

Neil Kelly  
Clerk of the Circuit and County Courts  
Lake County, Florida

# Audit of E-911 Services

## Internal Audit Division Audit Report

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**Audit Conducted by:**  
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**Report No. BCC-105**  
**March 6, 2013**



**Internal Audit Department**

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March 6, 2013

Board of County Commissioners

We have conducted our audit of the E-911 Services administration function of the Board of County Commissioners' Communications Technologies Division, as scheduled per the Clerk's Annual Internal Audit Plan.

We appreciate the cooperation and assistance provided by the Communications Technologies Division and also other local county and governmental entities contacted during the course of our audit.

Respectfully Submitted,

*Bob Melton*

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Director of Internal Audit

BM/jh

CC: Honorable Neil Kelly, Clerk of Circuit & County Courts  
David Heath, County Manager  
John Jolliff, Public Safety Director

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# INTRODUCTION

## Scope and Methodology

We conducted an audit of the E-911 administration function of the Lake County Board of County Commissioners Communications Technologies Division, as scheduled per our Annual Audit Plan. Our audit objectives were:

- 1) To determine that the 911 Fund is being used appropriately
- 2) To determine the feasibility of 911 call center consolidation
- 3) To determine if system security is appropriate
- 4) To determine if the 911 address database is updated on a timely basis
- 5) To determine if all systems and PSAPs are in compliance with laws and regulations
- 6) To identify any areas where efficiency and effectiveness can be enhanced

To determine whether the 911 Fund was being used appropriately, we reviewed supporting documentation for payroll and non-payroll expenditures.

To determine whether call center consolidation is feasible, we visited all PSAP locations within the County, interviewed staff and management, and we analyzed 911 call volumes.

To determine if system security is appropriate, we interviewed management and reviewed system access.

To determine if the 911 address database is updated on a timely basis, we obtained a listing of Certificates of Occupancy and compared it to the addresses in the 911 database. We also interviewed management and staff of the E-911 administrative function.

To determine if systems and PSAPs are in compliance with laws and regulations we reviewed system licensing, reviewed the Department of Management Systems' State Plan and visited and interviewed PSAP personnel at each of the County's eight PSAP locations.

Our audit included such tests of records and other auditing procedures, as we considered necessary in the circumstances. The audit period was April through October 2012. However, transactions, processes, and situations reviewed were not limited by the audit period.

# Overall Conclusion

Except for the allocation of salaries to the 911 Fund, we conclude that the 911 Fund is being used appropriately. Consolidation of the 911 call centers should be considered. System security is appropriate. We conclude that the 911 address database does not include specific address information. Except for the lack of written agreements and PSAP disaster recovery plans, systems and PSAPs are in compliance with laws and regulations. We noted instances where efficiency and effectiveness can be enhanced. Opportunities for Improvement are included in this report.

## Background

The emergency 911 telephone service throughout all Lake County is operated and maintained by the Communications Technologies Division which:

- Oversees state-of-the-art computer system installation, maintenance and management of E911.
- Maintains and manages master telephone number, street, and 911 caller databases for Lake County.
- Researches, verifies and corrects all inaccurate telephone numbers and address records in conjunction with the telephone company database staff.

More information regarding State of Florida E-911 laws can be found in Florida Statutes 365.171 – 365.175 and the State of Florida 911 Plan.

The Communications Technologies Division/E-911 is responsible for overseeing, managing, coordinating, and maintaining County E-911 systems and operations. The systems currently operate in 8 dispatching call centers known as PSAPs (Public Safety Answering Points) in Lake County. They are the Sheriff's Office<sup>1</sup>, Lake EMS, Tavares Police Department (PD), Mount Dora PD, Eustis PD, Groveland PD, Leesburg PD, and Lady Lake PD. The Division staff manage, create, verify and/or maintain all address, street and telephone number records to strive to ensure the health, safety and welfare of all Lake County citizens. This is mainly accomplished through complete maintenance of various database records. They also assign street names to new site plans, subdivisions and new construction; renaming at times, roads, lakes, mobile home parks and easements. Correct longitude and latitude for all roads and structures in Lake County are required. Many essential County departments and emergency response functions cannot be accomplished without their vital service to the County. Statutes are strict in their governance of monies spent for E-911 procurements.

The Communications Technologies Division/E-911 consists of a staff of 5 full-time employees: Division Director, Systems Database Coordinator, Radio Systems Coordinator, Radio Systems

Technician, and Communications Associate. Each performs multiple functions, with E-911 being a portion of their responsibilities. There is much coordination between the Communications Technologies and the telephone companies, zoning, real estate, private sector developers and engineers, GIS, property appraiser's office, all entities' engineering departments, Lake County citizens, and primary telephone service providers. PSAPs operate under the coordination and guidance of the Communications Division. The Communications Technologies Division also serves as the local interface for Lake County Cable Franchise Agreements (legislatively moved to the State) and maintains the County-wide radio communications systems.

<sup>1</sup>The Sheriff's Office PSAP currently dispatches for the police departments of Clermont, Howey-in-the-Hills, Umatilla, Astatula, Fruitland Park, Mascotte and Minneola. Per consolidation contract, Clermont pays the Sheriff's Office \$450,877 per year to cover the costs of salaries and benefits for 8 dispatch positions. The remaining PDs do not pay anything to the Sheriff's Office.

# OPPORTUNITIES FOR IMPROVEMENT

Our audit disclosed certain policies, procedures and practices that could be improved. Our audit was neither designed nor intended to be a detailed study of every relevant system, procedure or transaction. Accordingly, the Opportunities for Improvement presented in this report may not be all-inclusive of areas where improvement may be needed.

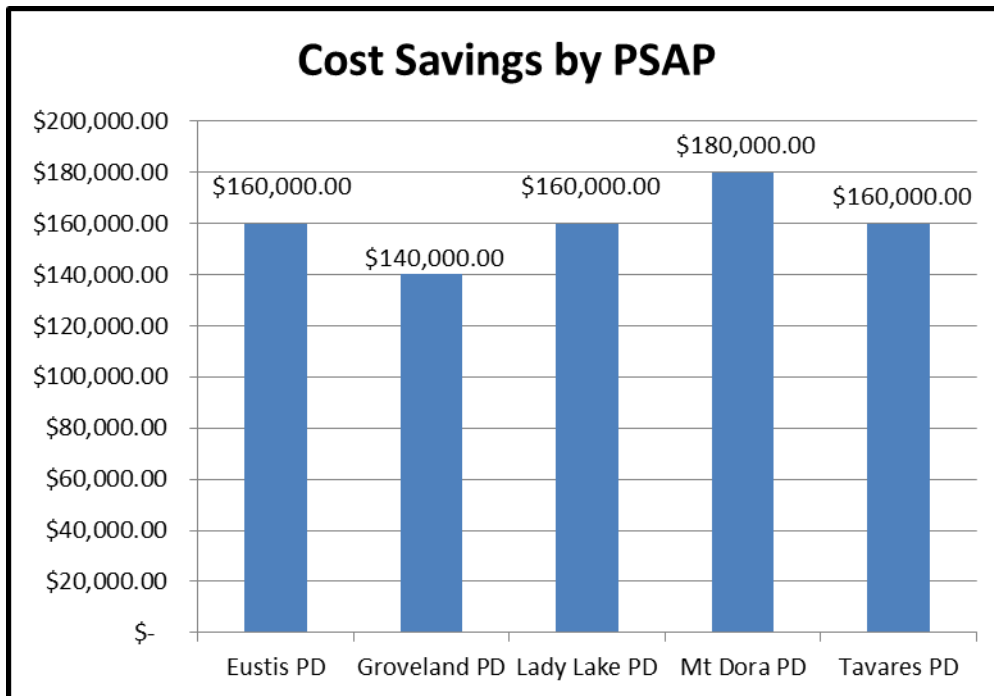
## **1. Consolidation of Emergency Call Centers Should Be Considered.**

Greater efficiency and effectiveness could be achieved if the 911 call centers (PSAPs) were consolidated. According to our estimates, up to \$800,000 could be saved annually by the cities, based upon the reported savings by the City of Clermont. Since savings are dependent upon the amount charged by the Sheriff and staffing retained by the cities, actual savings by PSAP could vary significantly.

Lake County currently has eight separate PSAP locations: Tavares PD, Mt. Dora PD, Lake EMS, Leesburg PD, Sheriff's Office, Lady Lake PD, Groveland PD and Eustis PD, with the Sheriff's Office being the primary PSAP. Each agency receives 911 and non-911 (administrative) calls. All wireless 911 (W911) calls are routed to the Sheriff's Office. Based on call record reports over the 9 month period of January-October, 2012, 67% of all calls were non-911 calls.

Clermont PD consolidated with the Sheriff's Office on October 1, 2010. At the start of the 5-year consolidation contract, they paid an initial amount of \$499,140. During each subsequent year, Clermont pays \$407,052 to the Sheriff's Office (SO). These costs are to cover salaries and equipment at the SO for the 8 additional dispatch positions the SO had to fill. The total of salaries over the 5-year contract period is \$1,982,132, and the total for equipment is \$145,217. Therefore, the total 5 year cost of consolidation is \$2,127,349. The total savings of consolidation reported by the City of Clermont is approximately \$250,000 per year. Before consolidation, the City of Clermont had 12 full-time dispatchers.

Based on the amount of savings achieved by the City of Clermont on a per dispatcher basis, we have estimated the potential savings for the other PSAPS. This assumes they would obtain the same proportional savings as the City of Clermont. The potential annual savings by PSAP (not including the City of Leesburg and Lake EMS) are:



It should be noted that the Tavares Police Department is in the process of consolidating with the Sheriff's Office and expect to be fully consolidated by April 2013. It should also be noted that we have not included City of Leesburg in our consolidation analysis because there is a need to maintain a back-up PSAP. The County believes that Leesburg would be the best PSAP for the back-up. Also, Lake EMS has specialized 911 activity; therefore, we have not included consolidation of Lake EMS in our cost-savings projections. However, there are possible efficiencies to be obtained with consolidation of Lake EMS with the consolidated dispatch center.

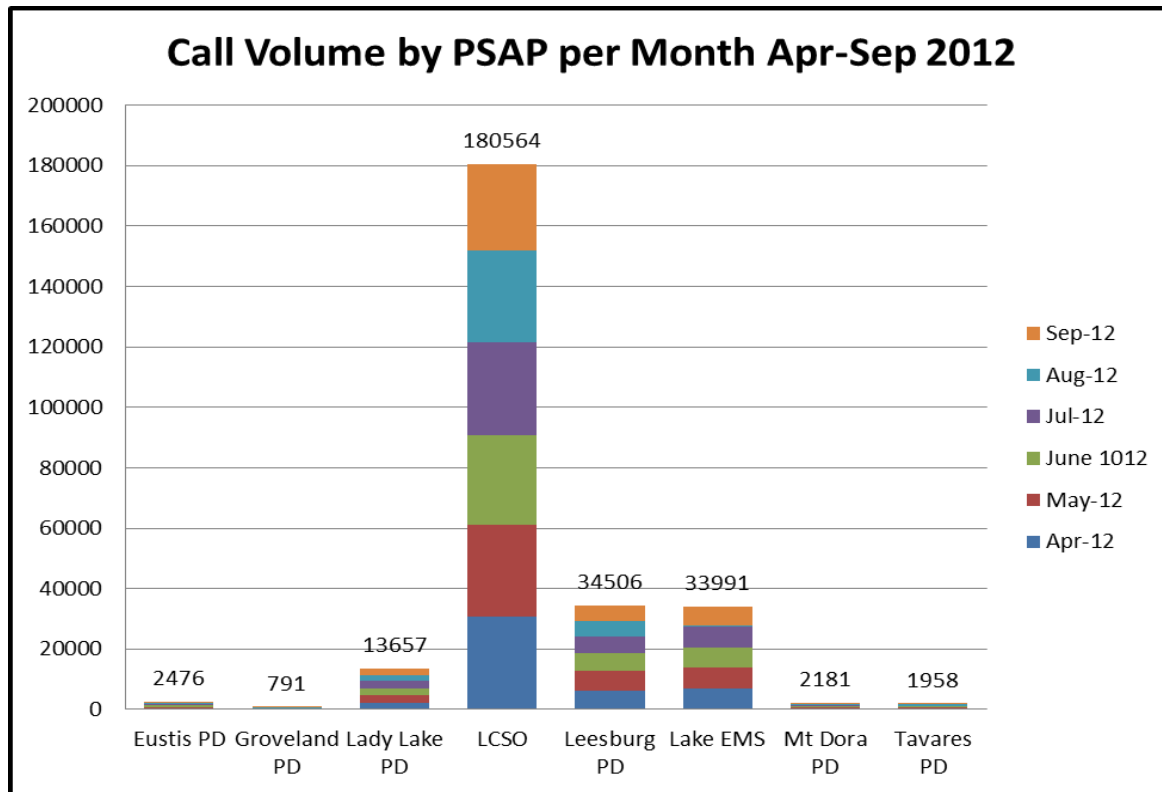
Consolidation of PSAPs has advantages and disadvantages. The possible advantages include:

1. The need for less dispatch personnel.
2. Lower equipment maintenance costs.
3. Fewer variations of systems to maintain.
4. More efficient system maintenance and upgrades.
5. Less equipment needed and, therefore, lower costs for procurement.
6. Standardized training, processes and procedures.
7. Consistent "appearance" (expectations by the public).
8. Ease of position replacement.



## 9. Consolidated disaster recovery.

Greater efficiency can be achieved relating to dispatching and call volume. Call volume at each PSAP is illustrated as follows:



The possible disadvantages include:

1. Non-911 calls for all agencies would come into one call center; therefore, calls would not be answered as "Tavares PD" or "Eustis PD" etc. The public may feel they are not being serviced by their own agency.
2. The CAD (caller assist dispatch) system would still need to be maintained at each agency giving administrative personnel the ability to look up case information.

According to the Florida Emergency Communications Number E911 State Plan, "formation of PSAPs that serve multiple municipal emergency response agencies is encouraged by the Department of Management Services. PSAP consolidation, where the county chooses to combine and operate one or more Public Safety Agencies in a single E911 facility, reduces costs and increases administrative efficiency."

Consolidating PSAPs within the County would allow for annual cost savings to the cities, effective and efficient management of the 911 systems and equipment, consistent training methods, unified disaster recovery plans, and increased administrative efficiency. Because PSAPs are under the control

of the various cities involved, it will be necessary for the County to work with each city about the benefits to be derived from consolidation and to develop a strategy for a smooth transition.

**We Recommend** management consider consolidation of PSAPs and work together with the respective cities to develop a consolidation strategy. In addition, management should consider the feasibility of consolidating EMS with other 911 operations.

**Management Response:**

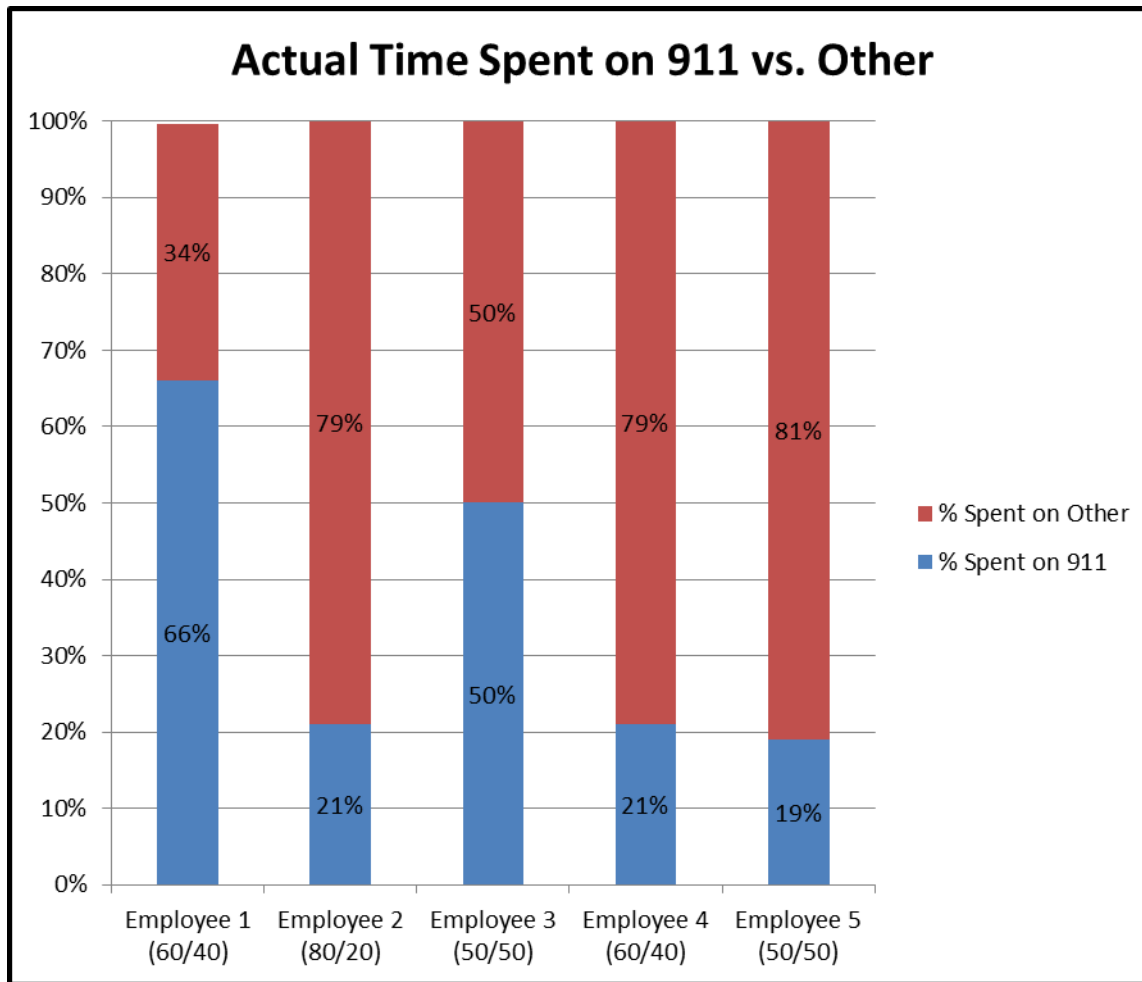
Management concurs with auditor's recommendations with the following additional comment:

- We will continue to work together with the respective agencies to develop beneficial strategies. It is understood that the PSAP's may wish to maintain their autonomy and it is not the County's position to force consolidation, but rather to review effective and efficient management of the 911 systems and equipment.

**2. The 911 Fund Should Only be Charged for Expenses that Reflect Work on 911 Activities.**

The 911 Division personnel do not keep a daily time log of activities; therefore, there is no supportable basis for salaries charged to the 911 Fund. Based on our estimates, the 911 Fund may have been overcharged by approximately \$41,365 during a 12 month period.

During the audit, we requested each of the five division employees keep a time log in order to evaluate the time spent on 911 tasks and the appropriated amount being paid. One employee produced a daily time report which reflected the amount of time spent equivalent to the appropriated percentage from the 911 fund. One other employee produced a time log indicative of more time being spent on 911 tasks than appropriated. The remaining three employees showed significantly less time being spent on 911 tasks than appropriated. Over the course of a year, the 911 fund could potentially be overcharged by a net of approximately \$41,365 (overcharges of \$55,462 and undercharges of \$14,097). The following graph indicated the amount of actual time per employee as compared to the time charged to the 911 Fund.



The Department of Management Services State Plan, Section 6.7 Expenditures, defines the requirements of Section 365.172(9), Florida Statutes, in regard to allowable E-911 service and equipment expenditures. It states "...salary and associated expenses for full-time equivalent positions for an E-911 coordinator, a mapping or geographical data coordinator, and a staff assistant per county for the portion of their time spent administrating the E-911 system."

It is essential that all charges to the 911 Fund be for 911 activities. In addition, charges to the fund should have adequate documentation to provide assurance that all charges are appropriate. In the case of personnel who spend their time on various other activities, time sheets should be maintained or periodic time studies performed and documented to provide substantiation for amounts charged to the fund.

**We Recommend** management require all employees who charge some of their time to the 911 Fund to maintain time sheets. As an alternative, time studies could be performed periodically and documented.

**Management Response:**

Management concurs with auditor's recommendations with the following additional comment:

- Steps will be taken to perform periodic time studies and document employee hours while working on 911 activities to provide substantiation for amounts charged to the fund.

### **3. Steps Should be Taken to Enhance Address Information in the 911 Database.**

The current 911 database application does not provide specific address information. As a result, it is not possible to verify the existence of specific street addresses in the database. The system is inadequate as it is outdated, not upgradable, unsupported and inefficient. This system was designed in-house by an employee who no longer works for the County. The system will only run on an older version of the operating system, which requires County personnel to only use a computer with the older operating system. The current 911 database application is used by 911 personnel to maintain the Master Street Address Guide (MSAG). The MSAG is the backbone of all 911 systems. The local telephone company uses the MSAG from the jurisdiction(s) to be able to route calls within their area. Monthly, the telephone company sends a report of address additions, deletions and changes to the County. 911 personnel then make those changes in the 911 database. Current procedures allow only for entering a street range and not a specific address until after a time in which a telephone number is established and associated with that address.

As a part of our review, we selected all certificates of occupancy for single family homes issued by the County during May and June of 2012. None of these addresses were in the 911 database as of August 23, 2012. Because certificates of occupancy had been issued, it is possible that these residences could have been occupied. Had a 911 incident occurred, response times could have been significantly delayed.

All critical systems should enable personnel to perform their duties effectively and efficiently. Additionally, they should be maintainable, fully supported and be able to run on current operating systems. This antiquated system, which is unsupported, presents significant risk to the County and 911 operations.

Benefits to acquiring a new system include having a fully supported application and the availability of technical support and training when needed. Having an updated system would help streamline administration of the 911 database.

**We Recommend** management consider purchasing an updated database system.

**Management Response:**

Management concurs with auditor's recommendations with the following additional comment:

- The updating of Next Generation technology will be considered and planned in the future as funding becomes available.

**4. PSAP Requirements Should Be Improved.**

During our review of PSAPs, we noted the following concerns:

- A. The County does not have current written agreements with the PSAPs. In some instances, written agreements exist with non-PSAPs, but they have not been updated since 1988. Agreements are necessary to ensure PSAPs are operating in accordance with County guidelines. These include ensuring calls are properly routed, adequate staffing is maintained, adequate training is conducted, adequate security is maintained, and disaster recovery plans are adequate.

The State Plan specifies guidelines for a County E-911 plan. It states that Section C of such plan needs to identify: "Where central office overlaps occur within the county, or where regional or multi-county systems share resources (such as databases, selective routers, overflow or back-up PSAP resources, etc.), agreements between PSAPs (inter-local agreements) and counties (regional agreements) will be required to define the proper routing and handling of calls."

The lack of agreements could lead to misunderstanding respective responsibilities and failure of the PSAPs to adequately perform their responsibilities. Considering the nature of 911 activities, we consider this risk to be unacceptable. Agreements should be immediately instituted.

- B. Lack of Disaster Recovery Plans

During our visits to PSAPs, we noted that there are no written disaster recovery plans for the PSAP. Disaster recovery plans would include alternative call routing, emergency staffing, mobile dispatch locations, and security breaches. As a result, response times could be delayed, spur-of-the moment decisions may be made that are not the most effective, and excess cost could be incurred in the event of an emergency.

Adequate disaster recovery plans are necessary to ensure reasonable contingencies are covered and that plans exist to continue operations.

**We Recommend Management:**

- A. Immediately establish written agreements with each PSAP.
- B. Require and assist the PSAPs in creating a unified disaster recovery plan.

**Management Response:**

Management concurs with auditor's recommendations with the following additional comment:

- All agreements will be updated and a unified disaster plan will be created.