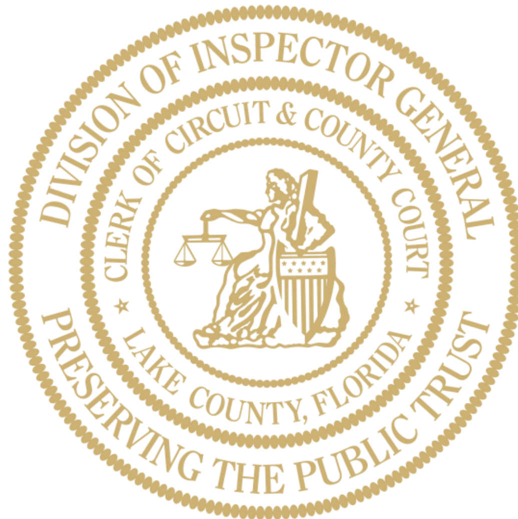

Follow-up Review of Audit of Lake EMS Response Times and User Fees

Division of Inspector General

Neil Kelly, Clerk of the Circuit and County Courts

Audit Report

Bob Melton, CPA, CIA, CFE, CIG
Inspector General

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Report No. BCC-121
August 5, 2014

Division of Inspector General
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August 5, 2014

Board of Directors
Lake Emergency Medical Services, Inc.
and
Lake County Board of County Commissioners

We have conducted a follow-up review of our audit of Lake EMS Response Times and User Fees, as scheduled per the Clerk's Annual Inspector General Audit Plan. The objectives of our review were to determine the implementation status of our previous recommendations.

Of the 12 recommendations in the report, we determined that 4 were implemented, 2 were partially implemented, and 6 were not implemented. The status of each of our recommendations is presented in this follow-up report.

We appreciate the cooperation and assistance provided by Lake EMS during the course of our review.

Respectfully submitted,

Bob Melton
Bob Melton
Inspector General

CC: Honorable Neil Kelly, Clerk of Circuit & County Courts
David Heath, County Manager
Jerry Smith, Executive Director, Lake EMS

Know of Fraud, Waste, or Abuse?
Contact our hotline at (352) 253-1643 or
email fwa@lakecountyclerk.org

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INTRODUCTION

Scope and Methodology

We conducted a follow-up audit of Lake EMS Response Times and User Fees. The purpose of our follow-up review is to determine the status of previous recommendations for improvement.

The purpose of the original audit was to:

1. Determine whether response times are being reported accurately and appropriately.
2. Determine whether user fee rates are reasonable.
3. Determine any related areas where opportunities for improvement exist.

To determine the current status of our previous recommendations, we surveyed and/or interviewed management to determine the actual actions taken to implement recommendations for improvement. We performed limited testing to verify the process of the recommendations for improvement.

Our follow-up audit included such tests of records and other auditing procedures, as we considered necessary in the circumstances. Our follow-up testing was performed during the months of June and July, 2014 and included the time periods of October 2012-April 2013, and October 2013-May 2014. The original audit period was October 1, 2011 through April 30, 2013. However, transactions, processes, and situations reviewed were not limited by the audit period.

Overall Conclusion

Of the 12 recommendations in the report, we determined that 4 were implemented, 2 were partially implemented, and 6 were not implemented. We continue to encourage management to fully implement the remaining recommendations.

Background

Ambulance services are provided in Lake County by Lake Emergency Medical Services, Inc. (EMS), which is a government-owned, not-for-profit Corporation formed in 2011 by Lake County to provide ambulance services. EMS is governed by a nine-member Board of Directors, which includes all five

members of the Lake County Board of County Commissioners, three city representatives, and a hospital representative.

EMS provides County-wide ambulance services. Lake County covers 1,163 square miles. It is 90 miles in length and 35 miles wide. To provide this service, during Fiscal Year 2012-2013, EMS employed approximately 183 personnel including 104 EMTs and Paramedics on ambulances. Budgeted Revenues for Fiscal Year 2012-2013 were:

User Fees	$11,097,338
Lake County Subsidy	5,208,843
Miscellaneous Revenue	23,100
Total Revenue	$16,629,281

For Fiscal Year 2013-2014, EMS now employs approximately 197 personnel including 118 EMTs and Paramedics on ambulances. Budgeted Revenues for Fiscal Year 2013-2014 are:

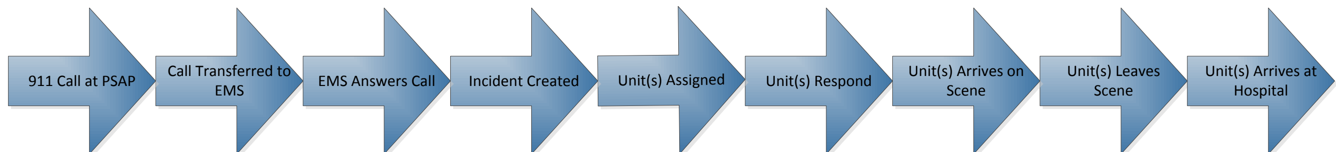
User Fees	$10,518,943
Lake County Subsidy	5,300,000
Miscellaneous Revenue	178,094
Total Revenue	$15,997,037

STATUS OF RECOMMENDATIONS

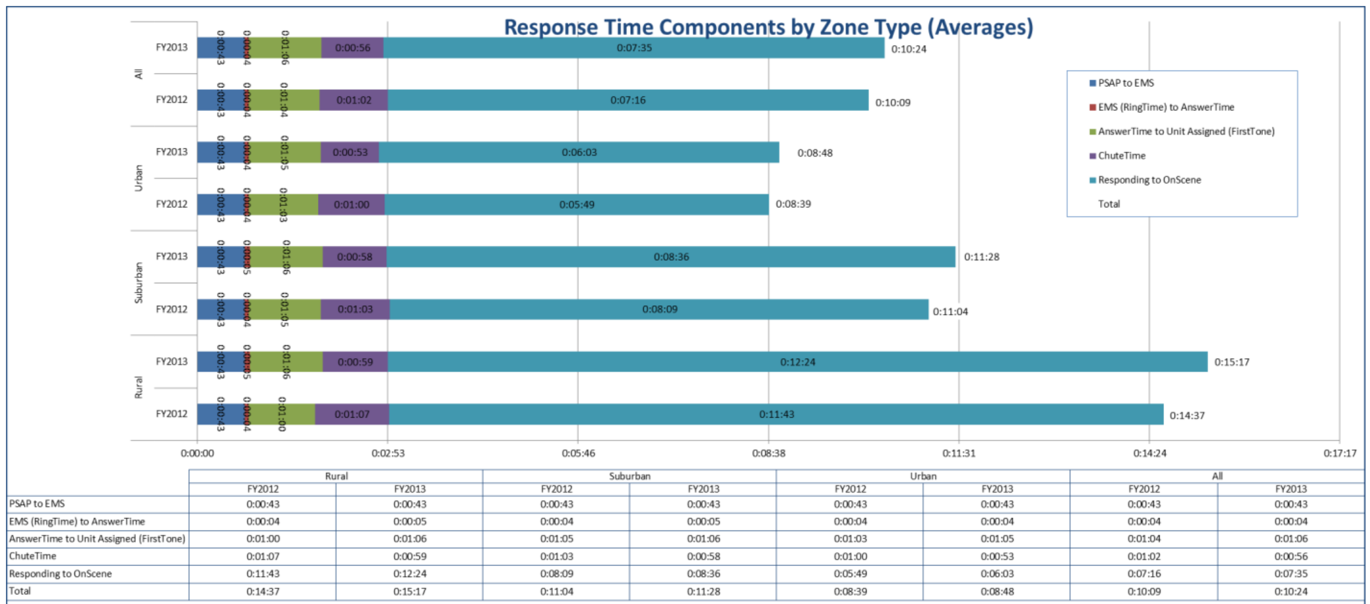
This section reports our follow-up on actions taken by management on the Opportunities for Improvement in our previous audit of the Lake EMS Response Times and User Fees. The issues and recommendations contained herein are those of the original audit, followed by the current status of the recommendations.

1. Total Response Times Should Be Reported.

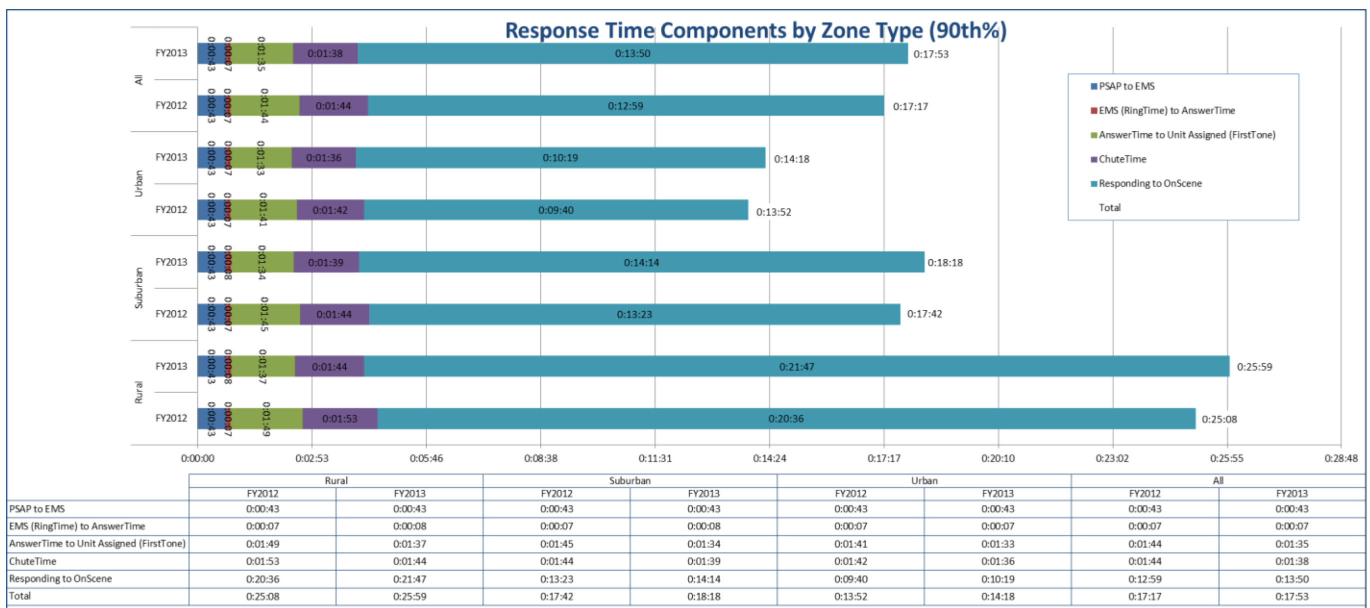
EMS regularly reports response times to the EMS Board (the governing body of EMS) on a monthly basis. According to EMS management, the EMS Board and EMS together have defined these response times as from the time the ambulance leaves on the call until the time the ambulance arrives on scene (referred to as "curb to curb"). While this time is important, it does not include total response time from the time the call is originally received at the primary Public Safety Answering Point (PSAP). An overview of the various components of response time is as follows:



The total response times (including all components) averaged and at the 90th percentile for the Fiscal Year Ending September 30, 2012 and Fiscal Year 2013 (October-March which includes three peak months for EMS), from the time of the initial call, at the primary PSAP, until the time the first EMS responder arrives on scene are shown in the tables below. It is important to note that the "Answer Time to Unit Assigned" component contains emergency calls that are received on the 911 line as well as the EMS Administrative line.



	Rural		Suburban		Urban		All	
	FY2012	FY2013	FY2012	FY2013	FY2012	FY2013	FY2012	FY2013
PSAP to EMS	0:00:43	0:00:43	0:00:43	0:00:43	0:00:43	0:00:43	0:00:43	0:00:43
EMS (RingTime) to AnswerTime	0:00:04	0:00:05	0:00:04	0:00:05	0:00:04	0:00:04	0:00:04	0:00:04
AnswerTime to Unit Assigned (FirstTone)	0:01:00	0:01:06	0:01:05	0:01:06	0:01:03	0:01:05	0:01:04	0:01:06
ChuteTime	0:01:07	0:00:59	0:01:03	0:00:58	0:01:00	0:00:53	0:01:02	0:00:56
Responding to OnScene	0:11:43	0:12:24	0:08:09	0:08:36	0:05:49	0:06:03	0:07:16	0:07:35
Total	0:14:37	0:15:17	0:11:04	0:11:28	0:08:39	0:08:48	0:10:09	0:10:24



	Rural		Suburban		Urban		All	
	FY2012	FY2013	FY2012	FY2013	FY2012	FY2013	FY2012	FY2013
PSAP to EMS	0:00:43	0:00:43	0:00:43	0:00:43	0:00:43	0:00:43	0:00:43	0:00:43
EMS (RingTime) to AnswerTime	0:00:07	0:00:08	0:00:07	0:00:08	0:00:07	0:00:07	0:00:07	0:00:07
AnswerTime to Unit Assigned (FirstTone)	0:01:49	0:01:37	0:01:45	0:01:34	0:01:41	0:01:33	0:01:44	0:01:35
ChuteTime	0:01:53	0:01:44	0:01:44	0:01:39	0:01:42	0:01:36	0:01:44	0:01:38
Responding to OnScene	0:20:36	0:21:47	0:13:23	0:14:14	0:09:40	0:10:19	0:12:59	0:13:50
Total	0:25:08	0:25:59	0:17:42	0:18:18	0:13:52	0:14:18	0:17:17	0:17:53

Because response times have a direct effect on whether people live or die in some instances, it is important that total response times be monitored. To analyze the total response times properly and to determine any improvements that could be made, each component must be reviewed and monitored. Failure to continually review total response times could result in delays being undetected.

We Recommended Management:

A. Work with County E-911 staff to integrate data from the time the initial call comes in to the PSAP into the EMS system.

B. Design reports that include total response times, at the 90th percentile, from the time the call comes into the PSAP until the time the first responder and EMS arrive on scene.

Status:

A. **Not implemented.** Although discussions have been held between EMS and County E-911, integration of EMS's system with the PSAP's system has not been done.

We Again Recommend Management continue to work with County E-911 staff to integrate data from the time the initial call comes in to the primary PSAP into the EMS system.

B. **Partially implemented.** Reports are being generated at the 90th percentile; however, the time only includes from the time that EMS determines there is a need for ambulance service until the time the ambulance arrives on scene.

We Again Recommend Management continue to design reports that include total response times, at the 90th percentile, from the time the call comes into the primary PSAP until the time the first responder and EMS arrive on scene.

2. National Benchmarks Should Be Considered When Establishing Response Time Goals.

According to EMS management, the EMS Board and EMS have established the following response time goals from the time the ambulance leaves until the time the ambulance arrives on scene (travel time or "curb to curb"). These goals are based on averages; however, we have included performance at the 90th percentile as is standard practice in the industry. The following table depicts those figures, by zone type, for Fiscal Year 2012.

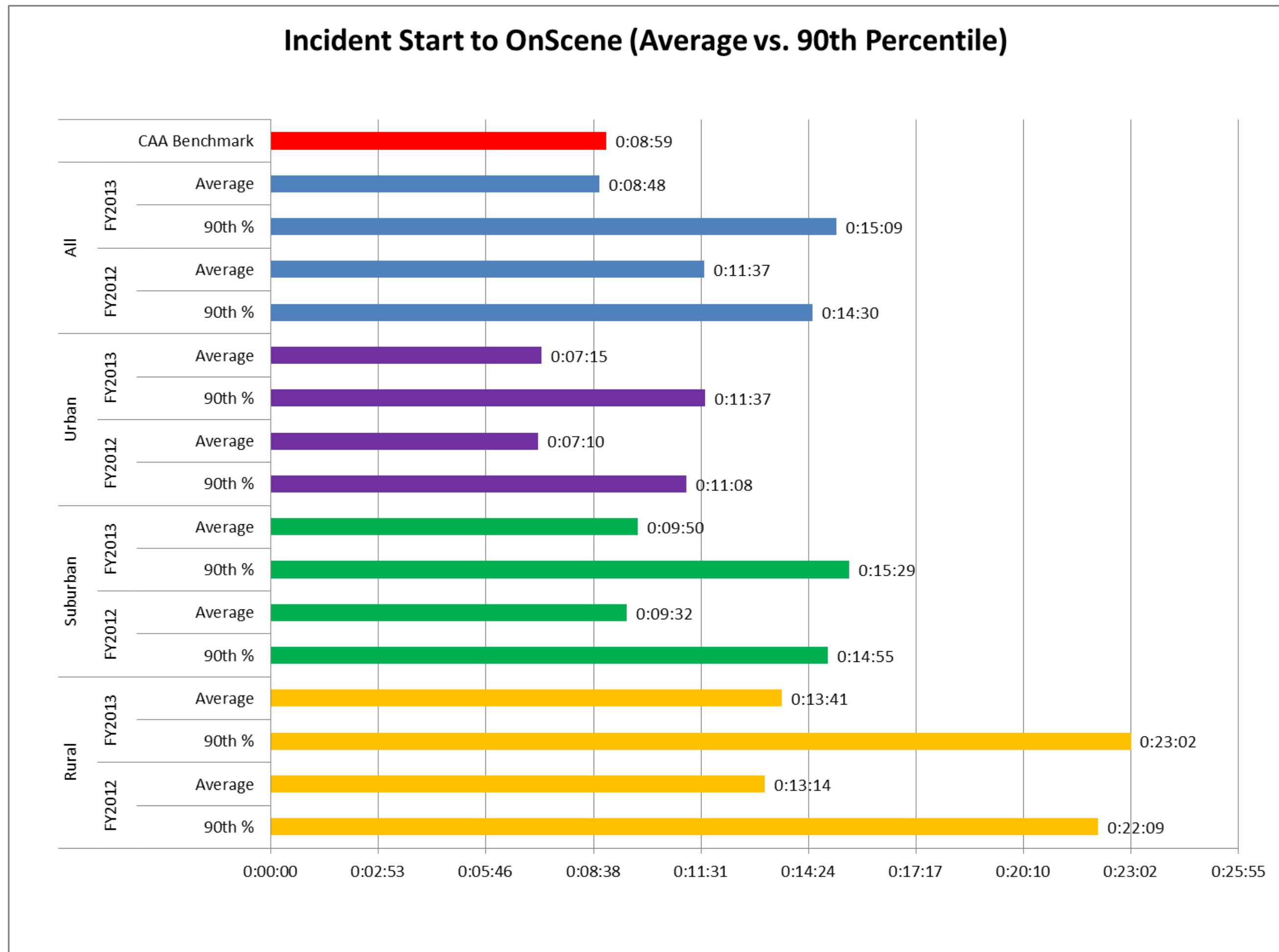
EMS Curb to Curb Response Times (FY 2012)			
Zone Type	**EMS Goal (mm:ss)**	**Actual Curb to Curb Averages (mm:ss)**	**Actual Curb to Curb 90th Percentiles (mm:ss)**
Urban	9:00	5:49	9:40
Suburban	12:00	8:09	13:23
Rural	15:00	11:43	20:36

We have researched various benchmarks for response times and have compared EMS response times to each. Our discussion is as follows:

A. The American Ambulance Association has established an accreditation program for ambulance services (through the Commission on the Accreditation of Ambulance Services). The Association has established best practices, including a reference to "high performance ambulance service." The Association defines high performance ambulance service as "the delivery of clinical excellence, response-time reliability, economic efficiency, and customer satisfaction—simultaneously. For a

system to be considered high performance, it must measure its performance using nationally accepted high-performance standards…"

The Commission has established EMS response time standards. They recommend an 8 minute and 59 second response time, 90 percent of the time, for life-threatening emergencies. This response time is defined as "the interval between the time the patient's location, callback number, and patient problem type are known, and the time the ambulance crew arrives on the scene." This definition is significantly more inclusive than the definition provided by EMS. A comparison of the actual total EMS response times to the standard established by the Commission are:



It should be noted that the Commission states that suburban and rural response times can be adjusted from the standard; however, total response times of EMS appear significantly longer than this standard.

B. The National Fire Protection Association (NFPA) has developed guidelines for EMS services (along with fire departments). These voluntary guidelines, including NFPA 1710 Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments were developed by a consensus of

various fire agencies. They are recognized and used by the International Association of City/County Managers (ICMA). Response times were established to be met regardless of whether EMS response is provided by a fire department or a separate EMS entity.

Guidelines established by NFPA state that the first responder with basic life support (BLS) capabilities arrive within 4 minutes to 90 percent of the medical incidents, and that responders with advance life support capabilities (ALS) arrive within 8 minutes to 90 percent of the incidents to which they are dispatched. NFPA establishes guidelines for the various components of response time. A comparison of these components with actual EMS response times are shown below:

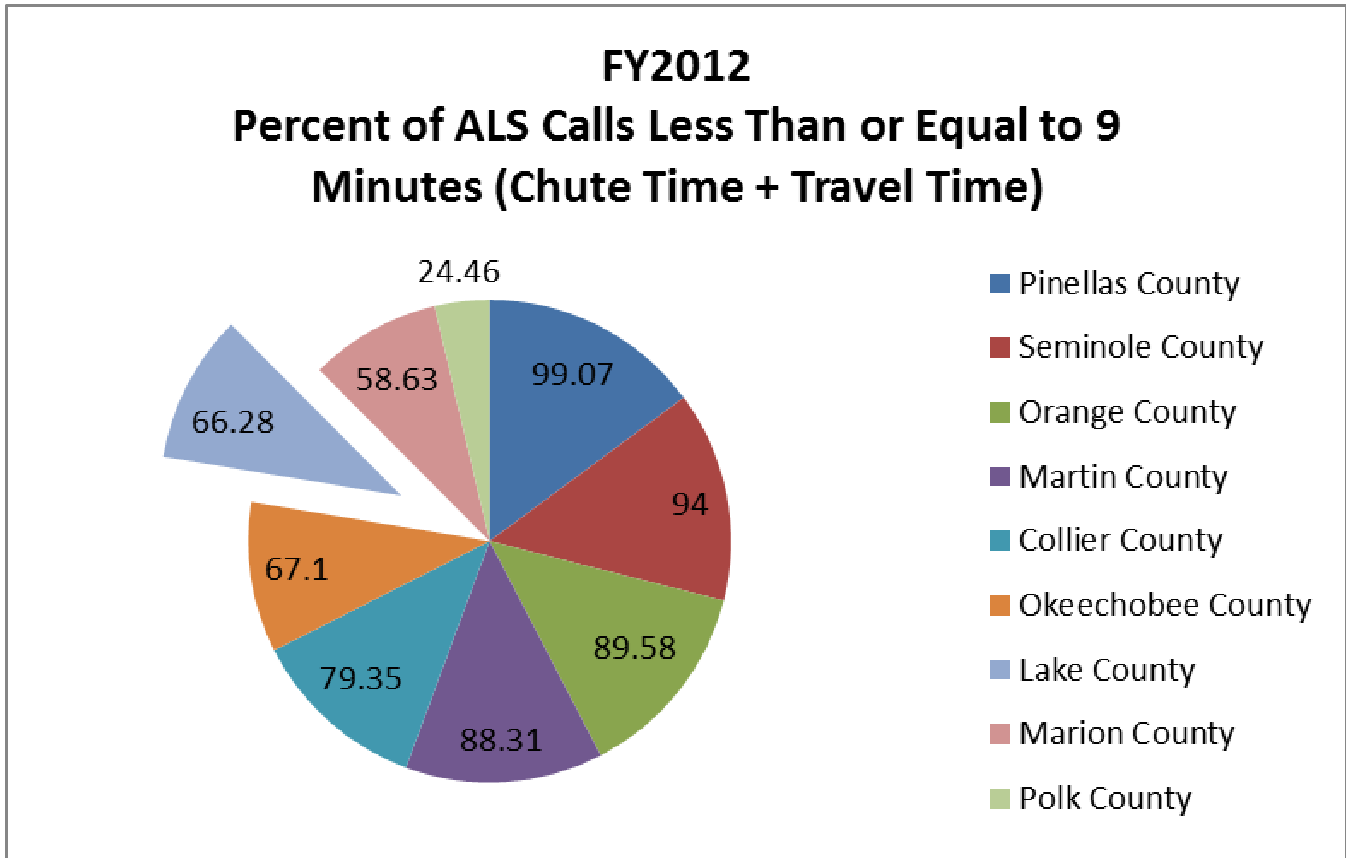
Measure	Lake EMS Standard	NFPA Standard	Actual Performance FY2012 (90th % for all Zone Types)	Actual Time Exceeding NFPA Standards
PSAP to EMS	N/A	00:30	00:43*	43%
EMS to Call Pick Up	N/A	00:40	00:07	-83.5%
Call Pick up to Unit Assigned	N/A	01:30	01:44	15.5%
Unit Assigned to Unit Responding (Chute Time)	01:30	01:00	01:44	73.3%
Unit Responding to Unit On Scene (Curb to Curb)	Urban 09:00 Suburban 12:00 Rural 15:00	08:00	12:59	62.3%

*This is the average taken from a sample of calls received at various PSAPs.

As noted above, EMS actual response times significantly exceed these guidelines.

C. The Florida Benchmarking Consortium is a group of over 60 units of local government in Florida that report actual data in various service areas (including fire rescue) for the purpose of establishing benchmarks. Data submitted by the governments is analyzed and cleansed to ensure appropriate reporting. The Consortium is supported by the University of Central Florida, Institute of Government.

In its report for Fiscal Year 2010-2011, the Consortium received data from seven counties for the percentage of EMS call response times (defined as turnout time plus travel time) where an ALS unit is on scene in less than 9 minutes (NFPA 1710 benchmark). Below are the results, with our computation of Lake EMS based on this same benchmark:



For Lake EMS for Fiscal Year 2012, the actual performance of Chute time and travel time at the 90th percentile was 14.30, as compared to the 9:00 consortium benchmark.

According to the American Heart Association, brain death and permanent death start to occur within 4 – 6 minutes after someone experiences cardiac arrest. Some studies note that a victim's chances of survival are reduced by 7% - 10% for every minute that passes without appropriate treatment. Reportedly, few attempts at resuscitation succeed after 10 minutes. While most of the EMS calls are not cardiac arrest, it is important that response times be minimized to the extent possible.

Lake EMS has a responsibility to the citizens of Lake County to provide efficient and effective EMS services. One way to help ensure the highest standards are met is to pursue national accreditation. If accreditation is not possible, EMS should consider a response time goal that would be in line with those prescribed by professional organizations. The possibility of achieving these goals could be enhanced through greater cooperation and planning with the various Fire Departments throughout Lake County (See Opportunity for Improvement No. 4). Increased funding will also be necessary.

We Recommended management consider the feasibility of adopting appropriate standards to help ensure model response times to the citizens of Lake County. This will include development of a multi-year plan to reach appropriate response time goals.

Status:
Not implemented. A new reporting system has been implemented and response times are being calculated at the 90th percentile; however, standards have not been recommended to the EMS Board. EMS management stated this is because the new reports have just recently been validated by EMS staff. Therefore, a multi-year plan has also not been established.

We Again Recommend management continue to work on adopting appropriate standards for model response times at the 90th percentile and development of a multi-year plan to reach those goals.

3. Response Time Reporting Errors Should Be Corrected.

As part of our review, we attempted to verify the calculation of the response times that have been reported by EMS. In this process, we noted several systemic errors in the calculation of response times. We noted the following types of errors:

A. We noted (as previously identified by management) that the software reporting feature incorrectly calculated response times in situations where more than one ambulance was involved in the call and the first ambulance responding, was cancelled. For example, if two ambulances were involved in the call, the response time report only calculated from the time the second ambulance responded rather than from the time that the first ambulance responded. This report calculation error resulted in response times being reported shorter than the actual response time. On the average, total travel time for Fiscal Year 2012 was underreported by 2.09%, at the 90th percentile for all zone types, because of this single calculation error. This percentage was calculated as an average of the 90th percentile from each individual month of the year. The reported travel response times reported along with the response time corrected for this error are:

FY2012	Reported	Corrected	Reported	Corrected	Difference	Difference
	Average	Average	90th %	90th %	Average	90th %
Rural	11:32	11:43	20:24	20:36	00:11	00:12
Suburban	08:01	08:09	13:02	13:23	00:08	00:21
Urban	05:29	05:49	09:23	09:40	00:20	00:07

B. During our testing of the mathematical accuracy of the response time reports, we noted that the software reporting feature was incorrectly calculating response times for the first responder on scene, regardless of agency and regardless of level (ALS vs. BLS, which is basic life support vs. advanced life support). What was thought to be the time from the earliest "Responding" time to the earliest "on-scene" time was actually reported as the response time for the responder with the shortest "curb to curb" time. During the month of January 2013, a sample of 141 Priority 1 incidents was selected. Eighty-one (57.45%) of those incidents reported an incorrect response time. Of those, a total of thirty-seven (45.68%) reported an incorrect response time of 1 minute or greater. We also noted other software errors and limitations.

This calculation error resulted in response times being reported significantly shorter than the actual response times. On the average, total travel time was underreported by 13.33% because of this single calculation error.

Below are some extreme examples of reported response times for specific incidents along with the actual response time (Priority 1, "curb to curb", first responder regardless of agency and level):

Incident Number	Reported Response Time	Corrected Response Time	Percent Difference
358637	0:00:01	0:02:44	16300.00%
358522	0:00:04	0:03:31	5175.00%
358648	0:00:25	0:02:26	484.00%
358693	0:02:53	0:13:41	374.57%
358719	0:01:52	0:05:43	206.25%
358537	0:02:49	0:06:38	135.50%
358512	0:03:02	0:06:42	120.88%

C. We noted inadequacies in the computer software. Based on our review, we noted the following:

a. Most of the reports generated by the software display times in hours:minutes format. Lake EMS reports times in hours:minutes:seconds format. As a result, travel response times are skewed by up to a minute. For example, 12:00:59 versus 12:00:01 will both appear as 12:00 on the reports but are clearly almost a minute apart.
b. The report "KPI Response Times" is reporting the quickest times, not the first responder response times. This report should be reporting incident response times by calculating the difference between the Incident Start time and the time the first responder arrives on scene. It should further designate the responder's agency and level (ALS or BLS).
c. The report "System Response Time From First Responding" does not report incidents with negative response times. For example, unit A has an On Scene Time of 12:00:00 (did not have a Responding Time) and unit B has a Responding Time of 12:03:00 (does not have an On Scene Time). This would result in a response time of negative 3 minutes, therefore drawing attention to the fact that time stamps need to be researched and corrected.
d. The reports "Unit Calls" and "Travel Time" do not report units that do not have a "Responding" time even if they have an "On Scene" time.
e. The report "System Response Time" does not report incidents that have an "On Scene" time and no "Responding" time.
f. The reports "Incident Mart" and "Call Mart" do not include a Call Source field. This situation was corrected during the audit.

g. Report parameters are inconsistent. For example, one report requires dates and times while others do not. Further, report parameters are not defined.
h. The software does not have a single report that shows all time stamps for incidents and units (RingTime to Available).
i. Report field labels are inconsistent. Different terminology is used in different reports, but have the same meanings (for example, "FirstOnScene" versus "OnScene").
j. The Ambulance Navigator system allows users to press buttons out of sequence and/or multiple times. Users can press "on-scene" without ever pressing "responding". The Communication Center is not catching all incidents with no responding times or other time stamp idiosyncrasies.
k. The Communication Center personnel enter incorrect on-scene times or responding times on occasion. They may call a unit to see if they arrived on-scene (unit forgot to press "on-scene"), the Communication Center will press "on-scene," but not back-date it to the correct time.
l. The system allows missing data fields, duplicate entries and negative results. The software needs a report for the Communication Center to run on a daily basis (at end of shift) to report on time stamp issues.

Reported response times are important since they can be used in allocation of resources as well deployment of staff and equipment. The reporting of inaccurate response times can lead to inefficiency and ineffectiveness of the EMS function, which can adversely affect the lives of Lake County citizens. Therefore, it is crucial that response times be accurately reported.

We Recommended management initiate corrective action with the software vendor to correct all reports, and generate reports noting unusual data. EMS staff should follow-up on and correct all errors and erroneous data.

Status:
Partially Implemented. Reports with previously reported calculation errors have been corrected. Most other report anomalies have been corrected. Those which are not corrected are listed below (as referenced to the list provided above).

b. The "KPI Response Times" report is no longer being used.
c. The "System Response Time From First Responding" report is no longer being used.
g. Report parameters are no longer an issue since the reports are not being used.
i. Report field labels and terminology are no longer an issue since the reports are not being used.
k. Training has been implemented, and a new report has been created (DER) to assist in improving data entry errors.

Management stated that they are actively developing business practices to continue to improve the reporting process. EMS has adopted a new system called "Tableau" which will assist in showing and reporting real time and historical data relating to response time components. Management further stated that this system has been provided by EMS to the various Lake County fire services.

4. EMS and the Fire Services Should Work Together to Achieve System Efficiencies.

In Lake County, a dual response system is used. In this system, the Fire Department (or some city fire departments) also responds to each medical emergency. While the fire department does not transport, they have emergency medical technicians (EMTs), and, in many cases, paramedics. When a paramedic is available, and it is an ALS call, the Fire Department deploys one paramedic and one EMT to the incident, which is exactly the same staffing as EMS provides in the ambulance. Therefore, in considering response times, one consideration is the time the first responder arrives on scene rather than only when the ambulance arrives. Because the fire departments can render life-saving medical emergency procedures, their arrival can save lives even though the ambulance has not yet arrived.

Though both Lake EMS and the Fire Departments within Lake County provide emergency medical services, there is no significant coordination between the agencies regarding location of equipment and staffing. Under the current system, when an emergency call comes in to EMS, both an ambulance and fire medical personnel are dispatched to the scene. Some of the fire stations have ALS capability (including a paramedic on duty), which would result in staff equally qualified to administer life-saving medical procedures.

Because, in part, of the large geographical area of the County, EMS does not have ambulances deployed within close range in all areas. This contributes to the 15 minute travel response time used as a guideline by EMS. However, fire stations are scattered throughout the County. Some of these fire stations have ALS capability while others do not. In some cases, EMS co-locates ambulances at fire stations which also have ALS capability.

In these situations, the ambulance and the fire department ALS staff will sometimes follow each other to the scene of the incident.

Since the timeliness of the arrival of ALS staff can result in lives saved, coordination of the placing of ambulances with the placing of the Fire Department ALS capability could significantly decrease first responder travel response times, especially in the suburban and rural areas.

The strategic placement of equipment and personnel is a specialized area of expertise. Optimal deployment can result in travel response times that are significantly reduced with minimal additional resources. Because of the two agencies involved and the specialized knowledge and techniques required, the use of a consultant should be considered. The consultant should have a specialty in recommending deployment of equipment and personnel in the most efficient and effective possible manner.

We Recommended Management establish an ongoing dialogue with the Fire Departments and consider hiring an external consultant to recommend positioning of staff and equipment of EMS and the Fire Department.

Status:
Not Implemented. During a June 2013 EMS board meeting, an RFP was approved; however, in September 2013, it was decided to be postponed. According to EMS management, the project was postponed due to budgetary constraints and to allow time for the Lake County Board of County Commissioners to engage municipalities in Fire Service automatic aide agreements.

We Again Recommend management consider hiring an external consultant to recommend strategic positioning of staff and equipment of EMS and the Fire Departments for optimal deployment.

5. Hospital Bed Delays Should Be Reduced.

When ambulances transport patients to area hospitals, sometimes there is a delay before the hospital accepts responsibility for the patient. During this time, EMS personnel must remain at the hospital caring for the patient until the hospital accepts them. This practice is not only a violation of the law, but it also contributes to excessive response times. We noted bed delays of up to five hours. Based on available information, projected over a one year period, and assuming a goal of an offload time of 30 minutes, equipment is unnecessarily waiting at a hospital for at least 2777 hours, and at least 5554 man-hours are spent unnecessarily waiting at the hospital. These projections assume all delays over an hour are exactly one hour, and all delays over two hours are exactly two hours. Therefore, actual excessive time spent at hospitals is possibly significantly higher. During this time the ambulance and its staff are not available for emergency calls.

In addition to this situation making the ambulance and staff unavailable for other calls, the patient is delayed in receiving active treatment for their medical condition. While EMS personnel are awaiting transfer of the patient at the hospital, EMS staff is generally allowed to only perform "passive monitoring" and treatments started prior to arrival at the hospital (e.g., IV fluids). "Passive monitoring" is the continual assessment of subjective and objective clinical parameters without institution of any further treatment.

We Recommended Management work with the hospitals to eliminate bed delays. In addition EMS should consider charges to the hospitals and other measures as allowed by law. In addition, when one ambulance is on a bed delay at a hospital, EMS should consider diverting ambulances (in instances where the patient's condition will allow) to other hospitals.

Status:
Implemented. EMS' current policy, effective July 9, 2013, establishes an expectation of routine patient transfer of care to be within 15 minutes of arrival at a facility with a maximum offload objective of 30 minutes. EMS held meetings with the various hospitals in Lake County to achieve cooperation in meeting the standard. The following chart compares previous response times with current response times and the percentage of improvement:

	October 2012-April 2013	October 2013-April 2014	
Hospital	90th %	90th %	% Improvement
Florida Hospital Waterman	0:48:11	0:23:57	50%
Leesburg Regional Medical Center	1:14:02	0:30:05	59%
South Lake Hospital	0:28:50	0:24:43	14%
The Villages Regional Hospital	1:02:01	0:33:31	46%
Overall	0:55:37	0:27:00	51%

6. User Fees Should Be Evaluated.

EMS could receive additional revenue if user fees are comparable to other counties and/or if fees are collected and adjusted to cover costs. EMS fees are lower than those of counties contacted for comparison. In addition, based on our sample, not all of the fees charged for transports covered the costs. Further, some fees were not charged to county entities. We noted the following specific concerns:

A. User fees could be brought in line with those of other counties. In comparison with other counties, the EMS rate was below the average rate for each of six types of transport. In all but one transport type, EMS had rates equal to or lower than the individual counties. We noted the following fees:

Rate Comparison to Other Counties

Agency	ALS-E	ALS-NE	ALS2	SCT	BLS-E	BLS-NE	NPU	Mileage
Marion County FR	$536.00	$500.00	$658.00	N/A	$452.00	$400.00	N/A	$10.16
Pinellas County EMS	$560.32	$560.32	$665.86	N/A	N/A	N/A	N/A	$12.66
Seminole County EMS	$538.00	$538.00	$780.00	N/A	$453.00	N/A	N/A	$9.00
Polk County FR	$600.00	$600.00	$700.00	$800.00	$600.00	$600.00	$100.00	$9.00
Volusia County EMS	$615.00	$389.00	$890.00	$1,051.00	$518.00	$324.00	$615.00	$11.00
Sumter County EMS	$475.00	$430.00	$575.00	$575.00	$350.00	$300.00	N/A	$8.25
Average	**$554.05**	**$502.89**	**$711.48**	**$808.67**	**$474.60**	**$406.00**	**$357.50**	**$10.01**
Lake EMS	$475.00	$430.00	$578.00	$683.00	$350.00	$300.00	N/A	$8.25
Amount Lake EMS is Under Average	$79.05	$72.89	$133.48	$125.67	$124.60	$106.00	$357.50	$1.76

By not charging fees comparable to other counties, EMS is missing out on potential revenue of $295,372 estimated for FY 2012. These funds, if available, could be used to fund basic operations of EMS. Due to rates set by Medicare, Medicaid, and negotiated rates with BCBS, the fees that can be increased are those charged to commercial insurance, contracts, and private pay accounts.

B. The fee structure should be evaluated to ensure costs are covered. Not all user fees cover the costs of the transport. As a result, the Lake County Ambulance fund is subsidizing the operations to an unnecessary extent. We calculated the cost of each transport by selecting a random sample of 30 calls per transport type for calls in FY 2012. The table below shows estimated cost per call as compared to the fee charged:

Cost Based on Actual Costs	Total Cost per Transport	Fee Charged	Fee Below/ (Above) Transport Cost
ALS NE	$506	$430	$76
ALS E	$476	$475	$1
ALS2,E	$544	$578	$(34)
BLS NE	$482	$300	$182
BLS E	$462	$350	$112
SCT	$553	$683	$(130)

Although some types of transport do cover the costs as shown in the chart above, these types represented only 3.4% of the FY 2012 transports. If our samples are representative of the population and the fees were increased to the actual cost per call, then this indicates that we could expect to see an estimated annual increase in revenue of $118,094.

C. Services rendered by EMS to Lake County entities should be paid for by the entities. For example, in FY 2012, about $23,000 of services were provided to inmates in the Lake County Sheriff's Office Jail Facility. Instead of billing these fees to the Sheriff's Office, EMS waived the fees. By not billing these fees, the Ambulance fund was used as a subsidy. As other Lake County entities may have different funding sources, those funds should be used to pay for services provided by EMS instead of the Ambulance fund.

User fees should be established at a level that approximate cost, but that are also in line with the industry. By establishing rates below cost and below the rates charged by other regional entities, EMS is losing revenue. This results in the Lake County taxpayers subsidizing EMS operations to a greater extent than necessary.

We Recommended Management:

A & B. Evaluate the fee structure and determine the most appropriate fees.

C. Bill other Lake County entities for services provided instead of waiving the fees.

Status:

A.& B. **Implemented**. Fees have been evaluated and discussed with the Board. Changes in some fees have been made.

The table below shows the old fees compared to the new fees:

Service Level	Previous Fee Charged	New Fee Charged	Percent Increase
ALS NE	$430	$500	16.28%
ALS E	$475	$550	15.79%
ALS2,E	$578	$685	18.51%
BLS NE	$300	$400	33.33%
BLS E	$350	$450	28.57%
SCT	$683	$683	0.00%

C. **Not implemented.** EMS provides services to the Lake County Sheriff's Office only (for inmate transport). Consideration was made in billing the Sheriff's Office for services provided; however, it was decided not to do so.

We Again Recommend management bill other Lake County entities for services provided instead of waiving the fees.

7. Capital Requirements Should Be Considered On An Annual Basis.

Capital equipment is a major component of providing emergency medical services, from an ambulance and a chassis to stretchers, cardiac monitors, and stair chairs. In FY 2012, only $23,000 was spent to replace equipment due to budget restrictions. About $500,000 in capital expenditures is budgeted for FY 2013.

According to management, the annualized amount that would be required to cover ongoing capital equipment costs is in the range of $750,000 to $850,000. Due to under-budgeting and the tendency to eliminate or reduce capital expenditures when a lack of funding exists, assets are being extended beyond their useful lives. Maintenance has been performed to lengthen the life of these assets. However, this only delays the replacement process, and increases the funds needed for capital requirements in the future.

Considering that people's lives depend on equipment being in proper working condition, a stable capital replacement/acquisition program should be considered. Such a program could be established through establishment of a capital replacement fund, with a set amount budgeted in the EMS General Fund annually to be transferred to the capital replacement fund. The balance in the capital replacement fund should be allowed to accumulate from year-to-year, assuring that necessary funds would be available for additional equipment needs, including equipment replacement. The capital replacement fund would also go through the budgeting process with the EMS Board of Directors.

The establishment of a capital replacement fund would smooth the budgeting process and would ensure capital expenditures are recognized as a necessary ongoing expense rather than an optional expense based on availability of funds.

We Recommended Management consider establishing a capital replacement fund and budget a set amount annually from the EMS General Fund to cover annualized capital expenditures on a long-term basis.

Status:
Not Implemented. EMS has developed a 5-year capital plan; however, no separate capital replacement fund has been established.

We Again Recommend management consider establishing a capital replacement fund and budget a set amount annually from the EMS Fund to cover annualized capital expenditures on a long-term basis.

8. MSTU Should Be Used For Established Purposes.

In 2000, a countywide municipal service taxing unit (MSTU) was established to provide ambulance and EMS for the citizens of Lake County through the Lake County Ambulance fund. In conjunction with our review of funding from this MSTU, we noted the following concerns:

A. In 2009, a separate MSTU was established to cover the cost of emergency medical services provided by Lake County Fire Rescue (LCFR). Also starting in FY 2009, an annual amount of $250,000 began being transferred from the Lake County Ambulance fund for the purchase of advanced life support equipment by LCFR. By FY 2013, the amount transferred had increased to $300,000 annually. Although LCFR has its own MSTU for medical services, the Ambulance fund is being used to supplant the Fire MSTU by providing funds for advanced life support equipment. Every attempt should be made to use the MSTU for the purposes established. (See Opportunity For Improvement No. 4.)

B. In order to provide ALS emergency response to City and County residents in the best and most efficient way possible, Lake County has entered into inter-local agreements with municipalities that operate a fire department and wish to offer ALS emergency response within their jurisdictions. These agreements stipulate that an amount equal to 0.1 mill ad valorem tax levy on each City's assessment roll shall be paid out of the MSTU to the participating municipalities. In FY 2012, those cities with agreements received the following:

City	Amount
Clermont	$178,340
Eustis	$77,438
Groveland	$41,143
Leesburg	$116,685
Mascotte	$11,218
Minneola	$33,171
Mount Dora	$86,940
Total	$544,935

According to EMS management, EMS has had no input as to where the municipalities decide to locate the ALS services. As a result, the equipment may not be located where it can provide the best service to the most residents. To optimize overall system efficiency (See Opportunity For Improvement No. 4), it is crucial that all parts of the system be required to work together regarding location of ALS services.

We Recommended Management:

A. Work with the Board of County Commissioners to determine if transferring the funds to Lake County Fire Rescue is appropriate.
B. Coordinate with Lake County management to re-negotiate the inter-local agreements to require coordination and approval of the location of a municipality's ALS services with EMS. In addition, the agreement should also require that documentation be provided of how the municipality uses the funds.

Status:

A. **Implemented.** EMS discussed the subject with the Board of County Commissioners, and the Board of County Commissioners decided that the transfer of funds to Lake County Fire Rescue is appropriate.

B. **Not implemented.** According to the EMS Executive Director, the Lake EMS Board of Directors suspended this initiative to allow the Lake County Board of County Commissioners to engage municipalities in Fire Service automatic aide agreements.

   We Again Recommend management coordinate with Lake County management to re-negotiate the inter-local agreements to require coordination and approval of the location of any fire department's ALS services with EMS. In addition, the agreement should also require that documentation be provided of how the fire department uses the funds.