DEPARTMENT OF FINANCE

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Transmitted via e-mail

December 12, 2014

Mr. Robert Nelson, Assistant Director of Administration
Office of Traffic Safety
2208 Kausen Drive, Suite 300
Elk Grove, CA 95758

Dear Mr. Nelson:

Final Report—Emergency Medical Services Authority, Traffic Safety Grant Audit

The Department of Finance, Office of State Audits and Evaluations, has completed its audit of the California Emergency Medical Services Authority's (Authority) grant TR0808, issued by the California Office of Traffic Safety.

The enclosed report is for your information and use. The Authority's response to the report observation and our evaluation of the response are incorporated into this final report. This report will be placed on our website.

We appreciate the assistance and cooperation of the Authority. If you have any questions regarding this report, please contact Kimberly Tarvin, Manager, or Alma Ramirez, Supervisor, at (916) 322-2985.

Sincerely,

Original signed by:

Richard R. Sierra, CPA
Chief, Office of State Audits and Evaluations

Enclosure

cc: Mr. Mark Talan, Operations Coordinator, Office of Traffic Safety
Ms. Trina Nguyen, Associate Accounting Analyst, Office of Traffic Safety
Dr. Howard Backer, Director, California Emergency Medical Services Authority
Mr. Tom McGinnis, Division Chief, EMS Systems Division, California Emergency Medical Services Authority
Mr. Rick Trussell, Division Chief, Fiscal, Administration and Information Technology Division, California Emergency Medical Services Authority
Ms. Teri Harness, Assistant Division Chief, EMS Systems Division, California Emergency Medical Services Authority

Audit Report

Emergency Medical Services Authority
California EMS Information System
Grant Agreement TR0808

Source: EMSA Facebook Page

Prepared By:
Office of State Audits and Evaluations
Department of Finance

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August 2014

MEMBERS OF THE TEAM

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Final reports are available on our website at http://www.dof.ca.gov

You can contact our office at:

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BACKGROUND, SCOPE AND METHODOLOGY

BACKGROUND

The Office of Traffic Safety's (OTS) mission is to effectively and efficiently administer traffic safety grant funds to reduce traffic deaths, injuries, and economic loss. OTS implements its mission by awarding grants to local and state public agencies from several federal funding sources. The ten priority areas of concentration for grant funding include the following: Alcohol-Impaired Driving, Distracted Driving, Drug-Impaired Driving, Occupant Protection, Pedestrian and Bicycle Safety, Traffic Records, Emergency Medical Services, Roadway Safety, Police Traffic Services, and Motorcycle Safety.[1]

The California Emergency Medical Services Authority's (Authority) mission is to ensure quality patient care by administering an effective statewide system of coordinated emergency medical care, injury prevention, and disaster medical response. One key responsibility is to provide coordination and leadership for the planning, development, and implementation of local Emergency Medical Services (EMS) systems. California has 33 local EMS systems providing emergency medical services to California's 58 counties.[2]

The Authority received $1,337,483 in grant funding to develop a statewide data collection system that would accept data from 31 local EMS agencies and link to other data sources to create a timely, accurate, and complete uniform database.[3]

Development of the statewide data collection system was subcontracted to the Sierra-Sacramento Valley Emergency Medical Services Agency. Additionally, various local EMS systems received funding to participate in the project.

SCOPE

In accordance with an interagency agreement, the Department Finance, Office of State Audits and Evaluations (Finance), audited grant agreement TR0808 for the period October 1, 2007 through September 30, 2011.

The audit objectives were to determine whether the Authority's grant expenditures claimed were in compliance with applicable laws, regulations, and grant requirements and to determine whether the grant purpose was achieved. We did not assess the efficiency or effectiveness of program operations.

Authority management is responsible for ensuring accurate financial reporting and compliance with applicable laws, regulations, and grant requirements. OTS is responsible for the state-level administration of the grant program.

[1] Excerpts from www.OTS.ca.gov.
[2] Excerpts from www.EMSA.ca.gov.
[3] Excerpts from grant agreement TR0808.

METHODOLOGY

To determine whether grant expenditures were in compliance with applicable laws, regulations, and the grant requirements; and if the grant deliverables were completed, we performed the following procedures:

- Interviewed key personnel and reviewed documentation to assess grant-related internal controls.
- Examined the grant files, the grant agreement, and applicable policies and procedures.
- Reviewed the Authority's accounting records and contractor invoices.
- Selected a sample of claimed expenditures and determine whether they were allowable, grant-related, incurred within the grant period, supported by accounting records, and properly recorded.
- Evaluated whether other revenue sources were used to reimburse expenditures claimed for reimbursement under the grant agreement.
- Evaluated whether the grant purpose was achieved by reviewing supporting documentation.

We conducted this audit in accordance with generally accepted government performance auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our observations and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our observations and conclusions based on our audit objectives.

RESULTS

The results of the audit are based on our review of documentation, other information made available to us, and interviews with staff directly responsible for administering grant funds.

Because the grant's purpose was not achieved, the grant expenditures claimed are questioned as discussed in Observation 1. The Schedule of Claimed and Questioned Amounts is presented below.

Schedule of Claimed and Questioned Amounts

Grant Agreement TR0808		
Category	**Claimed[1]**	**Questioned**
Contractual Services	$ 1,117,792	$ 1,117,792
Equipment	28,058	28,058
Total Expenditures	**$ 1,145,850**	**$ 1,145,850**

Observation 1: Grant Purpose Not Achieved

The California Emergency Medical Services Authority (Authority) did not achieve the grant purpose of updating the California Emergency Medical Services (EMS) Information System (CEMSIS) to become a statewide data collection system that would accept data from 31 local EMS agencies, and link to other data sources to create a timely, accurate, and complete uniform database. After $1,145,850 was spent on this project, it was determined that the system was unable to meet the requirements of the data systems for EMS in current and future applications. As a result, CEMSIS was removed from service on June 30, 2013. The grant agreement specifies the project expectations.

Recommendations:

A. Remit $1,145,850 to the Office of Traffic Safety (OTS). OTS will make the final determination regarding whether to seek cost recovery from the Authority.

B. To ensure the grant purpose is achieved for future technology grants, assess the feasibility of the project, including technology requirements and expectations prior to incurring significant costs. Additionally, ensure the project is closely monitored during system development and implementation.

[1] OTS awarded $1,337,483 and the Authority claimed $1,145,850.

STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY

EDMUND G. BROWN JR., *Governor*

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November 7, 2014

Richard R. Sierra, CPA
Chief, Office of State Audits and Evaluations
Department of Finance
915 L Street
Sacramento CA 95814

Dear Mr. Sierra:

On October 9, 2014, the Emergency Medical Services (EMS) Authority received the Department of Finance (DOF) draft report regarding the Office of Traffic Safety (OTS) Grant TR0808. The draft report detailed audit findings for the above named grant for the period of October 1, 2007 through September 30, 2011.

I have thoroughly reviewed the draft report and disagree with the audit result because the DOF relied on facts to support their observation and recommendation from the decommissioning of CEMSIS that occurred in 2013 and are clearly outside the time period of the scope of the audit. During the time period of October 1, 2007 through September 30, 2011 we believe that the California EMS Information System (CEMSIS) achieved the overall grant goal to drive local EMS agencies to implement data collection and evaluation using standardized methodologies.

As stated in the original grant documents, grant funds were provided to the EMS Authority to facilitate local agency participation in California's Strategic Highway Safety Plan (SHSP), which called for the development of CEMSIS. CEMSIS was a demonstration project whereby Local EMS Agencies (LEMSAs) would revise their data collection systems and standards to be compliant with CEMSIS data standards, transmit EMS and Trauma data to a central location, and link CEMSIS to other data sources to create a timely, accurate, and complete uniform database.

CEMSIS

Trauma Data: As a result of the grant, the EMS Authority has been collecting trauma data from Local Emergency Medical Services Agencies (LEMSA) throughout the State since 2009. At the close of the grant on September 30, 2011, 18 of the 23 LEMSAs with designated Trauma Centers, representing 59 of the 71 (83%) of Trauma Centers were submitting data into CEMSIS-Trauma. The total count of records was 275,710 (2009-2012). The remaining 5 LEMSAs (12 Trauma Centers) were committed to participate and

were working towards that end. Quality and completeness checks existed at three levels: initial data entry at the Trauma Center, LEMSA validation, and State validation. The data validator for records transmitted to EMSA was based on the National Trauma Data Bank validation rules. This process ensured that CEMSIS-Trauma was compliant with national standards.

The CEMSIS-Trauma system proved to be a success and met one of the two main purposes of the grant. Once there were enough trauma cases, the EMS Authority began generating data reports to reflect the trauma system. Reports were shared with our trauma partners including the Commission on EMS. As each LEMSA had a central site of trauma data that in most cases exceeded the number of data elements collected at the State level, requests for reports from the State were minimal. The common requests for the EMS Authority to run reports came from the EMS for Children Technical Advisory Committee (EMSC TAC), State Trauma Advisory Committee (STAC) and the Regional Trauma Coordinating Committees (RTCC). In addition, "State of the State" presentations provided by the EMS Authority Director and State Trauma Coordinator included reports generated by CEMSIS-Trauma.

Pre-Hospital Data: The EMS Authority began collecting data in 2009 with 2 of 32 LEMSAs participating. By the end of the grant period, 15 (47%) LEMSAs had uploaded over 850,000 EMS responses into CEMSIS. Due to the number of EMS provider agencies in the State, a standardized approach to the collection of EMS data was a challenge. While the larger provider agencies may have had funding for electronic data systems, many providers were unable to participate due to cost. The demonstration project showed barriers in the project informing the EMS Authority what was needed to be successful with CEMSIS-EMS. These barriers were communicated to OTS in the quarterly reports and also during discussions with OTS program staff.

The National Highway Traffic Safety Administration (NHTSA) sponsored Traffic Records Assessment in January 2011 was to determine the effectiveness of California's traffic records systems. The assessment report stated the creation of CEMSIS "is a significant improvement the State has made since the last traffic records assessment in 2005. With continued and increased funding opportunities, it is anticipated that 100 percent of LEMSAs will be willing and able to submit data."

CEMSIS Data Linkage

As CEMSIS matured with trauma and EMS data, the grant objectives were designed to advance the system to incorporate data matching with the Statewide Integrated Traffic Records System (SWITRS) and Office of Statewide Health Planning and Development (OSHPD) databases. In preparation for this process, communication was opened with OSHPD, California Highway Patrol (CHP), and CEMSIS end users with caution expressed based on the need for patient identifiers for probabilistic matching. Attempts had been made in the past and again as part of the matching project to work towards a unique identifier between all documents, but with poor response.

While there was a delay in meeting this objective due to the difficulties in obtaining quality and complete pre-hospital data, these delays were communicated to OTS in the quarterly reports and also during discussions with OTS program staff. In the third grant revision

(2010), the EMS Authority budgeted for a contractor (UC Berkeley-Safe-TREC) to assist with the matching process working towards the completion of the final grant objectives. Due to difficulties between OTS and UC Berkeley, an agreement could not be finalized and the objectives could not be met. This was verbalized to OTS and the EMS Authority recommended that we place these objectives in the next grant cycle and amend the grant showing removal of the matching objectives. Specifically, funds were reduced for this objective and the EMS Authority was instructed by OTS to keep the matching objectives with a plan for a grant extension. This extension was not made possible by OTS when the grant cycle concluded.

CEMSIS Decommissioning

As national NEMSIS standards were maturing, during the OTS TR0808 grant period, it became clear that the transition from NEMSIS 2.2.1, towards NEMSIS 3 standards, was the appropriate route for CEMSIS-EMS. In order for the EMS Authority to collect and provide data based on the national data requirements, the EMS data contained in CEMSIS-EMS needed to be transformed to NEMSIS 3. Full compliance would include a comprehensive series of processes to address the following requirements: collecting data, receiving and processing data, sending data, web service communication, demographic submission, and software updates, before a series of compliance testing including component validation, pre-testing, and active testing, could occur.

It was determined that the current contractor did not have the desire nor capability to modify the current CEMSIS software to be NEMSIS 3 compliant so an agreement was entered into with a new contractor, Inland Counties Emergency Medical Agency (ICEMA). ICEMA had recently implemented a Web Enabled Solution called ICEMA State Bridge to provide electronic EMS Patient Care Record (ePCR) Data Entry, Patient Registry (Trauma, Stroke, and STEMI, Burn, and Submersion) from Image Trend, INC. The ICEMA State Bridge provides a uniform mechanism for the collection of EMS Data and the ability to produce predesigned "canned", ad-hoc, and analytical reports for participating agencies. ICEMA State Bridge also transferred and converted the CEMSIS-EMS and CEMSIS-Trauma data to be NEMSIS 3 compliant from the existing system. This substitution of software and contractors provided the ability to improve CEMSIS data collection, perform EMS system evaluation, improve the quality of patient care by best practices sharing, and allowed for State participation in national data collection. The system was not "decommissioned", only transferred to a different contractor with past data intact.

Moreover, as a result of this substitution, a greater emphasis on electronic patient care reports (ePCR) and the movement to real-time Health Information Exchange, as supported by NHTSA has been possible. With the continued maturation of CEMSIS, the ability to provide for matching with other databases will improve using NEMSIS 3 standards.

On October 1, 2014, the National Emergency Medical Services Information System Technical Advisory Committee (NEMSIS TAC) announced that California was the first state to successfully transmit NEMSIS Version 3 EMS data to the national repository using field and state-level software "certified compliant" with the NEMSIS V3 standard.

Summary

OTS grant TR0808 provided the necessary funding for the CEMSIS demonstration project that provided the necessary momentum for the EMS Authority to develop the capacity to collect and analyze complete patient care records and begin work towards Health Information Exchange.

OTS grant TR0808 was also instrumental in improving the collection of EMS and trauma data in California. As a result of the emphasis on data collection and evaluation during the grant period, the EMS Authority and local EMS agencies are better positioned to analyze information concerning EMS performance measures consistent with the NHTSA Performance Measures publication. These efforts enabled the EMS Authority to require EMS Core Quality Measures in 2013 and 2014. The preliminary Core Measures were derived largely from a set of quality indicators developed through a project by the National Quality Forum. The core measures will begin to benchmark the performance of EMS systems, including recommended treatments for patients with various medical conditions, and transportation of patients to the most appropriate hospital.

Core measures are based on scientific evidence about processes and treatments that are known to get the best results for a condition or illness. Core Measures help emergency medical services systems improve the quality of patient care by focusing on the actual results of care. This information concerning EMS system performance was published on the EMS Authority website and is acknowledged as the first State publication of this type of EMS system information in the nation.

Please contact Tom McGinnis, EMS Systems Division Chief at (916) 431-3695 if you have any questions.

Sincerely:

Original signed by

Daniel R. Smiley
Chief Deputy Director

Cc: Robert Nelson, Assistant Director of Administration, Office of Traffic Safety
Trina Nguyen, Associate Accounting Analyst, Office of Traffic Safety

EVALUATION OF RESPONSE

The Emergency Medical Services Authority's (Authority) response to the draft report has been reviewed and incorporated into the final report. In evaluating the Authority's response, we provide the following comments:

Observation 1: Grant Purpose Not Achieved

The Authority disagrees with the observation and states that during the grant period the California Emergency Medical Services Information System (CEMSIS) achieved the goal of driving Local Emergency Medical Services Agencies (LEMSAs) to implement data collection and evaluation using standardized methodologies. However, the grant agreement required the Authority to update CEMSIS to become a statewide data collection system that would accept data from 31 LEMSAs, and link to other data sources to create a timely, accurate, and complete uniform database.

We acknowledge the Authority dedicated significant efforts to develop CEMSIS. However, at the end of the grant period, CEMSIS did not achieve the purpose stated in the grant agreement. CEMSIS did achieve the functionality of accepting data from LEMSAs. However, the Final Quarterly Report submitted by the Authority to the Office of Traffic Safety (OTS) indicated that the CEMSIS EMS and CEMSIS Trauma data continued to encounter data quality and reliability issues. Additionally, the Authority indicated in its response to the draft report that due to challenges encountered, the data linkage portion of the grant was not achieved. Furthermore, during the audit we became aware that the CEMSIS system was removed from service June 30, 2013. The Authority stated that CEMSIS was not able to meet the requirements of the data systems for emergency medical services in current or future applications because the old system was developed based on much older technology and was not able to be cost effectively converted to newer operations. This additional information is significant as it indicates that CEMSIS never fully met the grant purpose, even after the grant period ended.

The Authority states that CEMSIS was not decommissioned, only transferred to a different contractor with past data intact. Evaluation of the new system and the quality and reliability of the data transferred to the new system is beyond the scope of this audit. Therefore, we cannot comment on the transfer of the CEMSIS data, efforts required to develop the new system, or the functionality and accomplishments of the new system. However, we revised the report to reflect that CEMSIS was removed from service rather than decommissioned.