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**An Audit Report on the Commission on
State Emergency Communications Implementation of
Phase I of Wireless 9-1-1 Improvements**

October 11, 2000

Members of the Legislative Audit Committee:

The Commission on State Emergency Communications (Commission) did not implement improved wireless 9-1-1 services for 75 percent of the state 9-1-1 program population by September 1, 2000, as required by statute. These improved services, known as Phase I, provide a wireless caller's phone number and general location to the 9-1-1 call-taker. Even though the Commission did not meet the statutory goal, it was actively involved in the implementation process and took actions necessary to move the process forward.

Although the Commission reported (on September 26) that 73.7 percent of the program population had improved wireless 9-1-1 services by the deadline, the State Auditor's Office could only validate implementation for 11.3 percent of the program population. The Commission based its percentage on high-level documentation provided by the regional planning commissions (RPCs), whereas the State Auditor's Office based its verification on detailed test documentation provided by the RPCs and public safety answering points (PSAPs). Most of the detailed test documentation did *not* show that:

- All of the appropriate cell towers were tested.
- Wireless 9-1-1 calls were properly routed to all of the appropriate PSAPs and the data was properly displayed.

The Commission's rider authority to spend \$2.4 million implementing Phase I improvements was contingent upon meeting the statutory requirement. As the Commission did not achieve 75 percent completion, it will not have access to those funds after August 31, 2000. As required, the State Auditor's Office has reported to the Comptroller of Public Accounts that the Commission did not implement Phase I for 75 percent of the program population as of the statutory deadline.

The attachment contains additional detail and the Commission's response. We thank the Commission for its cooperation and assistance during the audit. If you have any questions, please contact Cindy Reed, Audit Manager, at (512) 936-9500.

Sincerely,

Lawrence F. Alwin, CPA
State Auditor

tgc/Attachment

cc: Mr. James D. Goerke, Executive Director, Commission on State Emergency Communications
The Honorable Dorothy Marie Morgan, Chair, Commission on State Emergency Communications
Members of the Commission on State Emergency Communications

SAO Report No. 01-005

Did the Commission Meet the Statutory Deadline for Wireless 9-1-1 Improvements?

The Commission on State Emergency Communications (Commission) did not implement improved wireless services for 75 percent of the state 9-1-1 program population by September 1, 2000, as required by statute. Although the Commission reported (on September 26) that 73.7 percent of the program population in 82 counties had improved wireless 9-1-1 service by the deadline, the State Auditor's Office could only validate implementation for 11.3 percent (21 counties). The Commission based its percentage on high-level documentation provided by the regional planning commissions, whereas the State Auditor's Office based its verification on detailed test documentation provided by the Commission, regional planning commissions (RPCs), and public safety answering points (PSAPs). Most of the detailed test documentation did *not* show that:

Definition

Public Safety Answering Point (PSAP)

A 24-hour communications facility established as an answering location for 9-1-1 calls originating within a given service area.

Source: Texas Administrative Code, Title 1, Section 251.10

- All of the appropriate cell towers were tested.
- Wireless 9-1-1 calls were properly routed to all of the appropriate PSAPs and the data was correctly displayed.

Forty-eight of 50 test calls the State Auditor's Office placed or observed in 19 counties were successful. However, these test calls alone do not validate that all appropriate cell towers and PSAPs were tested and that all the data was properly received.

The Commission's rider authority to spend \$2.4 million implementing Phase I improvements was contingent upon meeting the statutory requirement for Phase I implementation. Because the Commission did not achieve this goal, it will not have access to those funds after August 31, 2000.

Even though the Commission did not meet the statutory goal, it was actively involved in the implementation process and took actions necessary to move the process forward. The state 9-1-1 program covers approximately 7.3 million people (37 percent of the State's population) in mostly rural areas. Municipalities and emergency communication districts administer 9-1-1 programs that cover the remainder of the State's population. The Commission is not responsible for implementing Phase I in 9-1-1 programs run by municipalities or emergency communication districts.

What Are the Requirements for Phase I Improvements?

House Bill 1983, Section 36, 76th Legislature, required the Commission to implement Phase I improvements for at least 75 percent of the state 9-1-1 program population no later than September 1, 2000. It further required that the improvements be made in accordance with Federal Communications Commission Docket 94-102. In order to implement Phase I:

- PSAPs must ensure that their equipment can properly receive the wireless caller's phone number and location of the cell site or base station receiving the call.
- Wireless service providers must make system changes to relay the required data to the PSAP.

Under its rider authority, the Commission defined completion of Phase I improvements for use in determining whether it met the required target. (See text box.)

The Commission's definition of completion requires PSAPs to be capable of receiving the caller's phone number and general location data. In addition, each county identified as complete must have at least one wireless service provider that has implemented the improvements. To identify a county as complete for Phase I, it has to be determined that both of the following occur for just one wireless service provider:

- The wireless service provider's cell towers correctly route wireless 9-1-1 calls to the specified PSAP.
- All of the PSAPs that take wireless 9-1-1 calls receive the data properly.

Completion of Phase I Defined

Completion of wireless 9-1-1 service implementation will be equal to 75% of the total population within the state (Commission) program area. Completion will be measured by calculating 100% of the population of individual counties with functioning Public Safety Answering Points (PSAPs) that are capable of receiving wireless 9-1-1 calls over the 9-1-1 network, and that are capable of receiving the data associated with those calls that provides cell sector and call back information for an emergency call. The aggregate population totals for these counties will be the sum total that is measured for completion.

Source: Commission on State Emergency Communications

What Caused the Difference Between the Percentage Reported by the Commission and the Percentage Validated by the State Auditor's Office?

The Commission reported 73.7 percent completion (see Map 1), and the State Auditor's Office validated 11.3 percent completion (see Map 2). The difference between the two percentages is due to the Commission's use of high-level information from the RPCs and the State Auditor's Office's use of detailed system test documents from the RPCs and PSAPs.

The Commission used various communications with RPCs, wireless service providers, and others to determine the status of Phase I implementation. The Commission primarily relied on letters from RPCs that reported that Phase I was operational as of the deadline for the counties identified in those letters. The Commission based its calculation of the percentage completion on the information in those letters. However, documentation of system test results provided by RPCs and PSAPs did not support that 73.7 percent of the population had improved wireless 9-1-1 services. The system test documentation only validated that Phase I improvements were 11.3 percent complete because most of the documentation did *not* show that:

- All of the appropriate cell towers were tested.
- Wireless 9-1-1 calls were properly routed to all of the appropriate PSAPs and the data was correctly displayed.

In addition to reviewing documentation, the State Auditor's Office placed or observed 50 test calls to PSAPs in 19 counties to verify that Phase I improvements were operating correctly. (See Map 3.) In 17 counties with 40.5 percent of the covered population, all of the test calls were correctly processed. However, successful test calls alone do not validate that all appropriate cell towers and PSAPs were tested and that all the data was properly received. In the two remaining counties with 2.3 percent of the covered population, the test results were mixed with at least one successful and one failed call in each county. Unsuccessful test calls show that Phase I is not working correctly in all areas of a county.

The Commission needs to verify the status of Phase I implementation to ensure that the improvements are working correctly in all areas reported as complete.

What Efforts Did the Commission Make to Meet the Statutory Deadline?

Even though the Commission did not meet the statutory goal, it was actively involved in the implementation process and took actions necessary to move the process forward. However, implementing Phase I required the cooperation of numerous parties that each had to do their part to ensure that the improvements were successfully deployed. More than 30 wireless service providers and several local exchange carriers (LECs) were responsible for the system changes required to implement the Phase I improvements.

Definition

Local exchange carrier—a telecommunications provider that offers dial tone service.

In addition to wireless service providers and LECs, Phase I implementation also depended on 24 RPCs, over 300 PSAPs, and various contractors. The Commission worked with many of the parties and took several key steps during implementation to move the process forward. For example, the Commission:

- Contracted with vendors to upgrade PSAP equipment.
- Filed orders for Phase I improvements in a timely manner.
- Facilitated communication between many of the parties involved in the process.
- Filed an emergency petition with the Federal Communications Commission.
- Informed the Public Utility Commission of implementation issues.

The Commission also prepared two reports to the Legislative Budget Board and the Governor's Office on Phase I implementation as required by the General Appropriations Act, Article I-32, Rider 3, 76th Legislature. In its September 1, 2000, report, the Commission projected that Phase I improvements would be implemented for 75.24 percent of the population it serves.

Recommendation:

The Commission should obtain additional verification from the appropriate parties to ensure that Phase I is operating correctly in all areas reported as complete. In addition, the Commission should conduct a formal review of its implementation process to identify areas to strengthen and revise its processes to incorporate the lessons learned as it moves forward to manage future wireless 9-1-1 improvements.

Management's Response:

The Commission on State Emergency Communications (CSEC) concurs with the recommendations contained in the State Auditor's report, and will initiate the following activities to ensure that the recommendation is fully implemented. There are several parties that play critical roles in successful wireless implementation; no one group can accomplish this alone. These groups are the wireless carriers, the local exchange carriers, the regional planning councils, the local governments, as well as regulatory and oversight authorities such as the CSEC, the Public Utility Commission (PUC), and the Federal Communications Commission (FCC). The CSEC will engage in activities targeted at each of the groups in order to fully implement the recommendations made in the audit report, and to reach 100% wireless deployment to improve emergency communications and enhance public safety. (Note: Approximately 4% of the area served by the state program is currently classified as non-deployable due to a variety of issues including the level of service, network configurations, and calltaking equipment in those areas. CSEC will work with the responsible parties to resolve these issues and to support the ability to deploy to all 100% of the program's population.)

Implementation Timeline: December 31, 2000

Training

The CSEC will conduct a training workshop for the regional planning councils (RPCs) on October 20, 2000, in conjunction with the next regularly scheduled Commission meeting, to insure that all of the appropriate documentation is in place to validate future wireless testing and deployments. Staff will present a review of the requirements for wireless testing and associated documentation that the RPCs and their participating local governments are required to complete during testing and deployment of wireless services. CSEC has previously provided wireless testing and certification procedures to the RPCs in July, 2000, but due to the timing and pace of testing by carriers surrounding the legislative deadline of September 1, 2000, coordination of detailed documentation requirements has yet to occur in many areas at the local governments police departments and sheriffs offices. CSEC staff will review these procedures at the October 20th workshop to ensure that the RPCs are fully informed of the specific documentation that must be completed by local governments, and retained at the regional level, in order to properly certify and validate wireless 9-1-1 service deployments.

Target Date for Implementation: October 20, 2000

Documentation

The CSEC will emphasize the importance of the wireless testing documentation requirements during its October 20, 2000 workshop with the RPCs. In the CSEC model testing procedures, the regional and local governments, in cooperation with individual wireless carriers, are responsible for completing testing and the associated documentation to ensure that the interests of public safety are met with the effective deployment of wireless services. The CSEC model testing procedures require that this detailed documentation be retained by the RPCs at the regional level. Once testing is completed successfully, the RPC is required to notify both the wireless carrier and the CSEC in writing. The CSEC is in receipt of all notification letters from the RPCs to support the 73.7% deployment reported as complete as of September 1, 2000. However, CSEC staff will conduct the training workshop and incorporate reviews of the required detailed documentation into the agency s Compliance Guidelines.

Target Date for Implementation: October 9, 2000 (or upon commencement of next RPC monitoring visit)

Review, Revise and Strengthen Wireless Policies and Procedures

The CSEC will conduct a review of all current wireless policies and procedures in order to identify areas that may benefit from the lessons learned during the actual deployment of wireless Phase I E9-1-1 service. This may include a review of CSEC Rule 251.10, Guidelines for Implementing Wireless E9-1-1 Services, model wireless testing procedures, as well as compliance guidelines and monitoring activities.

Implementation Timeline: January 30, 2001

Federal Communications Commission (FCC) Enforcement

The CSEC is actively pursuing a course to determine the most appropriate manner in which to proceed with filing complaints with the FCC against the carriers that did not meet their 6-month implementation deadlines as put forth in FCC Rule 94-102. CSEC staff met on September 21, 2000 with FCC staff members to discuss the alternatives available in these matters. The Commission will convene into Executive Session at its October 10, 2000 meeting to discuss these alternatives with staff and legal counsel to provide direction as to the appropriate action(s).

Implementation Timeline: October 31, 2000

Public Utility Commission (PUC) Enforcement

The PUC is the regulatory authority over all local exchange providers (LECs) in the state of Texas. The LECs are directly responsible for ensuring that wireless carriers have access and facilities necessary to interface with the existing 9-1-1 network. Several issues have been identified through the wireless implementation project that must be resolved and/or improved in order for the state program to reach 100% deployment. The CSEC will continue to enlist the assistance of the PUC to motivate the LECs to support wireless deployment efforts in an effective and time-efficient manner. Additionally, several wireless carriers are subsidiaries of LECs. The CSEC will request that the PUC continue to actively monitor and encourage these companies to fully implement wireless service in order to reach 100% coverage of the CSEC s program area.

Objective, Scope, and Methodology

Objective

The audit objective was to certify whether or not the Commission on State Emergency Communications successfully completed Phase I of the 9-1-1 wireless improvements set forth in Federal Communications Commission Docket 94-102 for 75 percent of the population served by the state 9-1-1 program by September 1, 2000, as required by statute. If the State Auditor's Office found that the Commission did not comply with this statutory requirement, it was required to so certify to the Comptroller of Public Accounts within 45 days after the end of fiscal year 2000.

Scope

The scope of the audit included the Commission's processes for determining the status of Phase I implementation and calculating the percentage of completion for Phase I as of the statutory deadline.

Methodology

The audit methodology consisted of gaining an understanding of the requirements of the Phase I wireless implementation process and conducting procedures to determine whether the Phase I improvements were operating in counties reported as having completed Phase I implementation.

Information collected to accomplish our audit objective included the following:

- Federal and state statutes and regulations
- Commission definition of completion
- Interviews with staff members from the Commission, RPCs, PSAPs, and wireless service providers
- Testing documentation from the Commission, RPCs, and PSAPs
- Observation of PSAP operations
- Reports and other documentation generated by the Commission during Phase I implementation

Procedures and tests conducted:

- Interviewed four Commission staff members regarding the statutory requirements, the definition of completion, requirements for completion under the definition, the implementation process, and the percentage reported as complete
- Interviewed Legislative Budget Board and Governor's Office staff members regarding the definition of completion
- Interviewed three Federal Communications Commission (FCC) staff members regarding Phase I implementation rules and the FCC's role in Phase I implementation
- Interviewed the Commission's outside attorney regarding statutory requirements for Phase I
- Placed or observed 50 test calls in 19 counties
- Reviewed testing documentation for 82 counties to determine whether it supported that Phase I was implemented in those counties
- Reviewed various documents to determine whether technical, legislative, and regulatory requirements have been met
- Interviewed 17 staff members from the RPCs, PSAPs, and wireless service providers
- Verified population data used to determine the completion percentage by comparing the figures to Texas State Data Center county population data as of July 1998 and Commission population data for emergency communication districts and municipalities
- Prepared three maps for the report with assistance from Commission staff members

Criteria used:

- Texas Health and Safety Code, Section 771
- Commission definition of completion
- Texas Administrative Code, Title 1, Part 12, Section 251.10
- Federal Communications Commission Docket 94-102
- General Appropriations Act, Article I-32, Rider 3, 2000-2001 Biennium, 76th Legislature

The audit work was performed by the following members of the State Auditor's Office staff:

- Dorothy J. Turner, CPA (Project Manager)
- Ruben Juarez (Assistant Project Manager)
- Angela J. Dimmitt
- Michael A. Dean, MPAff
- Cesar Saldivar
- Nick L. Villalpando, CPA, Quality Control Reviewer
- Cynthia L. Reed, CPA (Audit Manager)
- Craig D. Kinton, CPA (Audit Director)

Statement of Compliance with Applicable Auditing Standards

The audit was conducted in accordance with generally accepted government auditing standards.