et seq.*

<sup>7</sup> 35 P.S. § 7021.2(b).

<sup>8</sup> PEMA *Statewide Wireless E-911 Plan*, version April 7, 2005, p. 4.

<sup>9</sup> *Ibid.*, p. 7.

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**Phase II** – A caller’s nearly exact location is provided to emergency call-takers. In addition to receiving Phase I information from wireless 911 callers, the emergency call centers can receive the nearly exact latitude and longitude coordinates of wireless 911 callers.<sup>10</sup>

PEMA considers counties that have not implemented either stage of the wireless E-911 system to be at **Phase 0**, which means that wireless 911 calls are routed to emergency call centers but not necessarily to the closest ones, and that the call-taker must obtain a location, a callback number, and any other information directly from the caller.

Before emergency call centers can be designated as being at either Phase I or Phase II in the deployment process, PEMA must confirm that the emergency call centers receive accurate identifying information. Accordingly, wireless service providers are required to test the accuracy of their systems within the emergency call center’s service area. The testing involves making wireless calls from various locations around the cell towers in the service area and submitting records of the calls to PEMA for evaluation.

The ultimate goal of the state plan is to have all areas covered by the cell towers at Phase II, thereby providing emergency call centers with the best opportunities for responding promptly to emergency situations and possibly saving lives.

**Examples of lives saved**

Below are four examples of how using accurate wireless Phase II information, along with keeping the caller on the line and

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<sup>10</sup> Ibid.



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coordinating emergency response resources, resulted in favorable outcomes:

- *A Montgomery County man was driving on a rural road in Elk County on a snowy day. The man's vehicle slid off the road and into a large ditch. Although the motorist was not injured, his vehicle was wedged so that he was unable to open any of the doors. He dialed 911 from his cell phone but could not provide the emergency operator with his specific location since he was unfamiliar with the area. Nevertheless, because Elk County's wireless E-911 system was at Phase II, the emergency operator at the call center could determine the man's exact location and quickly dispatch the police and a tow truck to assist him.*
- *In December 2007, a Dauphin County woman was physically assaulted by her boyfriend, locked in the trunk of a car, and became unconscious. When she awoke, she was still locked inside the trunk. She was able to dial 911 from her cell phone but had no idea where the car was now located. However, the emergency call center in Dauphin County that took the call was already at Phase II of the E-911 deployment and, accordingly, could identify the area where the call originated. A police officer was dispatched and sounded the car's siren so that the victim could hear the car's approach. Within nine minutes from the time the call was placed, the officer located the vehicle and released the woman from the trunk.*
- *In April 2008, a runaway teenager became lost in a wooded area in Dauphin County. The teen called 911 from her cell phone, and the operator at the emergency call center kept the girl on the phone while the police and fire department were sent to the location based on the Phase II information. After arriving in the area, police turned on their sirens. Because the girl had been*

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*instructed to remain on her cell phone, she was directed to walk toward the sound of the sirens and was promptly located.*

- *In Huntingdon County, a woman called 911 from her cell phone from the middle of a wooded area. The woman had a head injury and could say only, “Help me.” Because Huntingdon County’s emergency call center was already deployed at the Phase II level, the operator could dispatch local rescue workers directly to the woman’s location.*

**How did PEMA expect the state plan to unfold?**

According to PEMA’s state plan, the agency’s goals are twofold:

- The first goal is to ensure equal and unilateral deployment of wireless E-911 service across the commonwealth.
- The second goal is to provide a transition from the current status of wireless E-911 service to an integrated statewide wireless E-911 system, meaning that all Pennsylvania residents have the same level of wireless E-911 service available to them no matter where they live or travel in the commonwealth.<sup>11</sup>

It is important to note that, although the Public Safety Emergency Telephone Act requires PEMA to implement a state plan for wireless E-911 services, the counties do not have to participate in the program. Fortunately for the safety of all commonwealth residents and visitors, all 69 emergency call centers/public safety answering points have chosen to

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<sup>11</sup> Ibid., p. 5.

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participate in the wireless E-911 program voluntarily and to request the available funding.

It is also important to note that the Public Safety Emergency Telephone Act did not establish a deadline by which the state plan had to be implemented. Instead, PEMA set a date of June 30, 2008, for all 69 emergency call centers/public safety answering points to have their wireless E-911 services fully operational at Phase II. PEMA chose that date to coincide with the expiration of its contract with its telecommunications consulting firm that has worked with PEMA on the wireless E-911 project since August 2004.

PEMA officials have acknowledged that they did not expect all 69 emergency call centers to reach the June 30, 2008, goal.

**What has been the actual progress?**

As of June 30, 2008, 55 emergency call centers/public safety answering points—that's 80 percent—were deployed or deploying to Phase II. There were 3 others—or 4 percent—that were deployed to Phase I. That left 11 others—16 percent—who had not even reached Phase I and were considered to be at Phase 0.<sup>12</sup>

The actual deployment of the wireless E-911 system takes place not at PEMA, but at the 69 emergency call centers/public safety answering points and at the discretion of their 911 coordinators and municipal officials.

According to PEMA, the 69 emergency call centers were already at various stages of deployment when statewide wireless E-911 implementation began in June 2005. While some of the centers had already reached Phase II, many were still at Phase 0.

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<sup>12</sup> See Appendix B of this report for a map of the deployment phase of each county.

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As part of its plan for implementation, PEMA, with the assistance of an external consultant, established technical operating standards as well as the procedures that the emergency call centers would need to follow to receive state funding for the wireless E-911 program. PEMA also assessed whether each call center had the capability to receive, display, and use Phase II data.

Finally, PEMA assisted local 911 coordinators in implementing an E-911 deployment plan for their local area, subject to PEMA's approval.

**The funding**

As noted in the Results in Brief section of this report, the implementation of the wireless E-911 system is funded by a monthly \$1.00 surcharge imposed on consumers for each wireless device. The \$1.00 surcharge is collected by the wireless providers through their regular billing process.

The Public Safety Emergency Telephone Act provides for the surcharge to terminate on June 30, 2009, unless extended by an act of the General Assembly.<sup>13</sup>

Wireless providers are permitted to keep \$.02 of each \$1.00 to cover their administrative expenses. The providers must remit the remaining \$.98 on a quarterly basis to the Pennsylvania Treasury Department.<sup>14</sup>

From the inception of the program to June 30, 2007, PEMA collected \$235.2 million<sup>15</sup> in surcharge fees from wireless phone customers as paid to their wireless providers, as shown in the table on the next page.

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<sup>13</sup> 35 P.S. § 7021.4(h).

<sup>14</sup> These funds are deposited into a fund known as the Wireless E-911 Emergency Services Fund.

<sup>15</sup> This is the balance of the gross receipts (surcharge) collected by providers, less the amount retained by the providers for administrative costs.

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<b>Total surcharges remitted by wireless providers from customers<sup>16</sup></b>	
<b>Fiscal Year</b> <i>(July 1 to June 30)</i>	<b>Amount</b>
2004-05	\$ 64.4 million
2005-06	80.1 million
2006-07	<u>90.7 million</u>
<b>Total</b>	<b>\$ 235.2 million</b>

From these remitted proceeds, PEMA is authorized to retain up to two percent to administer the system.<sup>17</sup> The remaining proceeds reimburse the emergency call centers and the wireless providers for costs associated with the program's deployment. In addition, PEMA used a portion of these remitted funds to pay an outside consultant for its professional services.

The following table summarizes the income and expenses of the PEMA Wireless E-911 Fund as of June 30, 2007:

<b>PEMA Wireless E-911 Fund Activity as of June 30, 2007</b>	
Total surcharges remitted	\$ 235,176, 325
Total interest earned	<u>4,447, 208</u>
Total income	<b>\$ 239,623,533</b>
Less: Payments to emergency call centers	\$ 214, 391,172
PEMA's administrative costs	3,157,102
Professional services	<u>6,157,771</u>
Total expenses	<b>\$ 223,706,045</b>
Cash balance as of June 30, 2007	<b>\$ 15,917,488</b>

<sup>16</sup> Data obtained from PEMA; Commonwealth of Pennsylvania, Department of Revenue, *Report of Revenue and Receipts*, Fund 166, <<http://www.revenue.state.pa.us/codesandreceipts>>, Accessed April 22, 2008.

<sup>17</sup> 35 P.S. § 7021.10.

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The General Assembly may also appropriate monies to the fund.<sup>18</sup> In fact, in 2004, the General Assembly did indeed appropriate \$25 million as a grant to the surcharge fund. The \$25 million was later returned to the commonwealth's General Fund after sufficient surcharge funds became available during the 2005-06 fiscal year.

**How are funds disbursed,  
and what are PEMA's priorities?**

PEMA is responsible for approving all disbursements from the Wireless E-911 Emergency Services Fund. Program funding disbursed to the 69 emergency call centers/public safety answering points is based on applications that the centers submit to PEMA annually.

The call centers submit applications setting forth their anticipated implementation expenditures for the fiscal year. PEMA reviews the funding applications and approves them; it subsequently approves the quarterly disbursement of funds to the call centers.

Since the inception of the program through June 30, 2007, PEMA has disbursed \$214.4 million to the emergency call centers—\$127.1 million in fiscal year 2005-06, and \$87.3 million in fiscal year 2006-07.<sup>19</sup>

PEMA established the following priorities for funding:

- PEMA's top priority was to fund expenditures related to Phase I deployment costs, such as equipment, systems, and services.

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<sup>18</sup> 35 P.S. § 7021.4(a).

<sup>19</sup> A breakdown of the \$214.4 million disbursed to the individual emergency call centers during the 2005-06 and 2006-07 fiscal years is contained in Appendix A.

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- PEMA then funded expenditures relating to Phase II deployment costs, such as equipment, systems, and services.
  - Finally, if program funds existed beyond the first two priorities, PEMA then would consider funding emergency call center personnel, maintenance, and other eligible expenditures.

PEMA is also responsible for approving claims that wireless providers submit for expenses incurred that are directly related to the E-911 deployment. As of April 30, 2008, PEMA had paid \$3.2 million to wireless providers.

**PEMA's mission and reorganization**

As described by PEMA, its mission is "to coordinate state agency response, including the Office of the State Fire Commissioner and Office of Homeland Security, to support county and local governments in the areas of civil defense, disaster mitigation and preparedness, planning, and response to and recovery from man-made or natural disasters."<sup>20</sup> All PEMA staff must pledge their commitment to assisting with disaster response.

According to interviews with PEMA officials, because of this need to be responsive to conditions that are not predictable, it has been difficult at times for PEMA to maintain continuity of operations in the wireless E-911 program, which has specific statutory deadlines that must be met, such as processing emergency call center applications in order to determine funding amounts by June 1 of each year.

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<sup>20</sup> PEMA, n.d., <<http://www.pema.state.pa.us/pema/cwp/browse.asp?a=213&pemaNav=|2253|>>, Accessed April 22, 2008.

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Beginning in the fall of 2007, PEMA started an internal re-organization that included filling key management positions and creating new positions such as the deputy director for administration. Recognizing a need for additional staffing due to its growing administrative responsibilities over 911 programs, PEMA also created the Bureau of 911 Programs and hired a director to lead this bureau. The administrative responsibilities of the 911 programs were previously assigned to staff within PEMA's Bureau of Technical Services.

As discussed in Finding One of this report, PEMA's current staff lacked the financial expertise to provide assurances that program funding was distributed and spent in accordance with the statewide plan. The proposed organization chart for the new bureau has at least seven new positions added so that, eventually, according to PEMA officials, PEMA can rely less on its telecommunications consultant and build an internal team with the financial and technical skills necessary to administer 911 programs.<sup>21</sup> Therefore, PEMA is currently working with the Governor's Office of Administration to develop new job classification specifications that will allow PEMA to hire employees with the skills necessary to meet all of the needs of the 911 programs.

**PEMA's external telecommunications consultant**

Headquartered in Ebensburg, Cambria County, L. Robert Kimball & Associates is a telecommunications consulting firm that maintains a division dedicated exclusively to assisting state, county, and local governments with planning, deploying, and testing wireless E-911 systems. Throughout this report, we have referred to the firm simply as PEMA's telecommunications consulting firm.

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<sup>21</sup> See Appendix C for a copy of the proposed organization chart for the Bureau of 911 Programs.



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The agreement between PEMA and its telecommunications consulting firm is outlined in four detailed purchase orders. These four purchase orders total more than \$12 million; the contracted work covered various aspects of the statewide E-911 system deployment for four years beginning in August 2004.<sup>22</sup>

According to PEMA officials, the responsibility of the telecommunications consulting firm has been to manage the overall implementation of the wireless E-911 system statewide, including the coordination of state and local activities necessary for deployment. More specifically, the firm assisted PEMA in the development of the state plan, established the requirements for the emergency call centers/public safety answering points to follow, and—beginning in June 2005—assessed the readiness of each county for deployment. The latter responsibility included the firm’s facilitation of monthly regional meetings with local 911 coordinators.

Regarding the actual local implementations, each of the 69 emergency call centers could select either PEMA’s telecommunications consulting firm as their deployment consultant or any other firm of their choice. Whatever their choice, the emergency call centers were eligible for state reimbursement for the consulting costs. All but 10 of the 69 call centers—or 59—chose PEMA’s telecommunications consulting firm as their consultant.

At least 35 of the 69 emergency call centers also entered into their own contract directly with PEMA’s telecommunications consulting firm to perform additional E-911 services not covered under its agreement with PEMA.

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<sup>22</sup> When we requested a contract between PEMA and its telecommunications consulting firm, PEMA officials explained that since the firm is on the Department of General Services approved vendor list and due to the time constraints with developing the state plan, PEMA hired the firm through the use of emergency purchase orders and not through the standard contract bidding process.

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**Objectives,  
Scope, and  
Methodology**

The Department of the Auditor General conducted this special performance audit in order to provide an independent assessment of PEMA's administration of the wireless E-911 emergency system. We conducted our work according to *Government Auditing Standards* as issued by the Comptroller General of the United States.

Our expectation is that the findings presented here will improve public accountability and facilitate corrective action where necessary.

**Objective**

We based our work on the following objective:

- Determine the effectiveness of PEMA's management of the statewide deployment of the wireless E-911 system and PEMA's progress toward meeting the goal of deploying all 69 emergency call centers/public safety answering points to Phase II by June 30, 2008.

**Scope**

Our audit covered the period of December 30, 2003, through June 30, 2007, unless otherwise indicated.

**Methodology**

To understand the wireless E-911 system and accomplish our objective, we reviewed pertinent information, including applicable laws and regulations; relevant policies and procedures, and program guidelines; conducted interviews with PEMA and officials from its telecommunications consulting firm, county coordinators, and others; and

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examined numerous documents pertaining to program funding and fiscal year-end reconciliations.

To compile statistics and other data for analysis, we used reports that PEMA provided to us, including the following:

- PEMA's *Statewide Wireless E-911 Plan*, version April 7, 2005
- PEMA *Report of Reconciled Wireless Funds for Fiscal Year 2005/2006 Statewide Summary*<sup>23</sup>
- PSAP funding applications for the 2005-06, 2006-07, and 2007-08 fiscal years

To evaluate the status of wireless E-911 statewide deployment, we consulted numerous other sources, including but not limited to the following:

- PEMA's online tracking system of call centers' wireless E-911 deployment, referred to as Web-Tools
- Interviews with employees of PEMA's telecommunications consulting firm who provide technical wireless E-911-related assistance to PEMA and local 911 coordinators
- Interviews with 14 local 911 coordinators
- An on-site visit to an emergency call center/public safety answering point

By August 2007, we completed most of our on-site audit work. After that date, we continued off-site audit work in our offices through December 9, 2007, including questions, interviews, and further data requests; we completed report-

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<sup>23</sup> According to PEMA, as of March 1, 2008, the agency was still working to finalize the reconciliation.

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writing activities and research through June 30, 2008. We provided a draft report to PEMA on August 5, 2008, and we received a written response (see Appendix D) on October 1, 2008.

We developed three findings during our review of PEMA's performance for the audit period, and we present 16 recommendations to address the issues we identified. We included time frames for the implementation of our recommendations, and we will follow up within the next 24 months to determine the status of the findings. In so doing, we will work collaboratively with the agency to meet an important government auditing guideline that promotes government accountability:

Government managers have fundamental responsibilities for carrying out government functions. Management of the audited entity is responsible for addressing the findings and recommendations of auditors, and for establishing and maintaining a process to track the status of such findings and recommendations.<sup>24</sup>

At the time of our follow-up, we will determine a subsequent course of action. For example, we may issue a status update jointly with the audited entity, issue an update independently, or conduct an entirely new audit.

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<sup>24</sup> A1.08 (f), Appendix I, *Government Auditing Standards*, July 2007 revision, U.S. Government Accountability Office.

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**Finding One****PEMA has inadequately staffed the wireless E-911 program, thereby causing some weaknesses in program controls and an over-reliance on its external consultant.**

As administrator of the statewide wireless E-911 program's deployment, PEMA managed the millions of dollars collected for the Wireless E-911 Emergency Services Fund. The bulk of this funding was distributed to the county emergency call centers/public safety answering points.<sup>25</sup> The centers in turn used the funding to pay for eligible implementation and maintenance expenses. (*Note: Please see footnote 1, page 1, for the definition of the term "public safety answering point" and how we have used that term in this report.*)

The Public Safety Emergency Telephone Act also permits PEMA to retain up to two percent of the annual wireless E-911 surcharge proceeds for its own expenses directly related to administering the system.<sup>26</sup>

In order to receive wireless E-911 funds, the emergency call centers/public safety answering points had to submit applications requesting funding no later than March 3 of each year.<sup>27</sup>

Between March 3 and June 1 of each year, PEMA's 911 staff evaluated the documents from the emergency call centers. These documents were intended to show (1) wireless E-911 system expenses that the entities expected to have over the next fiscal year, (2) expenses or eligible costs that the entities had already incurred but for which they had not yet been

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<sup>25</sup> The wireless providers also received funding in fiscal year 2007-08. The process for reimbursing the wireless providers for expenses is discussed in Finding Two.

<sup>26</sup> 35 P.S. § 7021.10.

<sup>27</sup> Emergency call centers can receive funding for *anticipated* costs as well as reimbursement for approved expenses that remain unpaid.

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reimbursed, or (3) a combination of the two.<sup>28</sup> On June 1 of each year, PEMA's 911 staff sent letters to the emergency call centers/public safety answering points to inform them of which of the requested funds were eligible for state reimbursement.

The following are examples of **eligible** items or services for which the emergency call centers could receive reimbursement:

- Lease, purchase, or maintenance of existing enhanced 911 service telephone equipment
- Back-up power and service for public safety answering points
- Geographic Information Systems (GIS) mapping software for Phase II location requirements
- Preparation of county E-911 plans and applications for funding
- Triennial audits required by the law<sup>29</sup>
- Continued operation and maintenance of wireless E-911 services
- Consumer education regarding wireless E-911 operations
- Salaries for those employees that work at the emergency call centers<sup>30</sup>

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<sup>28</sup> In the 2005-06 fiscal year, PEMA paid costs incurred by an emergency call center for wireless E-911 expenses prior to June 30, 2005, if the costs met the eligibility requirements and were incurred after January 1, 1998.

<sup>29</sup> 35 P.S. § 7021.5(e).

<sup>30</sup> PEMA *Statewide Wireless E-911 Plan*, version April 7, 2005, pp. 34-35.

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The following are examples of **non-eligible** uses of wireless E-911 funding:

- Any costs necessary to house the wireless E-911 system
- Any costs for the purchase of real estate, cosmetic remodeling, ambulances, fire engines, or other emergency vehicles, utilities, and taxes
- Computer-aided dispatch (CAD) system purchases, maintenance, or upgrades that facilitate only Phase I capability<sup>31</sup>

The oversight responsibilities handled by PEMA's 911 staff were primarily financial in nature during our audit period. Specifically, the 911 staff was responsible for determining the eligible expenditures and overseeing the disbursement and reconciliation of monies from the Wireless E-911 Emergency Services Fund.<sup>32</sup>

**PEMA staff was not well-suited for  
financial-oversight responsibilities**

Our audit revealed that PEMA's 911 staff did not have the financial expertise necessary to provide assurances to program stakeholders—including taxpayers—that program funding was being distributed and spent in accordance with the statewide plan.<sup>33</sup> For example, during the 2005-06 fiscal year, PEMA's limited financial oversight resulted in (1) spending of funds by emergency call centers not in accordance with their applications, or (2) cost-shifting of

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<sup>31</sup> Ibid., p. 36.

<sup>32</sup> See 35 P.S. § 7021.2(a)(2); 35 P.S. § 7021.5(c)(4).

<sup>33</sup> Stakeholders include PEMA, emergency call centers, 911 coordinators, the E-911 Emergency Services Advisory Committee and wireless advisory subcommittee (the committee and subcommittee were both created by the Public Safety Emergency Telephone Act), and PEMA's telecommunications consulting firm, among others.

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funds, which is not allowed, or (3) re-allocation of funds without PEMA's approval as required.<sup>34</sup> While one would expect that PEMA would learn of incorrect funding distributions as the result of the fiscal year-end reconciliations performed by the accounting firm working with PEMA's telecommunications consultant, such an expectation is not necessarily a correct one.<sup>35</sup> Because sampling methodology is used by the accounting firm to complete the reconciliations, the full extent of these unauthorized transactions, including their amounts, is unknown to PEMA.<sup>36</sup>

On a positive note, PEMA did take action to correct any unauthorized funding transactions that came to light during the reconciliation process. PEMA also addressed the deficiencies in its own procedures that had allowed the unauthorized reallocations of funding to occur; it did so by implementing new administrative procedures for fiscal year 2007-08.

In determining why PEMA's staff was not the best-suited to oversee the financial oversight responsibilities just discussed, we learned from PEMA that—prior to its requirement to begin administering the E-911 program in 2003—the 911 staff had not been responsible for this type of funding disbursement program. On one hand, it was reasonable to think that PEMA would be the logical agency to oversee the wireless E-911 implementation based on PEMA's knowledge

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<sup>34</sup> With PEMA's approval, emergency call centers can reallocate funds (move money from one eligible expense to another eligible expense) within a fiscal year. However, cost-shifting is not permitted. Cost-shifting occurs when an emergency call center moves money from an eligible expense to one that is not approved under the guidelines of that fiscal year, or when a center moves funds from one fiscal year to another.

<sup>35</sup> The Public Safety Emergency Telephone Act requires that PEMA determine whether payments made to emergency call centers during the fiscal year exceeded or were less than the eligible costs incurred by them. 35 P.S. § 7021.5(c)(4). PEMA refers to this process as a reconciliation.

<sup>36</sup> According to PEMA's *Report of Reconciled Wireless Funds for Fiscal Year 2005-2006 Statewide Summary* (p. 4), the accounting firm examined documentation for approximately 95 percent of expenditures, which included randomly selecting expenses between \$1,000 and \$15,000.



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of the state's 911 telecommunications system and its role in monitoring the landline programs of the emergency call centers. On the other hand, it was not reasonable for PEMA to handle this oversight when PEMA had such a limited number of 911 staff members, had previously been dedicated solely to landline communications, and did not have the financial experience, knowledge, or training to ensure the appropriate spending of program funds. In fact, the 911 staff specifically told us they had received no formal wireless or financial training to accompany their new E-911 mandate,<sup>37</sup> and that they learned about the wireless program and their related job responsibilities through professional conferences and/or on the job.

By way of corrective action, a PEMA official told us that 911 staff members will attempt in 2008 to obtain their Emergency Number Professional (ENP) certification, a certification that is awarded only to those candidates who can demonstrate a mastery of the comprehensive knowledge base required for wireless emergency number program management.<sup>38</sup>

**PEMA had only limited staff to assign to the  
wireless E-911 program**

As noted previously, PEMA did not have sufficient staff to administer the E-911 program effectively. During the audit period, there were only six staff positions assigned by PEMA to oversee the program, and only four of those six positions were filled.

In discussing this issue with PEMA officials, we learned that the four filled positions were occupied by employees originally assigned to the 911 section under the Bureau of

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<sup>37</sup> PEMA's *Administrative Policy*, Section 500, did not include any training courses pertaining to the administrative oversight of the wireless E-911 program.

<sup>38</sup> National Emergency Number Association (NENA), ENP Certification, <<http://www.nena.org/pages/ContentList.asp?CTID=37>>, Accessed April 22, 2008.

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Emergency Management Technical Services.<sup>39</sup> Prior to the 2003 creation of the wireless E-911 program, these employees had overseen the landline 911 emergency call system. When the employees became responsible for the new wireless E-911 program, they nonetheless continued to perform their assigned duties under the landline program with no additional assigned staff.

We also learned during our interviews with 911 staff members that their additional responsibilities made it difficult to keep up with their landline responsibilities, even with overtime, and that staff members were concerned about their inability to complete all their necessary work. For example, one goal of PEMA's 911 staff was to conduct an annual technical landline audit of each emergency call center to ensure that the centers complied with state rules and regulations regarding operations. However, we learned during our interviews with PEMA officials that the 911 staff had not completed even one audit over the past two years even though the staff had been responsible for conducting these audits previously.

We also determined that two emergency management specialist positions assigned to the 911 section were vacant during the audit period; in fact, one such position remained vacant for years. Staff placed in those positions would have been responsible for reviewing financial information in the funding applications submitted by the emergency call centers, reviewing and interpreting results of all county triennial audits, conducting site visits to the call centers to ensure efficient operation, analyzing the budgetary impact of wireless E-911, and coordinating activities involved with the fiscal oversight of the program. All these responsibilities are significant to the effective administration of the entire

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<sup>39</sup> During the audit period, the 911 staff included one telecommunications administrator, one radio telecommunications specialist 2, one telecommunications specialist 2, and one emergency management specialist.

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program. However, when we asked PEMA officials why each position had not been consistently filled, we were not provided with specific reasons for the vacancies.

We also learned during our interviews that PEMA had a set complement of 99 positions authorized by the governor's Office of Administration for "General Government Operations." According to a PEMA official, not only was this set complement low, but the job description for an emergency management specialist made it difficult to hire a person with extensive financial experience in the 911 section. Specifically, when considering filling the accounting-oriented position, PEMA was faced with the difficult decision of whether to look for a person with financial experience who could be taught 911, or to look for someone with 911 experience who could be taught the financial aspects.

Finally, we learned from PEMA officials that every PEMA employee—in addition to needing the necessary skills to perform his or her assigned responsibilities—must also stand ready to respond to disasters in support of PEMA's primary mission.

All the preceding factors show that the staffing of PEMA was not conducive—either in structure or in number—to administering the E-911 program as effectively as it should have been administered.

**Fiscal year-end reconciliations were performed  
by a firm hired by PEMA's telecommunications  
consulting firm and not by PEMA itself**

In accordance with the Public Safety Emergency Telephone Act, PEMA is responsible for determining whether payments made to emergency call centers/public safety answering points were more than, less than, or equal to the eligible costs

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that each center incurred.<sup>40</sup> This responsibility, known as an annual reconciliation, was performed not by PEMA but by an accounting firm that had partnered with PEMA's telecommunications consulting firm, the latter of which had participated in the administration of the funds in the first place.

The reconciliations involved the accountants compiling and reviewing data such as supporting documentation for all expenditures over \$15,000 and randomly selected expenses between \$1,000 and \$15,000, as well as reviewing invoices and copies of checks pertaining to program expenditures incurred by the emergency call centers during the preceding fiscal year.<sup>41</sup> The accounting firm did not perform on-site examinations of the emergency call centers' assets or operations and instead relied on the telecommunications consulting firm itself to determine if the centers' expenditures qualified as eligible expenses. Based on our interviews, as well as on information provided by the accounting firm, we determined that PEMA staff provided only minimal oversight and input regarding the reconciliations.

Considering that more than \$127 million in wireless E-911 funds were disbursed to emergency call centers during the 2005-06 fiscal year alone, we are concerned that PEMA's minimal oversight of the related reconciliations placed the process at risk. The risk arises based on the reasonable question of whether a conflict of interest existed—or an *appearance* of a conflict—because the telecommunications consulting firm, first, contracted with PEMA to consult with 59 of the call centers on their E-911 deployment; second, contracted separately with at least 35 of the emergency call centers directly to perform additional deployment work not covered in the firm's agreement with PEMA; and, third, also

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<sup>40</sup>35 P.S. § 7021.5(c)(4).

<sup>41</sup> PEMA, *Report of Reconciled Wireless Funds for Fiscal Year 2005-2006 Statewide Summary*.

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partnered with the accounting firm responsible for reconciling deployment expenditures. In fact, the Web site for the telecommunications consulting firm publicizes its relationship with the accounting firm as follows:

Managing and maintaining a fund that pays for the operations of a 9-1-1 center can be challenging. **L. Robert Kimball & Associates** has teamed with the accounting firm, **Thompson, Cobb, Bazilo & Associates PC (TCBA)** to provide complete 9-1-1 fund management and auditing services.<sup>42</sup>

Furthermore, the Web site narrative makes it difficult to determine whether the two entities are independent of one another:

**Benefits of Kimball / TCBA Services**

Our experts have knowledge of the telecommunications industry, an understanding of regional and statewide legislation and tariff procedures, and follow generally accepted accounting principles (GAAP) auditing procedures and standards. This combined knowledge base provides these benefits to our clients.

- Better management of fund resources
- Audit opinion
- Recommended user fees and fund budget

The partnership between Kimball and TCBA enables you to concentrate on what's most important: **the operation of a**

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<sup>42</sup> [http://www.lrkimball.com/Telecommunications%20and%20Technology/tele\\_experience\\_911funding.htm](http://www.lrkimball.com/Telecommunications%20and%20Technology/tele_experience_911funding.htm). Emphasis in bold appears on Web site. Accessed June 25, 2008, online.

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**reliable, efficient, and compliant E 9-1-1  
operation.**<sup>43</sup>

We can re-state and summarize our concerns as follows:

- PEMA's telecommunications consulting firm recommended and provided services to PEMA under an agreement with PEMA. PEMA paid the firm directly for these services.
- PEMA's telecommunications consulting firm also recommended and provided services to emergency call centers directly under agreements with them. PEMA ultimately paid for many of those services, too, by reimbursing the call centers.
- After making payments/reimbursements as discussed in the two preceding bullets, PEMA should have gotten independent assurance that all the paid-for or reimbursed services were appropriately rendered and correctly billed. However, because PEMA allowed this reconciliation to be performed by an accounting firm related to, and contracted by, the telecommunications consulting firm, there is a potential risk that the reconciliation process was not as independent as it should have been.

PEMA, along with its telecommunications consulting firm and the related accounting firm, clearly took a different view of the inter-relationships and did not consider them to be a problem for several reasons:

First, in addition to the annual reconciliements, the accounting firm also provided PEMA with various other reports during the year. These other reports documented the status of available funding and the call centers' expenditures that had

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<sup>43</sup> Ibid.

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been recommended by the telecommunications consulting firm. According to PEMA, the accounting firm did find, report (to PEMA), and make corrected adjustments for cases in which ineligible expenditures had been made, thereby demonstrating that the accounting firm exhibited independence from the telecommunications firm.

Second, the accounting firm affirmed in writing its work during the reconciliation process. For example, in a reconciliation report prepared by the accounting firm, the accounting firm noted the following to affirm its work: “We reviewed all costs with [the telecommunications firm] to identify items that were not considered by PEMA to be eligible uses of the wireless fund.”

Third, PEMA takes the position that the annual funding reconciliations are not “audits” and, therefore, it is not necessary to follow independence requirements under generally accepted government auditing standards.<sup>44</sup>

Despite the above rationales, it is our position that, even if the reconciliations are not “audits,” and even though the accounting firm may have notified PEMA when reconciliations resulted in adjustments, PEMA itself should have controlled the reconciliation process. An independent evaluation of decisions on expenditure eligibility and on the documents to support those decisions should not have been left to the decision-making entity or to its partner.

In summary, if PEMA was unable to perform the reconciliations on its own, it should have contracted with another accounting firm rather than with one that, by appearances, had an affiliated interest in the outcome.

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<sup>44</sup> Standard 3.07, *Government Auditing Standards*, July 2007 revision, U.S. Government Accountability Office. This standard requires auditors to be “free from personal impairments to independence,” such as “financial interest that is direct... in the audited entity or program.”

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**PEMA failed to conduct triennial site visits**

The fiscal year-end reconciliation procedures of PEMA required it to conduct a site visit to each emergency call center/public safety answering point once every three years for the purpose of verifying equipment purchases, documenting expenditures, and confirming other compliance criteria. These visits should be conducted after the fiscal-year end of June 30.<sup>45</sup>

For the 2005-06 fiscal year, PEMA conducted site visits to 25 of the 69 emergency call centers/public safety answering points. For the 2006-07 fiscal year, PEMA planned to conduct approximately 22 site visits, and also to make follow-up visits to some of the centers visited during the prior year.

We learned from our interviews with PEMA officials that it only conducted three of those site visits planned for 2006-07.<sup>46</sup> Therefore, it is unlikely that PEMA would meet its requirement to make site visits to all 69 locations within the planned three-year period.

The inability of PEMA to visit all 69 emergency call centers is problematic. Since PEMA distributed, on average, more than \$100 million to emergency call centers annually for their expenses relating to staffing and equipment, site visits are critical for PEMA to ensure the integrity of the program. Otherwise, PEMA cannot ascertain that the funds it disbursed actually resulted in the purchase of the related assets, and that funds were otherwise spent in accordance with statutory and program requirements.

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<sup>45</sup> PEMA's administrative procedures, *Fiscal Year 2007-2008 Annual Reconciliation of Wireless Funds*, January 29, 2007, p. 2.

<sup>46</sup> The official attributed the postponement of the site visits to an internal reorganization of staffing at PEMA which was in progress at the time of the interview.



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Regarding the 25 site visits made by PEMA during the 2005-06 fiscal year, we acknowledge that PEMA acted responsibly in making those visits. However, we determined that the 911 staff had no written procedures to ensure that the on-site visits were standardized. In addition, we found that PEMA notified the 25 call centers in advance of each visit to let them know what documents they should have available for PEMA's review. We also found that, based on our own review of site-visit documents, PEMA's 911 staff reviewed and made copies of only a sample of invoices for assets and vendor services that the call centers reported they had purchased during the year. PEMA staff did not actually verify the existence of all the assets that the centers said they had purchased.

During the audit period, PEMA should have maintained a master listing of all the assets purchased by the emergency call centers using the wireless E-911 funds. PEMA did not maintain such a list; however, PEMA officials did tell us that they and the telecommunications consulting firm were developing a computerized inventory program to identify, record, and track the purchased assets. PEMA expected to maintain the master listing in such a way that inventories could also be identified by individual call centers and could then be used by PEMA officials during site visits to verify the existence of those assets. Unfortunately, as of June 2008, PEMA had not yet completed the computerized inventory program.

**Emergency call centers were also required  
to provide PEMA with an independent financial audit  
of their expenditures**

Emergency call centers/public safety answering points were required to provide PEMA with an independent financial audit of program expenditures covering a three-year period.<sup>47</sup>

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<sup>47</sup> 35 P.S. § 7021.5(e).

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According to PEMA officials, the call centers were providing the financial audits in compliance with this requirement.

**Recommendations**

1. PEMA should immediately fill both of the vacant positions in its 911 section. *Target date: Immediate*
2. PEMA should reclassify certain positions in its 911 section requiring them to meet minimum financial experience standards. If current employees who fill those positions need training, PEMA should provide that training. *Target date: December 31, 2008*
3. PEMA should determine the appropriate number of staff necessary to provide sufficient accountability and oversight of the wireless E-911 program, and then request that the governor's Office of Administration address the staffing issue. *Target date: December 31, 2008*
4. PEMA should strengthen its oversight procedures by requiring that annual site visits be conducted of every one of the 69 emergency call centers and by maintaining a computerized master inventory program. *Target date: December 31, 2008*
5. PEMA itself should conduct the fiscal year-end reconciliations that instead have been conducted by an accounting firm with ties to PEMA's telecommunications consulting firm that provides deployment services to the emergency call centers. If staffing or other limitations prohibit PEMA from conducting the reconciliations on its own, PEMA should contract directly with an accounting firm that has no ties to the consulting firm. Additionally, PEMA must increase its involvement in the reconciliation process and in reviewing eligible expenses. *Target date: December 31, 2008*

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**Finding Two**

**PEMA did not ensure that the \$214 million collected from consumers via surcharges was distributed to emergency call centers prudently.**

It is imperative for PEMA to disburse taxpayer money prudently and appropriately to Pennsylvania's 69 emergency call centers/public safety answering points in accordance with the Public Safety Emergency Telephone Act, especially since requests made by the emergency call centers outpaced available monies each year. As a result, PEMA was unable to give the call centers the entire amounts they requested.<sup>48</sup>

In reducing the amounts of the requests from any one of the 69 emergency call centers, PEMA did so by a fixed percentage, thereby reducing every call center's request by the same percentage. Therefore, although PEMA *approved* call center funding requests totaling more than \$300 million from July 1, 2005, through June 30, 2007, it actually *disbursed* a percentage of the \$300 million, or \$214.4 million, to the call centers during that time.<sup>49</sup>

Every disbursed tax dollar is important; however, each disbursed tax dollar becomes even *more* significant to the requesting call centers when their requests must be reduced because they exceed the amounts available. It is critical for PEMA to allocate funds appropriately—that is, to ensure that requests are reviewed and approved in accordance with eligibility requirements, and to ensure that the funds are distributed prudently to all 69 emergency call centers. If the funds are not distributed prudently based on proper reviews and approvals by PEMA, then call centers—and the taxpayers that fund them and receive their services—become

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<sup>48</sup> See 35 P.S. § 7021.5.

<sup>49</sup> The \$85.6 million not paid to the emergency call centers from July 1, 2005, through June 30, 2007, will be paid by PEMA as it continues to collect surcharge fees, but only if the emergency call centers document that a continued need for the funding still exists. Additionally, although \$235.2 million was collected from providers, due to the timing of disbursements, not all funds were disbursed as of June 30, 2007.

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the victims of any inequities. Unfortunately, we did find some deficiencies in the distribution process, and we discuss those deficiencies in the pages that follow.

**PEMA approved funding applications  
without requiring supporting documentation**

PEMA outlined in its *Statewide Wireless E-911 Plan* the items and services for which emergency call centers/public safety answering points could receive funding. However, it was not until the third year of the program that PEMA required the emergency call centers to provide documentation at the time of their application so that PEMA could verify the eligibility of the planned expenditures.

For the first and second years of the program—fiscal years 2005-06 and 2006-07—when PEMA did not require the call centers to document their applied-for expenditures, we found that PEMA approved ineligible expenditures. PEMA then relied on the fiscal year-end reconciliations of the emergency call centers to identify funding overpayments.

According to PEMA, the reconciliation process for the 2005-06 fiscal year revealed that ineligible expenditures totaling \$44,000<sup>50</sup> had been approved by PEMA and paid to the emergency call centers. However, also according to PEMA, it later recouped that mistakenly paid funding.

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<sup>50</sup> Beginning on page 23 of Finding One, we discuss the problems with the reconciliation process and therefore, we note here that the \$44,000 in ineligible expenditures is a *minimum* number. The actual number could be much higher.

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**PEMA lacked clear guidelines for determining the  
eligibility of expenditures**

Statewide 911 coordinators told us during interviews that PEMA's funding application guidelines were not clear during the first two fiscal years of the program. The information discussed in the preceding section supports the claims of the 911 coordinators.

In addition to the lack of clarity they experienced, statewide 911 coordinators also discussed with us their concerns that funding may not have been fairly distributed among all the emergency call centers. For example, one 911 coordinator whom we interviewed told us that, when he asked for guidance about what would be eligible, PEMA informed him simply to request funding for *all* program expenses. If some 911 coordinators received that same guidance and acted upon it while others did not, there is a strong likelihood that funding was indeed distributed inequitably.

Our interviews with 911 coordinators revealed frustration, too, in addition to confusion about the lack of clear guidance. The frustration occurred particularly when requested expenditures had been approved and funded by PEMA but then subsequently denied through the reconciliation process. Many of the 911 coordinators we interviewed said they perceived PEMA as being inconsistent.

PEMA staff members acknowledged that they did not initially give emergency call centers clear guidance regarding eligible expenditures. However, PEMA addressed this problem by revising the guidelines for eligible expenditures for the 2007-08 fiscal year. Because the technology was changing and the needs of the call centers were also changing, PEMA was able to both tighten up and refocus the guidelines. These revised guidelines provided more detail and specifics regarding allowable expenditures.

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**PEMA lacked written standard procedures defining its  
review and approval of funding applications**

We also found that, throughout the audit period, PEMA did not itself have written standard procedures to guide its 911 staff as it reviewed and approved the emergency call centers' funding applications. Nor did PEMA have written standard procedures for its executives to approve the applications. This lack of written procedures could have contributed to PEMA's mistaken approvals of reimbursements to call centers for some of the expenditures.

In discussing these issues with PEMA, we learned that the 911 staff within PEMA functioned as a team in reviewing and approving funding applications. A PEMA official also explained that, in most cases, it was the 911 staff who had final approval of the applications and that the approvals did not routinely reach the executive level. Instead, according to the official, PEMA's wireless advisory subcommittee reviewed application requests for which the 911 staff members could not determine the eligibility of those requests.<sup>51</sup> In such cases, the subcommittee made a recommendation to either approve or deny the request, and PEMA's executive director then made the ultimate decision. Otherwise, the director's involvement was not required in the review and approval of applications, other than to sign the letters sent to each emergency call center to confirm the funding amount approved.

We reiterate that PEMA's lack of written standard procedures relating to the funding application approval

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<sup>51</sup> The wireless advisory subcommittee is comprised of 13 members of the E-911 Emergency Services Advisory Committee, and it makes recommendations to PEMA regarding issues such as the development of guidelines, rules, and regulations to administer the Wireless E-911 Emergency Services Fund and the *Statewide Wireless E-911 Plan*. The subcommittee members are appointed by the governor and include the PEMA director or a designee, two county commissioners, four county 911 coordinators, four wireless carrier representatives, and two landline representatives. 35 P.S. § 7021.3(e)(1).

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process most likely contributed to ineligible expenditures being funded. Ultimately, without specific procedures in place, PEMA could assure neither itself nor taxpayers that it had sufficient control over the proper disbursement of more than \$214 million in program funding.

**The law did not authorize PEMA to set spending limits on the emergency call centers' program expenditures**

The Public Safety Emergency Telephone Act does not address the matter of spending limits for individual expenditures made by emergency call centers. For that reason, PEMA was not authorized to set a limit to delineate the maximum amount it could pay to a call center for approved wireless E-911 expenditures, including major capital expenses.

A PEMA official told us that, because PEMA did not have the authority to set spending limits, some emergency call centers chose to purchase costly, high-end models of equipment while others purchased cheaper, low-end models. This disparity occurred because the guidelines were unclear and the communications between PEMA and the call centers were inadequate. As a result, some of the 911 coordinators we interviewed questioned the equity of PEMA's funding approval process.

During our audit period, PEMA staff attempted to address perceived inequities by developing a range of costs applicable to various expenditures that the emergency call centers could be expected to make. This range then served as a guide during the funding approval process. If a call center's planned expenditures fell outside the range, PEMA requested additional documentation to support the specific request.

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Despite PEMA's initiative to develop cost ranges, these cost ranges were guides and therefore not binding. Accordingly, without authority to place limits on spending requests, PEMA still believed it had no authority to deny funding requests that it considered to be too expensive. To facilitate the prudent distribution of the funds, PEMA should pursue legislative change that would allow PEMA to set spending limits.

**PEMA had limited oversight of the cost recovery  
process utilized by wireless providers**

According to the Public Safety Emergency Telephone Act, wireless providers are permitted to retain two percent of their gross receipts as reimbursement for administrative costs incurred for billing, collection, and remittance of the surcharge to the state.<sup>52</sup> Additionally, wireless providers are eligible for reimbursement from the wireless E-911 fund for the following costs:

Recurring... and... [n]onrecurring costs approved by [PEMA]... associated with the development, implementation, operation and maintenance of wireless E-911 service in the geographic area served by the requesting PSAP.<sup>53</sup>

Also according to PEMA, wireless providers can seek reimbursement of costs associated with system deployment via one of two methods:

1. The first method requires providers to submit cost recovery plans to PEMA. PEMA then reviews the

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<sup>52</sup> The Public Safety Emergency Telephone Act established that payments to emergency call centers for approved costs must take priority over payments to wireless providers for approved costs [35 P.S. § 7021.4(d)(1)]; however, approved Phase I costs for both call centers and wireless providers take priority over approved Phase II costs for call centers and wireless providers. 35 P.S. § 7021.5(c)(1)-(3).

<sup>53</sup> 35 P.S. § 7021.4(d)(2)(i),(ii).



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actual expenses submitted in relation to the plan and makes a determination on the eligibility and validity of the recovery claim. The provider is then reimbursed with E-911 funds.

2. The second method allows wireless providers to recover their costs for implementing and maintaining wireless E-911 services directly from their customers rather than from the wireless E-911 fund. This direct recovery of costs by the providers can be accomplished through itemization on customers' bills or by any other lawful means.<sup>54</sup>

The law provides that costs recovered by the wireless providers may not *also* be reimbursed from the wireless E-911 fund.<sup>55</sup> Stated more simply, wireless providers may not recover their costs twice. However, neither PEMA nor its telecommunications consulting firm had access to wireless providers' internal customer billing records. With no such access, PEMA and its consulting firm had no way to determine if the wireless providers who submitted cost recovery plans to PEMA *also* recouped their costs through customer billings. Instead, PEMA had to rely on wireless providers to submit recovery plans only for costs unreimbursed by customers.

The telecommunications consulting firm has noted that, to protect the integrity of the E-911 fund, the law is especially important in prohibiting wireless providers from recovering funds through both methods. At the same time, the consulting firm has acknowledged that it would be "difficult and time-consuming" to determine if funds are being recovered in accordance with the law, and that PEMA may need to require an audit of providers in order to do so.

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<sup>54</sup> See 35 P.S. § 7021.4(d)(5).

<sup>55</sup> *Id.*

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As one example of the difficulty related to this provision of law, we found that, according to PEMA, three wireless providers submitted invoices totaling \$21.5 million related to cost recoveries. PEMA, relying on its telecommunications consulting firm's cost-recovery policies and procedures to establish whether the provider-requested reimbursements were appropriate, found that **85 percent** of the providers' requested \$21.5 million included ineligible—**and therefore unreimbursable**—expenses.<sup>56</sup> Accordingly, PEMA reduced the approved reimbursements to approximately \$3.2 million, which was paid during the 2007-08 fiscal year.

Overall, even though PEMA reviewed provider recovery claims and reduced them so significantly, PEMA was still unable to determine if providers were attempting to be reimbursed twice, once from their customers and once from PEMA. This deficiency leaves PEMA unable to ensure the proper use of program funding.

We found a basic but additional deficiency when we asked PEMA to tell us the number of wireless providers that might be eligible for cost recoveries related to the wireless E-911 program. Specifically, PEMA could not give us the exact number of wireless service providers operating at any one time within Pennsylvania because of the rapid turnover in the industry, particularly with smaller and less-known providers. There were approximately 62 providers operating in Pennsylvania as of April 2007, according to PEMA.

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<sup>56</sup> These dollar amounts were obtained from PEMA's *Annual 9-1-1 Program Status Report FY 2006-2007*, dated March 1, 2008, found on PEMA's Web site. The report is available online at <[http://www.pema.state.pa.us/pema/lib/pema/governors\\_report\\_2007\\_rev.pdf](http://www.pema.state.pa.us/pema/lib/pema/governors_report_2007_rev.pdf)>. Accessed April 15, 2008; re-verified June 30, 2008.

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**PEMA has steadily improved  
the funding process**

In addition to the changes mentioned previously in this finding, we found PEMA has taken other positive steps to improve its administration of the wireless E-911 program. For example, in order to streamline the funding application process and provide current information to 911 coordinators statewide, PEMA and its telecommunications consulting firm developed an online program called Web-Tools that all 69 emergency call centers/public safety answering points can access from their county offices.

Implemented during the 2006-07 fiscal year, Web-Tools included an online application that emergency call centers could use to request funding.

The Web-Tools program allowed emergency call centers to apply for funds online; Web-Tools also allowed PEMA to process funding applications more efficiently. Web-Tools also included additional useful information, such as a map of the state showing each county's deployment status—Phase 0, I, or II.

**Recommendations**

6. PEMA should continue efforts to clarify, enhance, and standardize its wireless E-911 application procedures and processes to ensure that emergency call centers receive an equitable, efficient, and accurate disbursement of taxpayer dollars. *Target date: December 31, 2008*
7. PEMA should develop procedures to document clearly the line of authority to follow for approving applications submitted by the emergency call centers, including documentation that PEMA's executive

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management has reviewed and approved the funding decisions made by its 911 staff. *Target date: December 31, 2008*

8. PEMA should seek to amend the Public Safety Emergency Telephone Act for authorization to establish maximum spending limits for expenditures made by emergency call centers, thereby better ensuring the prudent use of taxpayer dollars. *Target date: December 31, 2008*
9. PEMA should implement procedures to prevent wireless providers from recovering costs both from the fund *and* directly from wireless customers. *Target date: December 31, 2008*

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**PEMA has not taken definitive action to address concerns that will have significant impact on the wireless E-911 program in the future.**

Through our interviews and reviews of documentation provided by PEMA and its telecommunications consulting firm, we have determined that PEMA faces deadlines and several other challenges such as the following:

- PEMA contracted with its telecommunications consulting firm for extensive technical and consulting services. PEMA could not absorb the loss of the firm's services when the contract expires unless there are significant changes in PEMA's staffing levels.
- The Public Safety Emergency Telephone Act requires that the wireless E-911 surcharge will terminate on June 30, 2009, unless extended by an act of the General Assembly.<sup>57</sup> Without the surcharge or an alternative source of funding to provide for the ongoing deployment and maintenance of wireless E-911, delays in deployment schedules may occur and some of the emergency call centers are likely to face financial difficulties related to the E-911 program.
- PEMA faces the challenge of having to incorporate future technological advances into the state's existing 911 system, as it has done with wireless E-911. Taking on additional responsibilities would be difficult with current staffing levels.
- Gaps in wireless E-911 coverage will exist in the commonwealth even after all 69 of the emergency call centers reach Phase II deployment. Although the gaps in coverage are typically beyond PEMA's control as we explain later in this finding, PEMA could nonetheless

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<sup>57</sup> 35 P.S. § 7021.4(h).

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attempt to work proactively with providers and others to look for solutions.

- Interviews with 911 coordinators revealed that some were not aware that wireless E-911 funds were available to educate the public about wireless E-911.

PEMA officials have acknowledged that the preceding challenges must be addressed and, in some cases, have already taken preliminary action to do so. The narrative that follows discusses each of the challenges in more detail.

**Extension of the agreement between  
PEMA and its telecommunications  
consulting firm**

Since the inception of the program, PEMA's lack of wireless experience led the agency to rely heavily on its telecommunications consulting firm in administering the wireless E-911 program. As we presented earlier in this report, the PEMA staff assigned to the wireless E-911 program received no formal training related to either wireless E-911 or project management.<sup>58</sup> Instead, the staff's knowledge came from on-the-job training provided by the consulting firm. Therefore, PEMA lacked its own knowledge base and experience that would allow more independence in its oversight of the consulting firm's work.

The telecommunications consulting firm's four-year, \$12-million contract with PEMA had been set to end on June 30, 2008.<sup>59</sup> Again, PEMA relied heavily—almost exclusively, in fact—on the firm's skills, knowledge, and assistance, including the firm's review/updating of technical standards, its

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<sup>58</sup> PEMA's *Administrative Policy*, Section 500, which applies to members of the 911 staff, did not include any training courses pertaining to the administrative oversight of the wireless E-911 program.

<sup>59</sup> As explained on the next page, the firm's contract has been extended for one year until June 30, 2009.

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development of annual financial projections, and its tracking of all financial requests and disbursements. In addition, the consulting firm partnered with an accounting firm to complete the year-end reconciliations for the emergency call centers, an issue we discussed in Finding One.

PEMA told us that it tracked the progress of the telecommunications consulting firm's work by using the Web-Tools system application and by participating in 30-minute weekly conference calls involving both parties. The consulting firm also submitted invoices for the services it rendered, and PEMA reviewed and approved those invoices for payment.

PEMA has said its staff would likely be unprepared to take over the telecommunications consulting firm's workload if the contract ended and that, if it did end, there was no plan for PEMA to assume the firm's responsibilities. However, as of June 27, 2008, PEMA officials told us that a one-year extension of the consulting firm's contract was approved by the state's Department of General Services, to end on June 30, 2009. This extension will allow additional payments to the consulting firm in the amount of \$2.14 million.

PEMA and its consulting firm continue to work together to assist the emergency call centers in their efforts to reach full Phase II deployment. As of June 30, 2008, there were still 11 call centers that had not advanced beyond Phase 0 based on a variety of reasons.<sup>60</sup> **We reiterate that program participation is voluntary and that 911 coordinators are not required to report to, or answer to, the telecommunications firm or to PEMA officials.**

Nevertheless, based on PEMA's 911 staffing levels and the level of technical expertise needed to properly assist 911 coordinators with system deployment, we agree with PEMA

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<sup>60</sup> We noted that the telecommunications consulting firm's documentation showed emergency call centers deployment being delayed for reasons related to new or remodeled facilities, internal issues, and equipment.

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officials that outside assistance such as that provided by the consulting firm is needed for further deployment.

**Continuation of wireless E-911 surcharge**

According to PEMA staff, even after the emergency call centers deploy to Phase II, the centers will continue to need state funding to maintain and operate their wireless E-911 systems, pay for recurring personnel costs, and replace equipment. Additionally, because the county landline surcharge funds are decreasing, many of the emergency call centers would be unable to continue in the wireless E-911 program without funds from the wireless surcharge.<sup>61</sup>

PEMA told us also that, because the program relies on available funds and not on anticipated funds, the 911 call centers would be responsible for paying any existing debts if the surcharge sunsets. We note, however, that the Public Safety Emergency Telephone Act allows the General Assembly to appropriate monies to the surcharge fund at any time, an action that could relieve the emergency call centers from having to cover a potential shortfall.<sup>62</sup>

As noted previously, PEMA information showed that 11 call centers had not reached Phase I status as of June 30, 2008. We therefore concluded that the General Assembly should consider continuing the surcharge beyond its June 30, 2009, sunset date. In so doing, the General Assembly should also consider extending the surcharge to other users of telecommunications devices from which 911 calls can be made, including wireless systems installed in automobiles, as

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<sup>61</sup> According to a PEMA official, personnel costs are shared between landline funds and wireless funds, but emergency call centers are receiving insufficient landline surcharge monies to cover this recurring cost because more people are choosing to use their wireless phones as their only home telephone. A 911 coordinator indicated it would be difficult if not impossible for many counties to continue to provide 911 services without the wireless E-911 funds.

<sup>62</sup> 35 P.S. § 7021.4(a).



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well as systems that allow 911 calls to be made over the Internet (called Voice over Internet Protocol, VoIP).

Obviously, expanding the surcharge would increase available program funding, as well as more fairly charge all who access the E-911 system.

**Expectation of evolving technology**

The nation's 911 system was not created to handle the new wireless and Internet-based technologies. Use of these technologies is increasing rapidly. For example, a published report put the number of subscribers to Voice over Internet Protocol at 3 million in February 2006 and projected an increase to more than 27 million by 2009.<sup>63</sup>

Pennsylvania's General Assembly has been considering a bill that would put PEMA in charge of overseeing the state's implementation of 911 services for calls made through Voice over Internet Protocol technology.<sup>64</sup> But if PEMA had been assigned to manage and deploy any additional 911 telecommunications systems such as VoIP during the audit period, PEMA's limited 911 staff would have been even more strained.

As the wireless E-911 equipment at the emergency call centers becomes obsolete or defective, the equipment will need to be replaced. Additionally, it is likely that the call centers will need new equipment to support the VoIP technology. Overall, PEMA will need to keep pace with

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<sup>63</sup> NENA, *Next Generation 911: Responding to an Urgent Need for Change*, February 2006, <[http://www.nena.org/media/files/ng\\_final\\_copy\\_lo-rez.pdf](http://www.nena.org/media/files/ng_final_copy_lo-rez.pdf)>, Accessed April 22, 2008.

<sup>64</sup> Senate Bill 385 (P.N. 1152) of the 2007-08 state legislative session would amend the Public Safety Emergency Telephone Act to provide for interconnected Voice over Internet Protocol service and establish the VoIP 911 Emergency Services Fund. The bill passed the Senate by a vote of 50-0 on June 12, 2007, and was referred to the House Veterans Affairs and Emergency Preparedness Committee on June 20, 2007. As of June 30, 2008, the bill was still being considered by the House of Representatives.

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continually evolving emergency communications systems, and will need to evaluate the need for replacement equipment, in order to effectively integrate new equipment and technology into the commonwealth's 911 system.

**Gaps in coverage that are outside of PEMA's control  
may still exist after Phase II deployment**

According to PEMA and officials from its telecommunications consulting firm, Pennsylvania will continue to experience gaps in wireless E-911 coverage even after all the state's 69 emergency call centers have fully deployed their wireless E-911 systems. We learned from our interviews that gaps in coverage will most likely be caused by a lack of wireless towers in less-populated areas, thereby preventing wireless callers from sending and/or receiving information over their wireless phones. Furthermore, because of factors such as the caller's location, weather conditions, geography, and call volume, these gaps could occur at any time and in any Pennsylvania county. Likewise, there may be gaps in coverage as callers move from one particular point to another, such as when driving.

Officials from PEMA and its consulting firm also told us that wireless towers are owned and maintained by the wireless providers, and it is therefore the providers who typically determine where the towers are placed based on economic and other financial considerations. However, it is the federal government (i.e., the Federal Communications Commission), not PEMA, that regulates the wireless providers. Accordingly, PEMA cannot control where the wireless providers place their towers.

Furthermore, it is not only the location of wireless towers that contributes to the coverage and successful transmission of wireless calls. Also affecting coverage is the equipment used by providers and callers—that is, whether equipment used by

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one provider is compatible with that of another provider and the equipment used by the emergency call centers.

The preceding issues illustrate considerable obstacles to implementing PEMA's *Statewide Wireless E-911 Plan*, which states that one goal of the wireless E-911 program is to provide "an integrated statewide wireless E-911 system, where all Pennsylvania residents have the same level of wireless E-911 service no matter where they live or travel in the commonwealth."<sup>65</sup> An official from the telecommunications consulting firm acknowledged that this goal is attainable only in areas with wireless coverage but that all areas in Pennsylvania with wireless coverage should have the same level of wireless E-911 service once the system is deployed statewide. However, the official further stated that, even in areas with wireless coverage, there is no guarantee that all calls will be transmitted successfully.

The majority of 911 coordinators we interviewed also indicated they expect to see gaps in coverage even after full deployment to Phase II.<sup>66</sup> Despite these inherent obstacles, PEMA should engage state officials to work with wireless providers to find solutions or incentives to expand statewide coverage. Even though the wireless providers do not fall under PEMA's authority, there is nothing to prohibit PEMA from attempting where possible to engage the providers in proactive discussions.

**Awareness of E-911 capabilities**

The Public Safety Emergency Telephone Act allows emergency call centers to utilize wireless E-911 funds to educate consumers about the operations, limitations, role, and

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<sup>65</sup> PEMA *Statewide Wireless E-911 Plan*, version April 7, 2005, p. 5.

<sup>66</sup> The thirteen 911 coordinators we selected to survey were chosen in a manner to be representative of the entire state.

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responsible use of wireless E-911 service.<sup>67</sup> Nevertheless, our review of funding applications submitted during the audit period showed that only a few emergency call centers requested funding for this purpose. When we asked 911 coordinators if they would apply for public education funding in the future, 12 of 13 said they would; however, 4 of those 12 indicated they were not aware that funding was available until we mentioned it to them.

According to PEMA, it encourages but cannot mandate that emergency call centers educate or inform the public about wireless E-911 service. For its part, PEMA lists “costs incurred to educate consumers” as an eligible use of funding in the statewide plan, but PEMA should be far more proactive. Public awareness of emergency communications is essential to improving public safety.

**Recommendations**

PEMA should take the following steps to address concerns that will have significant impact on the wireless E-911 program in the future:

10. PEMA should assess its future needs for administering the wireless E-911 program and determine the role of its telecommunications consulting firm *before* structuring any future contracts with that firm. *Target date: Immediate*
11. PEMA should immediately begin developing a transition plan with a timeline so that the agency can have its own qualified and trained staff to manage the wireless E-911 program, instead of having the telecommunications consulting firm manage the program. *Target date: Immediate*

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<sup>67</sup> 35 P.S. § 7021.5(a)(3).

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12. PEMA should work with local and state officials as well as wireless providers to determine the future funding needs of the wireless E-911 program. *Target date: Immediate*
  13. PEMA should seek to amend state law in order to expand the surcharge to *all* users of telecommunications devices that utilize 911 services (if the surcharge is continued). *Target date: December 31, 2008*
  14. PEMA should engage local and state officials as well as wireless providers to formulate ideas for minimizing or, ideally, completely eliminating the gaps in wireless coverage throughout the state. Furthermore, even though wireless providers are regulated by the federal government, PEMA should also do what it can to encourage wireless providers to expand access to wireless communication throughout the state. *Target date: December 31, 2008*
  15. PEMA should evaluate its evolving role as the state's E-911 program administrator in anticipation of future telecommunications technologies that may result in additional responsibilities. *Target date: December 31, 2008*
  16. PEMA should increase awareness among 911 coordinators that wireless E-911 funds are available for public education; in addition, PEMA should encourage 911 coordinators to utilize these funds to inform the public about gaps in service coverage and use of the system overall. *Target date: Immediate*

## Appendix A

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**Appendix A****Total Surcharge Funds Disbursed to Emergency Call Centers**

	<i>As of 6/30/2008</i>	<i>FY 2005-06</i>	<i>FY 2006-07</i>	
<i>Emergency call center</i>	<i>Deployment phase</i>	<i>Disbursement amount</i>	<i>Disbursement amount</i>	<i>Two-year disbursement total</i>
Adams County	2	\$327,621.72	\$74,206.36	\$401,828.08
Allegheny County	2	\$13,980,719.44	\$706,204.22	\$14,686,923.66
Armstrong County	2	\$674,629.00	\$487,585.12	\$1,162,214.12
Beaver County	1 ***	\$157,863.00	\$1,614,970.99	\$1,772,833.99
Bedford County	0 **	\$257,533.00	\$850,902.24	\$1,108,435.24
Berks County	2	\$888,417.12	\$2,672,357.11	\$3,560,774.23
Blair County	2	\$1,403,279.80	\$292,703.52	\$1,695,983.32
Bradford County	2	\$823,418.00	\$1,398,528.15	\$2,221,946.15
Bucks County	0	\$1,815,200.00	\$898,886.15	\$2,714,086.15
Butler County	2	\$1,078,179.20	\$41,983.98	\$1,120,163.18
Cambria County	2	\$2,663,591.08	\$722,538.36	\$3,386,129.44
Cameron County	2	\$453,736.00	\$184,423.39	\$638,159.39
Carbon County	2	\$1,703,172.00	\$314,888.92	\$2,018,060.92
Centre County	2	\$1,110,270.00	\$12,313.77	\$1,122,583.77
Chester County	2	\$3,646,903.00	\$9,891,724.00	\$13,538,627.00
City of Allentown	2	\$34,484.80	\$1,481,563.20	\$1,516,048.00
City of Bethlehem	2	\$849,486.00	\$714,517.34	\$1,564,003.34
Clarion County	2	\$982,687.00	\$87,279.14	\$1,069,966.14
Clearfield County	2	\$380,499.64	\$569,701.63	\$950,201.27
Clinton County	2	\$343,941.12	\$30,319.08	\$374,260.20
Columbia County	2	\$1,191,400.00	\$506,102.23	\$1,697,502.23
Crawford County	2	\$454,603.96	\$474,570.80	\$929,174.76
Cumberland County	2	\$258,034.92	\$1,577,273.00	\$1,835,307.92
Dauphin County	2	\$27,431.00	\$7,439,374.05	\$7,466,805.05
Delaware County	2	\$7,166,928.32	\$6,267,740.89	\$13,434,669.21
Elk County	2	\$310,707.00	\$61,312.57	\$372,019.57

**Wireless E-911 Emergency  
Services Program**

*Bureau of Special Performance Audits  
Pennsylvania Department of the Auditor General  
Jack Wagner, Auditor General*

<i>Emergency call center</i>	<i>As of 6/30/2008</i>	<i>FY 2005-06</i>	<i>FY 2006-07</i>	<i>Two-year disbursement total</i>
	<i>Deployment phase</i>	<i>Disbursement amount</i>	<i>Disbursement amount</i>	
Erie County	2	\$867,150.88	\$364,544.03	\$1,231,694.91
Fayette County	2	\$1,619,693.32	\$451,385.02	\$2,071,078.34
Forest County	0	\$1,248,102.00	\$518,254.83	\$1,766,356.83
Franklin County	2	\$1,400,064.00	\$376,382.98	\$1,776,446.98
Fulton County	2	\$1,104,437.44	\$303,722.90	\$1,408,160.34
Greene County	2	\$454,964.00	\$159,592.58	\$614,556.58
Huntingdon County	2	\$2,202,400.00	\$105,454.69	\$2,307,854.69
Indiana County	2	\$426,386.00	\$93,021.87	\$519,407.87
Jefferson County	2	\$739,167.00	\$304,641.20	\$1,043,808.20
Juniata County	0 **	\$651,000.00	\$911,171.31	\$1,562,171.31
Lackawanna County	2	\$3,345,896.00	\$2,758,993.61	\$6,104,889.61
Lancaster County	2	\$244,290.36	\$8,923,018.23	\$9,167,308.59
Lawrence County	2	\$657,162.92	\$283,612.30	\$940,775.22
Lebanon County	2	\$552,164.28	\$198,013.83	\$750,178.11
Lehigh County	2	\$4,129,867.60	\$884,017.43	\$5,013,885.03
Luzerne County	2	\$1,875,246.76	\$506,454.32	\$2,381,701.08
Lycoming County	2	\$1,408,006.00	\$484,942.62	\$1,892,948.62
McKean County	0 **	\$652,219.00	\$59,114.95	\$711,333.95
Mercer County	1***	\$959,710.64	\$381,641.85	\$1,341,352.49
Mifflin County	2	\$574,800.12	\$1,020,884.03	\$1,595,684.15
Monroe County	2	\$4,756,882.00	\$299,459.33	\$5,056,341.33
Montgomery County	2	\$2,257,360.00	\$1,586,483.57	\$3,843,843.57
Montour County	2	\$154,601.00	\$317,064.63	\$471,665.63
Northampton County	2	\$1,572,084.40	\$983,725.00	\$2,555,809.40
Northumberland County	2	\$3,164,100.00	\$260,951.40	\$3,425,051.40
Perry County	2	\$125,004.00	\$783,757.29	\$908,761.29
Philadelphia County	2	\$13,914,921.00	\$7,092,654.55	\$21,007,575.55
Pike County	2	\$234,414.48	\$507,371.21	\$741,785.69
Potter County	0	\$3,133,022.00	\$1,257,043.10	\$4,390,065.10
Schuylkill County	2	\$2,124,449.16	\$1,089,720.24	\$3,214,169.40
Snyder County	2	\$506,518.88	\$1,403,411.94	\$1,909,930.82
Somerset County	2	\$1,000,735.00	\$69,082.54	\$1,069,817.54

## Appendix A

**Wireless E-911 Emergency  
Services Program**

*Bureau of Special Performance Audits  
Pennsylvania Department of the Auditor General  
Jack Wagner, Auditor General*

	<i>As of 6/30/2008</i>	<i>FY 2005-06</i>	<i>FY 2006-07</i>	
<i>Emergency call center</i>	<i>Deployment phase</i>	<i>Disbursement amount</i>	<i>Disbursement amount</i>	<i>Two-year disbursement total</i>
Sullivan County	0	\$1,483,198.00	\$135,775.95	\$1,618,973.95
Susquehanna County	2	\$4,887.00	\$16,111.00	\$20,998.00
Tioga County	0 **	\$3,216,651.88	\$1,281,397.70	\$4,498,049.58
Union County	0 **	\$849,709.00	\$864,854.50	\$1,714,563.50
Venango County	0 **	\$860,586.00	\$1,429,041.68	\$2,289,627.68
Warren County	2	\$1,124,540.00	\$84,379.29	\$1,208,919.29
Washington County	1 ***	\$2,597,825.00	\$5,473,418.04	\$8,071,243.04
Wayne County	2	\$1,484,100.00	\$309,971.25	\$1,794,071.25
Westmoreland County	2	\$5,196,641.60	\$1,428,183.30	\$6,624,824.90
Wyoming County	0	\$1,765,321.00	\$913,986.16	\$2,679,307.16
York County	2	\$7,466,419.00	\$1,249,058.27	\$8,715,477.27
<b>Totals</b>		<b>\$127,091,434.84</b>	<b>\$87,299,736.74</b>	<b>\$214,391,171.58</b>
<b>Summary - Deployment Phase Status</b>		<b>No. of call centers</b>		
Deployed at Phase 0		5		
Deployed at Phase I		0		
Deployed at Phase II		55		
Deploying from Phase 0 to Phase I (*)		0		
Deploying from Phase 0 to Phase II (**)		6		
Deploying from Phase I to Phase II (***)		3		
<b>Total</b>		<b>69</b>		

The information contained in this spreadsheet was provided by PEMA on March 23, 2007, and updated on June 30, 2008.



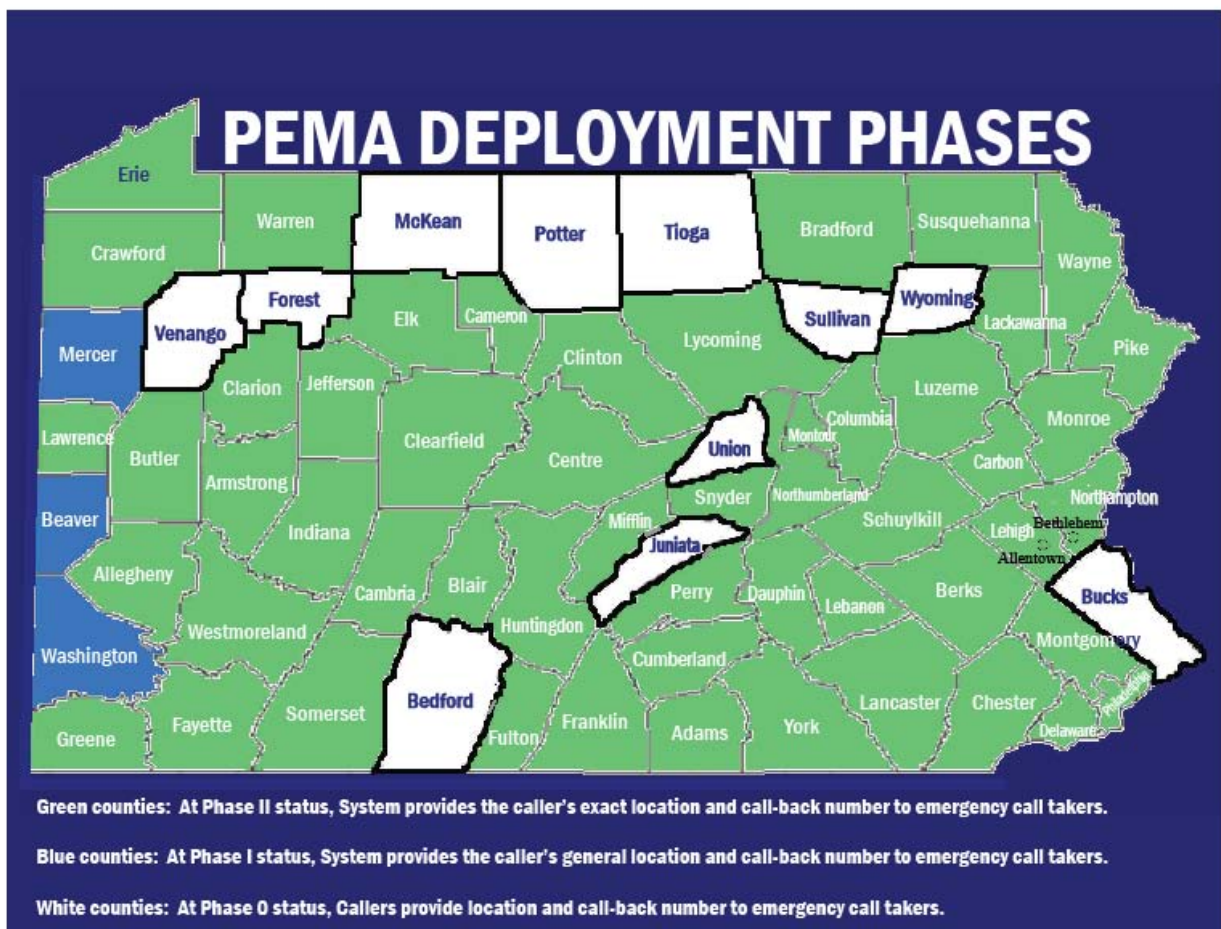
**Wireless E-911 Emergency  
Services Program**

*Bureau of Special Performance Audits  
Pennsylvania Department of the Auditor General  
Jack Wagner, Auditor General*

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**Appendix B**

**PEMA Deployment Map**



The information in this map was obtained by accessing PEMA's Web-Tools on June 30, 2008.

Appendix C

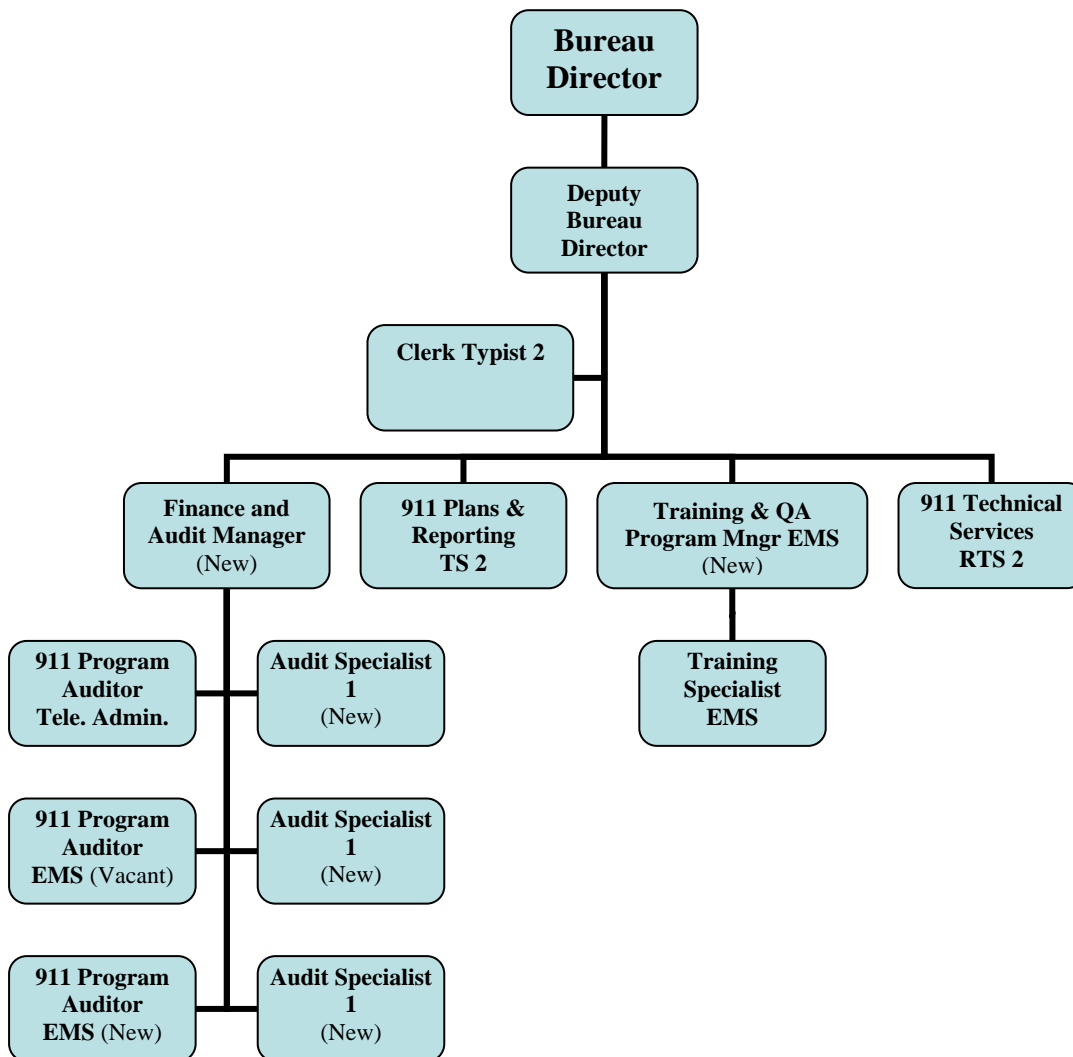
**Wireless E-911 Emergency  
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*Bureau of Special Performance Audits  
Pennsylvania Department of the Auditor General  
Jack Wagner, Auditor General*

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**Appendix C**

**Proposed Bureau of E-911 Programs**

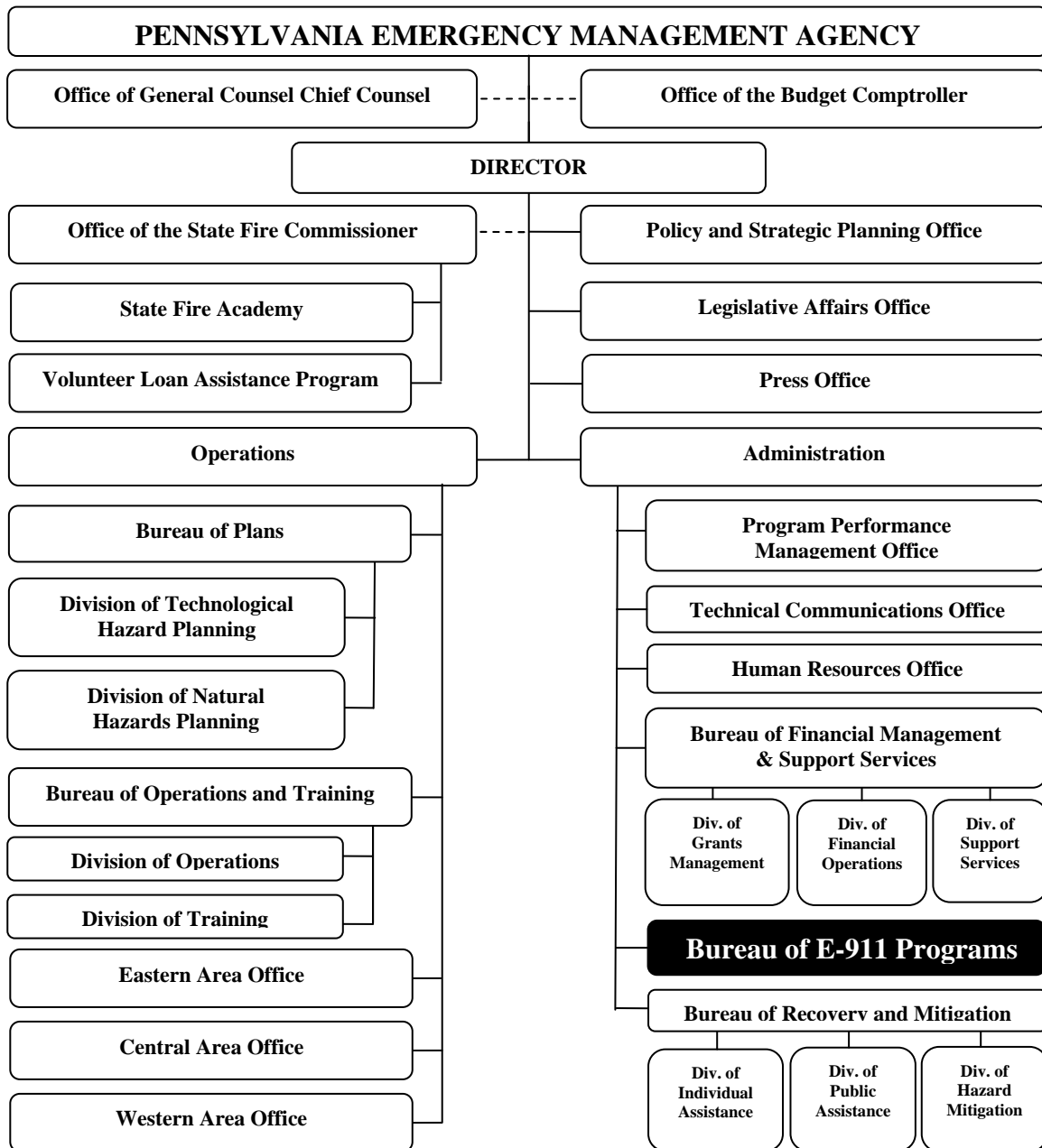


Information contained in this chart was provided by PEMA in August 2008.

**Wireless E-911 Emergency  
Services Program**

*Bureau of Special Performance Audits  
Pennsylvania Department of the Auditor General  
Jack Wagner, Auditor General*

**PEMA Organizational Chart**



Information contained in this chart was provided by PEMA in August 2008.

*Appendix D***Wireless E-911 Emergency  
Services Program**

*Bureau of Special Performance Audits  
Pennsylvania Department of the Auditor General  
Jack Wagner, Auditor General*

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**Response  
from  
PEMA**

The Pennsylvania Emergency Management Agency's response to this audit report is reproduced on the following seven pages. We have further comments in only three cases.

- Our **Recommendation 7** said PEMA should have procedures showing the line of authority to follow when approving applications from emergency call centers—including requiring documentation that PEMA's executive management reviewed and approved funding decisions made by its 911 staff. PEMA's response states that "all applications are presented to the legislated Emergency Services Advisory Sub-Committee for review and recommendations [and that] PEMA Executive staff is involved throughout this process." However, we found that neither of those two actions took place during our audit period. If PEMA subsequently began presenting *all* applications to the referenced subcommittee, not just certain applications, and if PEMA is now documenting its executive staff's involvement, we will verify those actions when we conduct our follow-up work.
- Regarding our **Recommendation 9**, we said PEMA should have procedures to prevent wireless providers from recovering costs both from the fund *and* from consumers directly; we made that recommendation because the law prohibits wireless providers from recovering their costs twice. While the response from PEMA shows it agrees that the law includes this prohibition, PEMA also says it "will consider the Auditor General's recommendation as it pursues a re-write of the referenced [law]." It is unclear what legislative re-write PEMA needs to pursue since the prohibition is already plainly stated.
- PEMA's response to our **Recommendation 16** suggests that PEMA is already doing what we recommended: increasing awareness among 911 coordinators that wireless funds are available for public education, and encouraging the coordinators to use those funds to inform the public about gaps in coverage and about the E-911 system overall. However, we believe that PEMA must be far more aggressive in those efforts.

Again, we thank PEMA for its cooperation and professionalism during this audit.



PENNSYLVANIA EMERGENCY  
MANAGEMENT AGENCY  
2605 Interstate Drive  
Harrisburg, Pennsylvania 17110-9364



October 1, 2008

The Honorable Jack Wagner  
Auditor General  
Department of the Auditor General  
229 Finance Building  
Harrisburg, PA 17120-0018

**RE: Wireless E-911 Emergency Services Program Special Performance Audit**

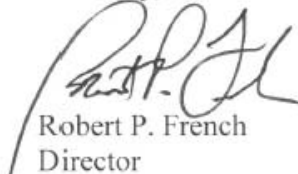
Dear General Wagner:

Thank you for the opportunity to respond to the special performance audit report issued by your office for the E-911 Emergency Services Program for the period December 30, 2003 through June 30, 2007.

The Pennsylvania Emergency Management Agency is pleased to provide its response to the performance audits' three (3) findings and 16 recommendations. While we are not in complete agreement with all of the reports findings and recommendations, PEMA appreciates the time and effort of your staff in preparing this report and working with new PEMA leadership in making recommendations to enhance the delivery of 9-1-1 service to the residents of our Commonwealth.

Should you have any questions about the information provided in this audit, please contact Mr. Jeffrey A. Thomas, Deputy Director for Administration at 717-651-2186 or by email at [jethomas@state.pa.us](mailto:jethomas@state.pa.us).

Sincerely,



Robert P. French  
Director

Enclosure (PEMA Response)

**Response by the Pennsylvania Emergency Management Agency to the  
Auditor General's Performance Audit of the Wireless E-911 Emergency Services Program**

**Finding One**

PEMA has inadequately staffed the wireless E-911 program, thereby causing some weaknesses in program controls and an over-reliance on its external consultant.

**PEMA's overall comments to this finding:**

*PEMA recognizes that there is an opportunity to build an internal team that will provide the in-house expertise necessary to limit our reliance on contracted staff. PEMA has developed an organizational structure which will achieve this goal and is currently actively working with the Governor's Office of Administration, Human Resources team to develop job specifications that will ensure added staff will have the necessary skills and abilities to meet the challenges of Next Generation 9-1-1 technology. With the passage of Act 78, PEMA stood up the 9-1-1 section within the Bureau of Technical Services. This section has now matured into the Bureau of 9-1-1 Programs. The recommendations listed below will be addressed as we implement the organizational structure listed on the chart provided to the Auditor General's staff through the exit conference process.*

To address these issues, we recommend the following:

1. PEMA should immediately fill both of the vacant positions in its 911 section.

**Agency Response:** *It is important that PEMA complete the work of developing the new job specifications mentioned in the overall comments above to ensure that the newly hired positions have the skill sets necessary to work with the challenges on Next Generation of 9-1-1 technology.*

2. PEMA should reclassify certain positions in its 911 section requiring them to meet minimum financial experience standards.

**Agency Response:** *As provided at the exit briefing, PEMA has developed an organizational structure which will achieve this goal.*

## Comments on Draft Performance Audit

## Wireless E-911 Emergency Services Program

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3. PEMA should determine the appropriate number of staff necessary to provide sufficient accountability and oversight of the wireless E-911 program, and then request that the governor's Office of Administration address the staffing issue.

***Agency Response:*** As provided at the exit briefing, the proposed Bureau of 9-1-1 Programs organization chart is the baseline document for the on-going classification initiative with the Governor's Office of the Budget and Office of Administration Human Resource team.

4. PEMA should strengthen its oversight procedures by requiring that annual site visits be conducted of every one of the 69 emergency call centers and by maintaining a computerized master inventory program.

***Agency Response:*** The Agency's work with the Governor's Office of the Budget and Office of Administration Human Resource team will result in the internal resources and skill sets necessary to conduct annual monitoring site visits. The Agency has developed a web-based tool for collection of the PSAP infrastructure inventory and is currently proceeding with information collection.

5. PEMA itself should conduct the fiscal year-end reconciliations that instead have been conducted by an accounting firm with ties to PEMA's telecommunications consulting firm that provides deployment services to the emergency call centers. If staffing or other limitations prohibit PEMA from conducting the reconciliations on its own, PEMA should contract directly with an accounting firm that has no ties to the consulting firm. Additionally, PEMA must increase its involvement in the reconciliation process and in reviewing eligible expenses.

***Agency Response:*** The Agency believes the proposed organization structure better positions the Agency to provide for this program requirement. The auditing firm used by our E-911 consultant (TCBA) functions as an independent auditing firm and was brought into the project to preclude the consultant from being involved in the reconciliation process. TCBA has significant 9-1-1 financial accounting experience as they had been hired by the District of Columbia to manage their 9-1-1 fund several years prior to the start of the PEMA project. With recommendations from the legislated Wireless Advisory Sub-Committee, all funding and reconciliation decisions are made by PEMA staff.

Comments on Draft Performance Audit

Wireless E-911 Emergency Services Program

Page 3 of 6

### **Finding Two**

PEMA did not ensure that the \$214 million collected from consumers via surcharges was distributed to emergency call centers prudently.

#### **PEMA's overall comments to this finding:**

*PEMA better defined the policies and procedures for the 2008-2009 funding application process as is normal with a program as it matures. However, we do believe when all the components of the program are considered the distribution of funds to the Public Safety Answering Points (PSAP) was done prudently. We have provided comments for each recommendation below.*

To address this finding, we recommend the following:

6. PEMA should continue efforts to clarify, enhance, and standardize its wireless E-911 application procedures and processes to ensure that emergency call centers receive an equitable, efficient, and accurate disbursement of taxpayer dollars.

**Agency Response:** *The Agency recognizes the individual needs of each County creates a challenge in defining "equitable"; however, the FY 2008-09 funding application process established consistency in policy and procedures from the previous FY and will carry forward to the FY 2009-10 process.*

7. PEMA should develop procedures to document clearly the line of authority to follow for approving applications submitted by the emergency call centers including documentation that PEMA's executive management has reviewed and approved the funding decisions made by its 911 staff.

**Agency Response:** *In advance of each funding application cycle, the Agency promulgates policies and procedures that in turn are communicated to each PSAP vis-à-vis Agency sponsored workshops in each of the three PEMA areas. The process allows for a three-month period (March 3<sup>rd</sup> to May 31<sup>st</sup>) for the Agency to accept, review, and in some cases return the application to the county for appeal. Within that time period all applications are presented to the legislated Emergency Services Advisory Sub-Committee for review and recommendations. PEMA Executive staff is involved throughout this process.*



## Comments on Draft Performance Audit

## Wireless E-911 Emergency Services Program

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8. PEMA should seek to amend the Public Safety Emergency Telephone Act for authorization to establish maximum spending limits for expenditures made by emergency call centers, thereby better ensuring the prudent use of taxpayer dollars.

***Agency Response:*** *The Agency recognizes the opportunities for improvement in the Public Safety Emergency Telephone Act (Act 78 as amended.) Working with multiple stakeholders impacted by the legislation, the Agency will consider the Auditor General's recommendation as it pursues a re-write of the referenced legislation.*

9. PEMA should implement procedures to prevent wireless providers from recovering costs both from the fund *and* directly from the customers.

***Agency Response:*** *Section 11.4 (d) (5) of Act 78 as amended precludes a wireless service provider from recovering costs through the fund and directly from its customers. Because the FCC regulates wireless service providers, implementation and enforcement of such procedures would be at best problematic. Consistent with the Agency response in the immediately preceding recommendation, the Agency will consider the Auditor General's recommendation as it pursues a re-write of the referenced legislation.*

**Finding Three**

PEMA has not taken definitive action to address concerns that will have a significant impact on the wireless E-911 program in the future.

**PEMA's overall comments to this finding:**

*PEMA is actively involved in the redrafting of Act 78 to ensure the legislation becomes technology neutral, thereby allowing for Next Generation 9-1-1 technologies. The Director of the Bureau of 9-1-1 Programs is an active member of the National Association of State 9-1-1 Administrators (NASNA), an organization involved in Next Generation 9-1-1 planning on a national level. We have provided comments for each recommendation below.*

To address these issues, we recommend the following:

10. PEMA should assess its future needs for administering the wireless E-911 program and determine the role of its telecommunications consulting firm *before* structuring any future contracts with that firm.

## Comments on Draft Performance Audit

## Wireless E-911 Emergency Services Program

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**Agency Response:** *The Agency's 9-1-1 Bureau Director is an active member of the National Association of State 9-1-1 Administrators (NASNA) organization. This organization has participated in the US DOT Next Generation 9-1-1 planning initiative, which is developing the recommendations and a demonstration project for next generation 9-1-1 networks. This initiative recommends that statewide plans be developed, a concept fully supported by PEMA. NASNA contracted with a consultant to develop a model statewide plan and this initiative will provide a framework for the development of our statewide plan. This plan will be evaluated when making any decisions concerning the program.*

11. PEMA should immediately begin developing a transition plan with a timeline so that the agency can have its own qualified and trained staff to manage the wireless E-911 program, instead of having the telecommunications consulting firm manage the program.

**Agency Response:** *As provided at the exit briefing, PEMA has developed an organizational structure which will achieve this goal and is currently actively working with the Governor's Office of Administration, Human Resources team to develop job specifications that will ensure added staff will have the necessary skills and abilities to meet the challenges of Next Generation 9-1-1 technology.*

12. PEMA should work with local and state officials as well as wireless providers to determine the future funding needs of the wireless E-911 program.

**Agency Response:** *The Agency is working with multiple stakeholders impacted by the Act 78 legislation. Determining the costs to operate a 9-1-1 program is an essential component of that work.*

13. PEMA should seek to amend state law in order to expand the surcharge to *all* users of telecommunications devices that utilize 911 services (if the surcharge is continued).

**Agency Response:** *The Agency is working with multiple stakeholders impacted by the Act 78 legislation, ensuring the legislation is technology neutral will achieve this recommendation.*

14. PEMA should engage local and state officials as well as wireless providers to formulate ideas for minimizing or, ideally, completely eliminating the gaps in wireless coverage

## Comments on Draft Performance Audit

## Wireless E-911 Emergency Services Program

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throughout the state. Furthermore, even though wireless providers are regulated by the federal government, PEMA should also do what it can to encourage wireless providers to expand access to wireless communication throughout the state.

***Agency Response:*** *We agree that PEMA along with other state and local officials should work with wireless providers to formulate ideas to eliminate gaps in wireless coverage throughout the Commonwealth. However we must keep in mind that the goal of the wireless 9-1-1 program which PEMA is responsible to administer, is to provide connectivity to 9-1-1 operators from wireless phones where there is service, and to ensure that service provides the 9-1-1 operator with the information needed to ensure help finds the caller. The Federal Communications Commission (FCC) regulates license and service areas for wireless providers, not the state.*

15. PEMA should evaluate its evolving role as the state's E-911 program administrator in anticipation of future telecommunications technologies that may result in additional responsibilities.

***Agency Response:*** *The Agency's creation of the Bureau of 9-1-1 Programs contemplated this recommendation.*

16. PEMA should increase awareness among 911 coordinators that wireless E-911 funds are available for public education; in addition, PEMA should encourage 911 coordinators to utilize these funds to inform the public about gaps in service coverage and use of the system overall.

***Agency Response:*** *The Agency recognizes the importance of public education. The Bureau of 9-1-1 Programs is a regular contributor to the PEMA Pointers, a quarterly Agency publication that provides awareness and education to its wide distribution. In addition, the 9-1-1 Bureau Director provides a weekly email forum to all 9-1-1 Coordinators on a myriad of topics; inclusive of public education.*

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