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

Audit of Lake EMS - Response Times and User Fees

Internal Audit Division

Audit Report

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May 24, 2013

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

As requested by EMS management, we have conducted an audit of Lake Emergency Medical Services, Inc. (EMS) – Response Times and User Fees.

We appreciate the cooperation and assistance provided by the staff of EMS during the course of our audit.

Respectfully submitted,

Bob Melton

Bob Melton, CPA, CIA, CFE
Director of Internal Audit

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

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EXECUTIVE SUMMARY

As requested by EMS management, we have conducted an audit of Lake Emergency Medical Services, Inc. (EMS). Our scope was limited to a review of response times and user fees. Our audit objectives were to determine whether response times are being reported accurately and appropriately; determine whether user fee rates are reasonable; and, determine any related areas where opportunities for improvement may exist. We noted several opportunities for improvement.

Total response times should be reported, rather than only the travel time (referred to as "curb to curb") that is currently used. Other components of the response time include the time that it takes for the original call to be answered and transferred to EMS, the time for EMS to dispatch the units, and the time it takes the unit to get ready before leaving for the scene. The additional components of the response time are significant. For example, for Fiscal Year 2012 urban responses, the travel time (at the 90th percentile) was nine minutes and forty seconds (9:40), while the total response time was thirteen minutes and fifty two seconds (13:52). 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.

Response times are being reported using average response times, and goals have been established using average response times. However, the trend in the industry is to use the 90th percentile in reporting response time data. The use of this measure helps to prevent significant variations in response times. For example, Fiscal Year response times for rural areas calculated based on the average were eleven minutes and forty three seconds (11:43), which is within the goal established by EMS. However, the same response times calculated at the 90th percentile were twenty minutes and thirty six seconds (20:36), which is in excess of the EMS goal.

National benchmarks should be considered when establishing response time goals. The American Ambulance Association has established an accreditation program for ambulance services. Accreditation as a "high performance ambulance service" includes meeting response time reliability standards, delivery of clinical excellence, economic efficiency and customer satisfaction. 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." Using this definition, EMS achieved an overall response time of 14 minutes thirty seconds (14:30) as compared to the benchmark of eight minutes and fifty nine seconds (8:59). The National Fire Protection Association (NFPA) has developed guidelines for EMS services. 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. For Fiscal Year 2012, EMS actual response time using the NFPA definition was 12:59 as compared with the 8:00 NFPA benchmark. One way to help ensure the highest standards are met is to pursue national

accreditation, such as the accreditation offered by the Commission on the Accreditation of Ambulance Services or another credible agency. 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. This will also involve increased funding, requiring a multi-year plan to achieve the goals. Response times that have been reported to the EMS Board have contained software reporting errors. The first error type involved situations when two ambulances involved in the call. In these situations, 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. The second error type involved incorrectly calculating response times for the first responder on scene, regardless of agency and regardless of level (ALS vs. BLS). 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.

EMS and Fire services should work together to achieve system efficiencies. Though both Lake EMS and the Fire Departments within Lake County provide emergency medical services, there is no significant coordination between the agencies. 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, to the large geographical area of the County, EMS does not have ambulances deployed within close range of 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. We recommend a consultant be hired to establish optimal positioning of staff for EMS and the fire departments.

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. For the seven months ended April 2013, we noted 2257 instances with delays of more than one hour, and 520 instances with delays at hospitals of more than two hours. Hospital bed delays are endangering the health of Lake County residents and should not be tolerated. EMS should take further action to keep bed delays to an absolute minimum.

User fees should be evaluated. Based on our survey of some other jurisdictions, an additional $295,372 in user charges could be received annually if fees were charged at the average rate for the other jurisdictions. In addition, services provided to other Lake County agencies should be billed. During FY 2012, this would have generated an additional $23,000 in revenue.

Tax funds received from a tax levy to provide ambulance services should be used only for that purpose. 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. Interlocal agreements have also been entered into with various cities to provide ALS services; however, the agreements do not provide for coordination to ensure an efficient system.

Our audit contains a total of 11 recommendations for improvement. Management agreed with our recommendations.

INTRODUCTION

Scope and Methodology

As requested by management, we have conducted an audit of Lake Emergency Medical Services, Inc. (EMS). Our scope was limited to a review of response times and user fees. Our audit objectives were 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 may exist.

To determine whether response times are being reported accurately and appropriately, we determined the various components of total response times, tested the accuracy of computer-generated reports, researched other organizations for possible standards or benchmarks, and interviewed other EMS and professional organizations. We recalculated response times based on the total response time, as corrected. We also compared the corrected response times to other benchmarks identified during the audit.

To determine whether user fees are reasonable, we reviewed current rates, calculated costs by type of call, surveyed other EMS jurisdictions, and reviewed estimates of potential increased revenues based on increased user fees. We also interviewed EMS management.

To determine any possible opportunities for improvement, we reviewed documents, processes, and materials from professional organizations.

Our audit scope was limited to the objectives noted above and did not include reviews of other facets of operations or finances. We also did not review the feasibility of contracting out for ambulance services.

Our audit included such tests of records and other auditing procedures as we considered necessary in the circumstances. The audit period was from October 1, 2011 through March 31, 2013. However, transactions, processes, and situations reviewed were not limited by the audit period.

Overall Conclusion

Because only components of response times have been reported and reported response times contain inaccuracies, we conclude that response times have not been accurately and appropriately reported. We conclude that user fee rates are reasonable. We noted opportunities for improvement in EMS operations which are included in this report.

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, EMS employs approximately 183 personnel including 104 EMTs and Paramedics on ambulances. Budgeted Revenues for Fiscal Year 2012-2013 are:

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

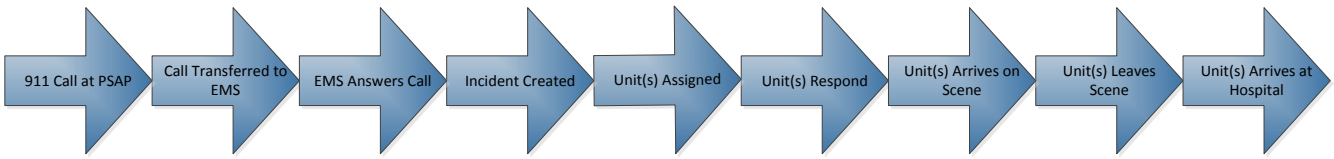
A glossary of terms used in the report is included at the end of the report.

OPPORTUNITIES FOR IMPROVEMENT

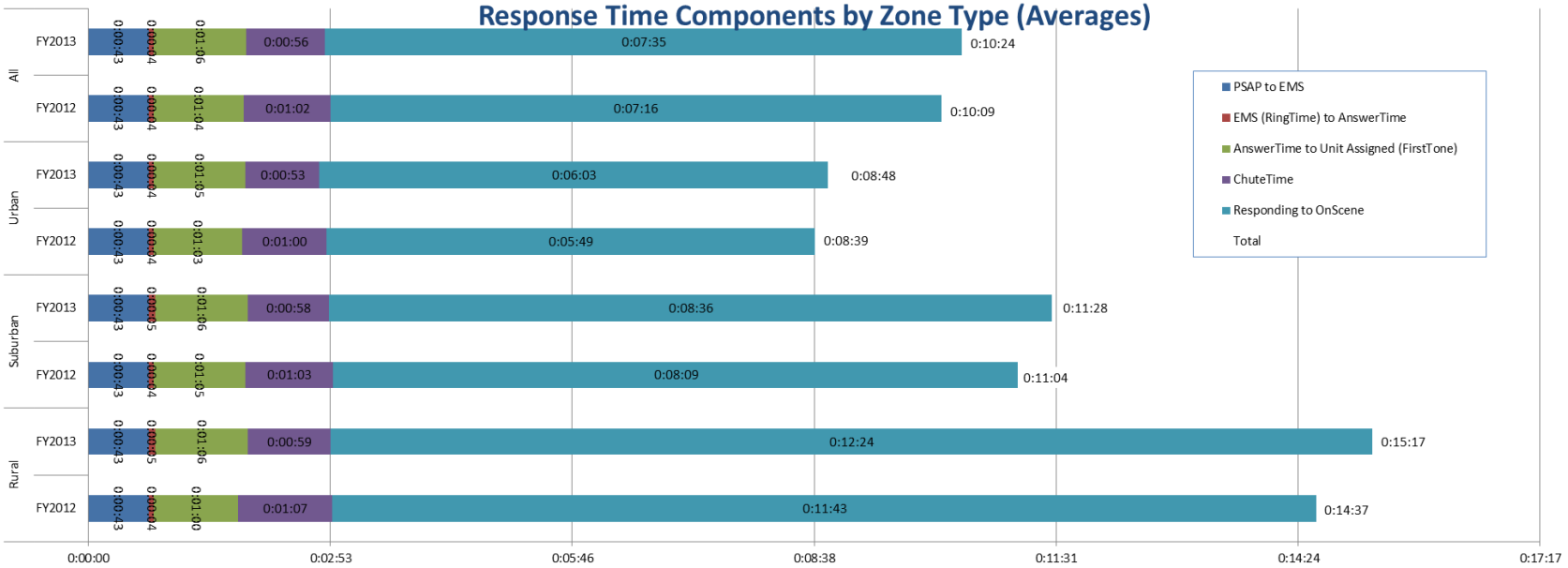
Our audit disclosed certain policies, procedures and practices that could be improved. Our audit was neither designed nor intended to be a detailed study of every relevant system, procedure or transaction. Accordingly, the Opportunities for Improvement presented in this report may not be all-inclusive of areas where improvement may be needed. A response to our recommendations was received from the EMS Interim Executive Director and is included as an appendix to this report.

1. Total Response Times Should Be Reported

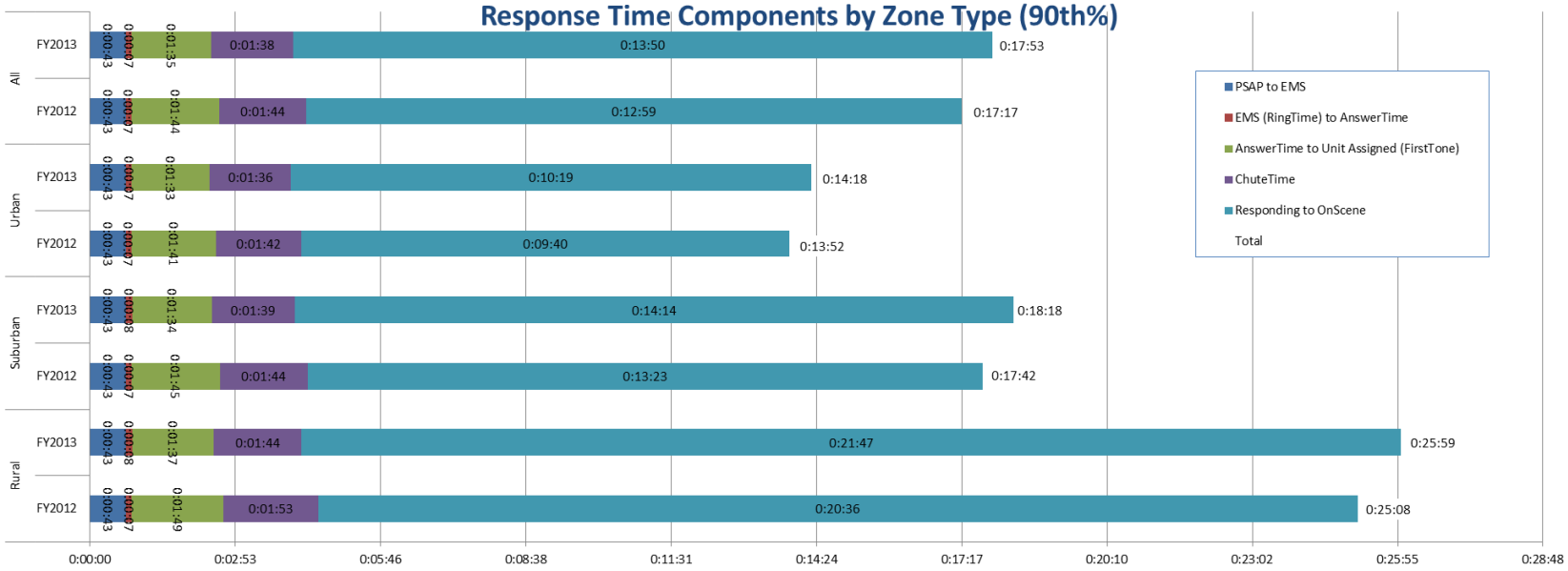
Currently, EMS regularly reports response times to the EMS Board (the governing body of EMS) on a monthly basis. According to EMS management, the EMS Board and EMS together have defined these response times as from the time the ambulance leaves on the call until the time the ambulance arrives on scene (referred to as "curb to curb"). While this time is important, it does not 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 Recommend 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.

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

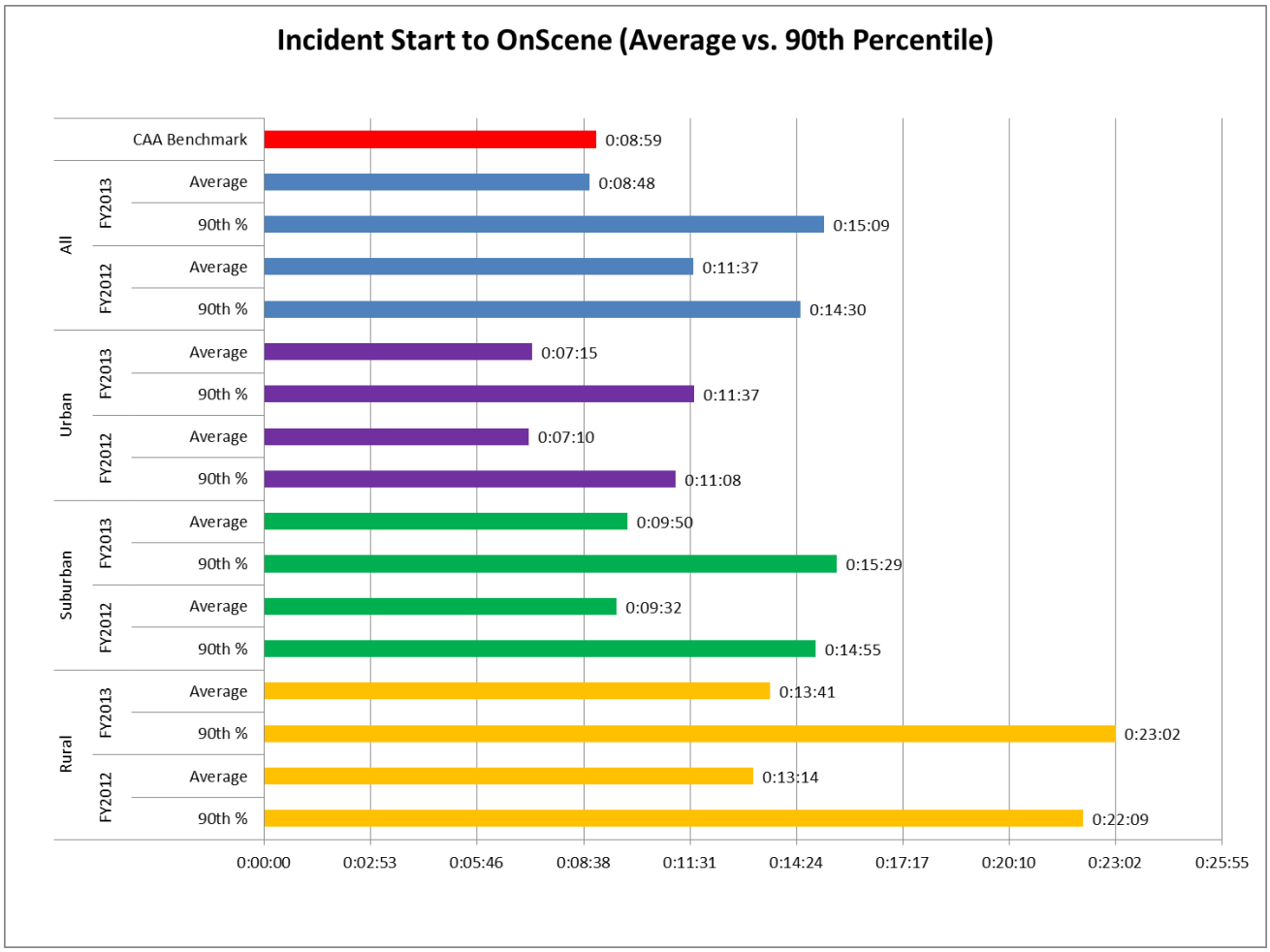
According to EMS management, the EMS Board and EMS have established the following response time goals from the time the ambulance leaves until the time the ambulance arrives on scene (travel time or "curb to curb"). These goals are based on averages; however, we have included performance at the 90th 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:

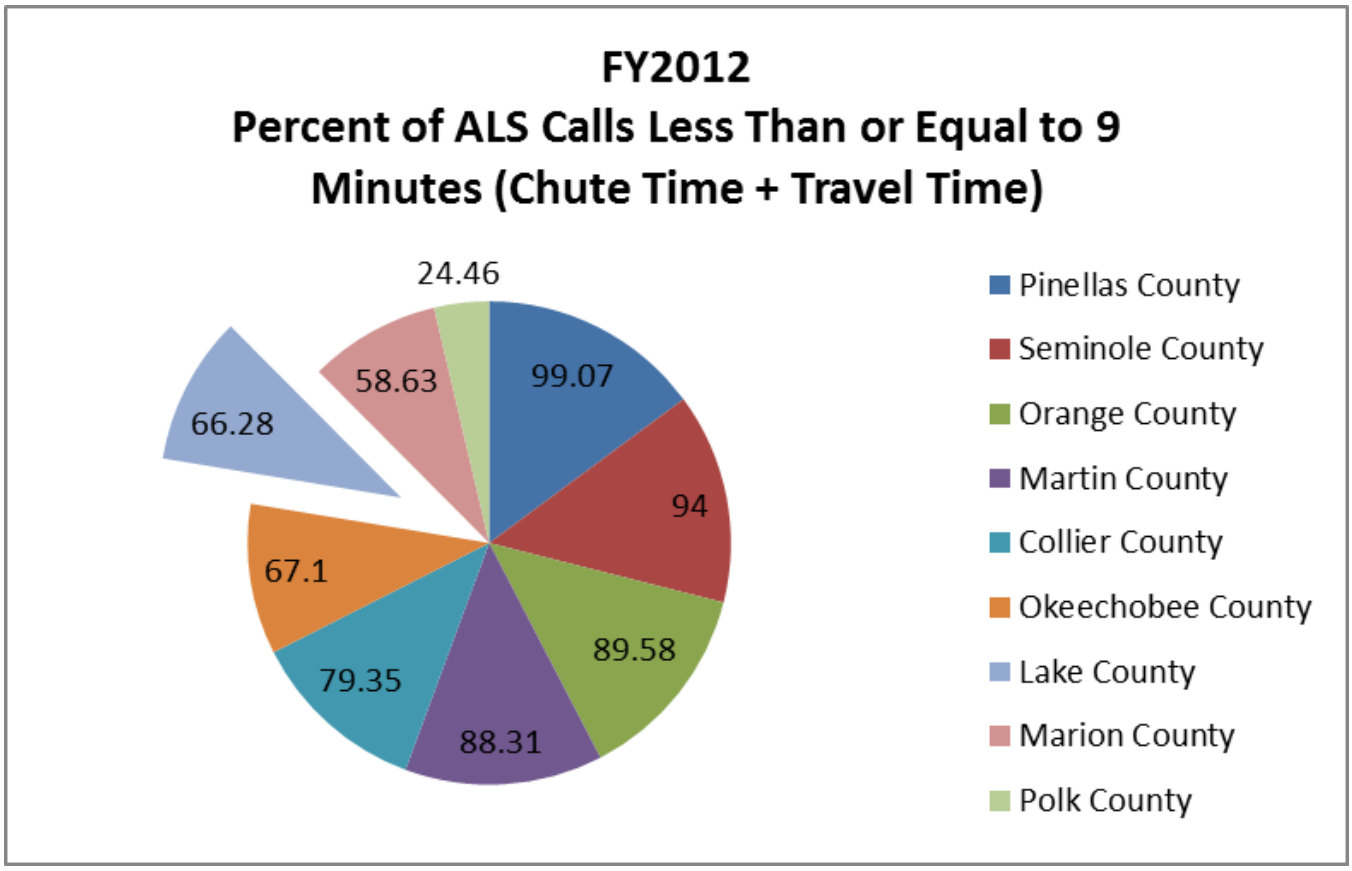
Measure	Lake EMS Standard	NFPA Standard	Actual Performance FY2012 (90th % for all Zone Types)	Actual Time Exceeding NFPA Standards
PSAP to EMS	N/A	00:30	00:43*	43%
EMS to Call Pick Up	N/A	00:40	00:07	-83.5%
Call Pick up to Unit Assigned	N/A	01:30	01:44	15.5%
Unit Assigned to Unit Responding (Chute Time)	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 Recommend 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.

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. The response times reported to the EMS Board for September 2012 ("curb to curb") along with the corrected response times for this error are shown in Appendix D.

   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 Recommend 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.

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 Recommend 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.

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. Average delays for each of the four Lake County hospitals for the seven months ended October 2012 are included in Appendix E.

As noted in the table, bed delays vary significantly by hospital. Total bed delays along with the percentage of patients are summarized as follows:

Hospital	Number > 1 hour	% >1 hour	Number > 2 hours	% > 2 hours
Florida Hospital Waterman	661	10.9%	165	2.7%
Leesburg Regional Medical Center	1125	20.7%	287	5.3%
South Lake Hospital	198	5.9%	11	.3%
The Villages Regional Hospital	273	15.6%	57	3.3%

Based on this 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.

The Department of Health & Human Services addressed this situation in a letter dated July 13, 2006, which states:

> "The Centers for Medicare & Medicaid Services (CMS) has learned that several hospitals routinely prevent Emergency Medical Service (EMS) staff from transferring patients from their ambulance stretchers to a hospital bed or gurney. Reports include patients being left on an EMS stretcher (with EMS staff in attendance) for extended periods of time. Many of the hospital staff engaged in such practice believe that unless the hospital "takes responsibility" for the patient, the hospital is not obligated to provide care or accommodate the patient. Therefore, they will refuse EMS requests to transfer the patient to hospital units.
>
> This practice may result in a violation of the Emergency Medical Treatment and Labor Act (EMTALA) and raises serious concerns for patient care and the provision of emergency services in a community. Additionally, this practice may also result in a violation of 42 CFR 482.55, the Conditions of Participation for Hospitals for Emergency Services, which requires that a hospital meet the emergency needs of patients with acceptable standards of practice.
>
> A hospital has an EMTALA obligation as soon as a patient "presents" at a hospital's dedicated emergency department, or on hospital property . . . and a request is made on the individual's behalf for examination or treatment of an emergency medical condition. A patient who arrives via EMS meets this requirement when EMS personnel request treatment from hospital staff. . . Once a patient presents to the dedicated emergency department of the hospital, whether by EMS or otherwise, the hospital has an obligation to see the patient, as determined by the hospital under the circumstances and in accordance with acceptable standards of care."

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 are 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.

The policy of EMS is to expect bed delays of no more than 15 minutes and to consider action when delays reach 45 minutes. We noted one county which considers anything over 15 minutes to be excessive. The County will continue to remind the charge nurse every few minutes until 45 minutes have elapsed. At that time, as long as the patient is not endangered, they will create an offload option (such as use of a wheelchair, a vacant stretcher or foldable cot) and they will leave. As an alternative, we noted that Alachua County assesses fees to the hospital for bed delays starting after the first five minutes of waiting time. For Fiscal Year 2011-2012, the fees were $143 for the first ¼ hour and $64 per ¼ hour thereafter.

Hospital bed delays are endangering the health of Lake County residents and should not be tolerated. EMS should take further action to keep bed delays to an absolute minimum. We noted that EMS staff have initiated discussions with the senior management of each hospital to find solutions to rectify this situation.

We Recommend 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.

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. This additional revenue is calculated below by type of transport.

Increase in Revenue if Average County Rates Are Used

	ALS NE	ALS E	ALS 2	BLS NE	BLS E	SCT	Mileage	Totals
Commercial Insurance (less BCBS)	$11,917	$97,658	$11,053	$9,438	$58,433	$93	$36,416	$225,008
Contract	$4,016	$11,069	$1,029	$3,007	$2,042	$0	$6,434	$27,596
Medicaid	$0	$0	$0	$0	$0	$0	$0	$0
Medicare	$0	$0	$0	$0	$0	$0	$0	$0
BCBS	$0	$0	$29	$0	$3,578	$0	$0	$3,606
Private Pay	$1,953	$19,803	$2,189	$1,745	$7,807	$0	$5,665	$39,162
Total Increase in Revenue	**$295,372**							

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 as noted below:

Increase in Revenue if Costs Are Covered

	ALS NE	ALS E	ALS 2	BLS NE	BLS E	SCT	Totals
Commercial Insurance (less BCBS)	$13,232	$1,319	$0	$17,284	$55,841	$0	$87,676
Contract	$4,214	$141	$0	$5,204	$1,844	$0	$11,403
Medicaid	$0	$0	$0	$0	$0	$0	$0
Medicare	$0	$0	$0	$0	$0	$0	$0
BCBS	$0	$0	$30	$0	$3,816	$0	$3,846
Private Pay	$2,279	$281	$0	$4,769	$7,840	$0	$15,169
Total Increase in Revenue	$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 Recommend 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.

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 are 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 Recommend 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.

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 interlocal 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

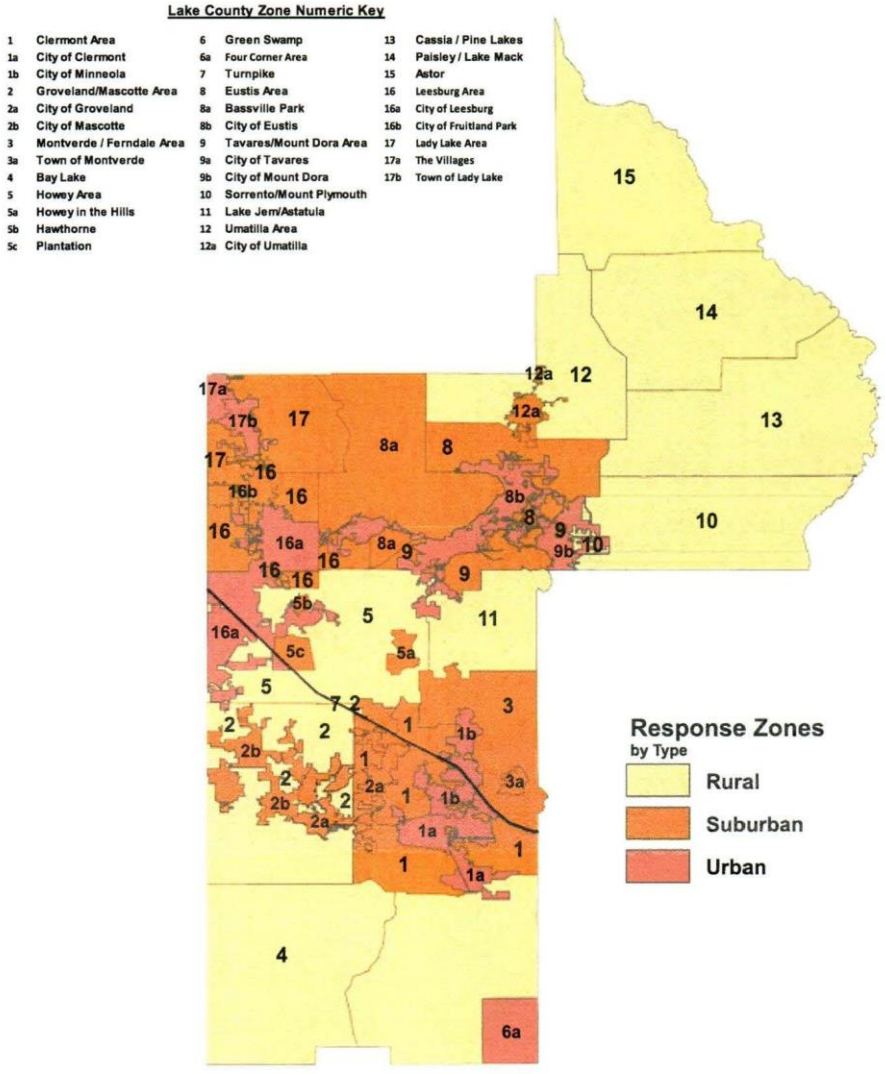
According to EMS management, EMS has had no input as to where the municipalities decide to locate the ALS services. As a result, the equipment may not be located where it can provide the best service to the most residents. To optimize overall system efficiency (See Opportunity For Improvement No. 4),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

We Recommend Management:

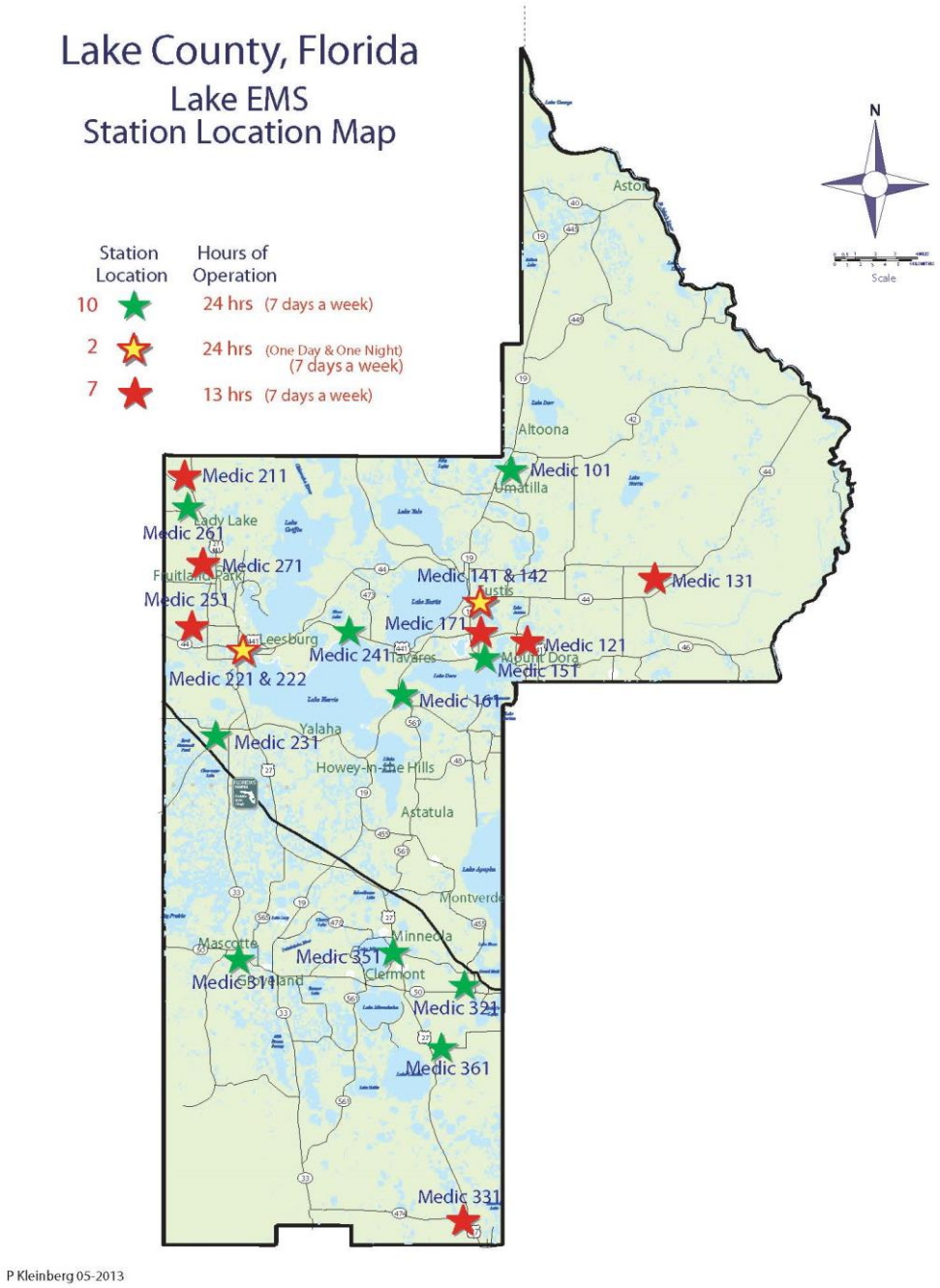
A. Work with the Board of County Commissioners to determine if transferring the funds to Lake County Fire Rescue is appropriate.
B. Coordinate with Lake County management to re-negotiate the interlocal agreements to require coordination and approval of the location of a municipality's ALS services with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

APPENDICES

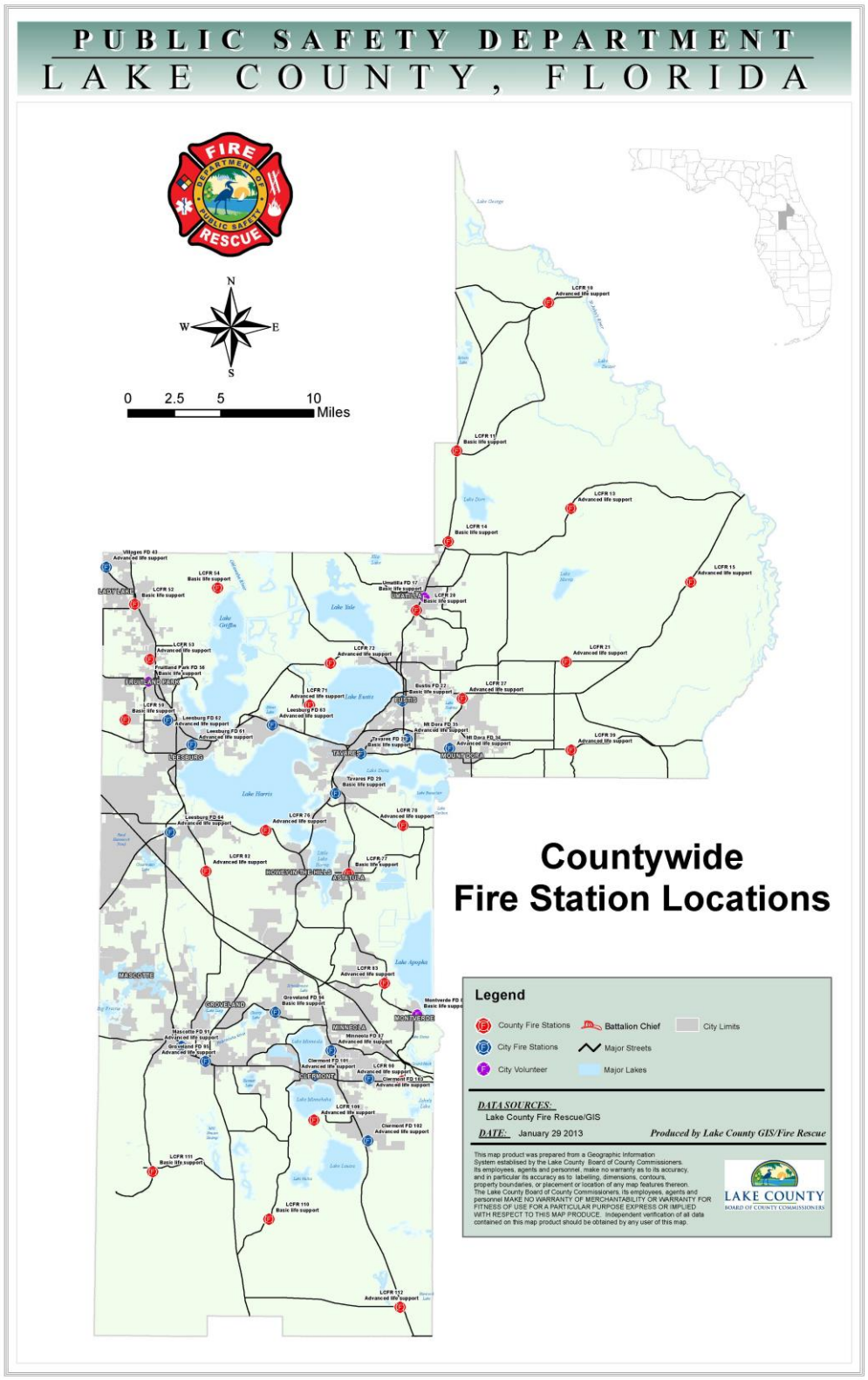
APPENDIX A – EMS Zone Map



APPENDIX B – EMS Station Locations



APPENDIX C –Fire Station Locations



APPENDIX D – KPI Response Time Report Corrected for Calculation Errors

September 2012

	Average				90th Percentile			
Zone	1st Prehospital Provider*	1st ALS Provider **	New Time Accounting for Error (Based on 13.33% projected error rate.)	Difference in From Reported Time	1st Prehospital Provider*	1st ALS Provider **	New Time Accounting for Error (Based on 13.33% projected error rate.)	Difference in From Reported Time
City of Clermont	0:03:35	0:03:41	0:04:03	0:00:29	0:05:51	0:05:53	0:06:37	0:00:47
City of Eustis	0:03:35	0:03:49	0:04:04	0:00:29	0:05:47	0:05:58	0:06:33	0:00:46
Town of Lady Lake	0:03:43	0:04:49	0:04:13	0:00:30	0:05:20	0:10:24	0:06:02	0:00:43
City of Leesburg	0:03:48	0:03:49	0:04:19	0:00:30	0:06:16	0:06:18	0:07:06	0:00:50
City of Minneola	0:03:53	0:03:53	0:04:24	0:00:31	0:05:41	0:05:41	0:06:26	0:00:45
City of Mount Dora	0:04:31	0:04:38	0:05:07	0:00:36	0:06:35	0:07:03	0:07:28	0:00:53
City of Tavares	0:03:30	0:05:29	0:03:58	0:00:28	0:05:28	0:08:25	0:06:12	0:00:44
Four Corner Area	0:03:15	0:03:15	0:03:41	0:00:26	0:05:12	0:05:12	0:05:53	0:00:42
The Villages	0:03:14	0:03:14	0:03:40	0:00:26	0:05:08	0:05:08	0:05:50	0:00:41
Urban	**0:03:43**	**0:04:05**	0:04:12	0:00:30	**0:05:55**	**0:06:23**	0:06:43	0:00:47
Bassville Park	0:06:11	0:07:39	0:07:01	0:00:50	0:09:58	0:12:02	0:11:18	0:01:20
City of Fruitland Park	0:02:32	0:06:26	0:02:52	0:00:20	0:04:59	0:10:11	0:05:39	0:00:40
City of Groveland	0:04:22	0:04:24	0:04:57	0:00:35	0:07:44	0:08:03	0:08:46	0:01:02
City of Mascotte	0:02:52	0:02:52	0:03:14	0:00:23	0:04:40	0:04:40	0:05:18	0:00:37
Town of Montverde	0:09:34	0:11:03	0:10:51	0:01:17	0:12:35	0:12:35	0:14:16	0:01:41
City of Umatilla	0:03:05	0:07:55	0:03:30	0:00:25	0:04:48	0:13:57	0:05:26	0:00:38
Clermont Area	0:05:14	0:05:51	0:05:56	0:00:42	0:09:04	0:10:57	0:10:17	0:01:13
Eustis Area	0:05:17	0:05:23	0:05:59	0:00:42	0:08:38	0:08:38	0:09:47	0:01:09
Hawthorne	0:07:25	0:07:25	0:08:25	0:00:59	0:10:13	0:10:13	0:11:35	0:01:22
Howey-in-the-Hills	0:06:51	0:06:51	0:07:46	0:00:55	0:07:43	0:07:43	0:08:45	0:01:02
Lady Lake Area	0:05:43	0:07:31	0:06:29	0:00:46	0:08:09	0:13:00	0:09:15	0:01:05
Leesburg Area	0:06:36	0:08:42	0:07:28	0:00:53	0:10:39	0:12:39	0:12:04	0:01:25
Montverde/Ferndale Area	0:07:11	0:07:11	0:08:08	0:00:57	0:08:35	0:08:35	0:09:43	0:01:09
Plantation	0:05:18	0:05:18	0:06:01	0:00:42	0:08:05	0:08:05	0:09:10	0:01:05
Tavares, Mt Dora Area	0:04:23	0:04:41	0:04:58	0:00:35	0:08:01	0:08:09	0:09:05	0:01:04
Suburban	**0:05:10**	**0:06:31**	0:05:51	0:00:41	**0:09:04**	**0:11:23**	0:10:17	0:01:13
Astor	0:03:26	0:03:26	0:03:54	0:00:28	0:06:27	0:06:27	0:07:18	0:00:52
Bay Lake	0:07:57	0:15:18	0:09:01	0:01:04	0:12:11	0:23:03	0:13:48	0:01:37
Cassia/Pine Lakes	0:06:39	0:06:58	0:07:32	0:00:53	0:11:15	0:11:15	0:12:45	0:01:30
Green Swamp, South Lake	0:06:14	0:06:44	0:07:04	0:00:50	0:08:12	0:14:22	0:09:18	0:01:06
Groveland, Mascotte Area	0:07:22	0:07:22	0:08:21	0:00:59	0:12:04	0:12:04	0:13:41	0:01:37
Howey Area	0:05:59	0:06:07	0:06:46	0:00:48	0:09:35	0:09:35	0:10:52	0:01:17
Lake Jem/Astatula	0:05:46	0:06:16	0:06:32	0:00:46	0:09:11	0:09:11	0:10:24	0:01:13
Paisley Area/Lake Mack	0:08:22	0:08:22	0:09:29	0:01:07	0:11:47	0:11:47	0:13:21	0:01:34
Sorrento, Mount Plymouth	0:05:41	0:05:41	0:06:27	0:00:45	0:08:10	0:08:10	0:09:15	0:01:05
Turnpike	0:07:51	0:07:51	0:08:54	0:01:03	0:10:38	0:10:38	0:12:03	0:01:25
Umatilla Area	0:05:21	0:11:02	0:06:04	0:00:43	0:09:34	0:16:40	0:10:50	0:01:17
Rural	**0:06:07**	**0:06:55**	0:06:56	0:00:49	**0:09:54**	**0:11:47**	0:11:13	0:01:19

APPENDIX E – Bed Delays

October 2012 – April 2013

		October		November		December		January		February		March		April	
Florida Hospital Waterman	Total Pt	768		874		941		892		852		905		790	
	Max Offload	1:21:38		1:55:28		4:15:07		3:59:01		4:29:13		3:10:35		2:14:06	
	Avg Offload	0:17:54		0:19:39		0:29:34		0:44:50		0:44:35		0:37:46		0:23:36	
		#	%	#	%	#	%	#	%	#	%	#	%	#	%
	≥ 30 minutes	51	7%	85	10%	241	26%	425	48%	423	50%	395	44%	144	18%
	≥ 1 hours	3	0%	10	1%	90	10%	203	23%	191	22%	143	16%	21	3%
	≥ 2 hours	0	0%	0	0%	26	3%	65	7%	50	6%	22	2%	2	0%
Leesburg Regional Medical Center	Total Pt	763		720		776		821		750		786		812	
	Max Offload	4:29:02		3:40:44		3:19:24		5:39:04		3:51:33		4:24:25		3:26:06	
	Avg Offload	0:29:24		0:33:50		0:37:53		1:01:00		0:44:14		0:49:21		0:37:10	
		#	%	#	%	#	%	#	%	#	%	#	%	#	%
	≥ 30 minutes	231	30%	258	36%	326	42%	504	61%	403	54%	456	58%	351	43%
	≥ 1 hours	70	9%	105	15%	143	18%	295	36%	171	23%	207	26%	134	17%
	≥ 2 hours	11	1%	21	3%	32	4%	120	15%	33	4%	50	6%	20	2%
South Lake Hospital	Total Pt	441		457		479		570		454		499		454	
	Max Offload	3:06:15		1:41:17		1:28:56		2:20:54		2:35:07		1:44:30		2:25:07	
	Avg Offload	0:24:52		0:25:30		0:24:39		0:30:35		0:31:51		0:28:23		0:28:46	
		#	%	#	%	#	%	#	%	#	%	#	%	#	%
	≥ 30 minutes	112	25%	120	26%	124	26%	205	36%	173	38%	168	34%	164	36%
	≥ 1 hours	15	3%	21	5%	24	5%	46	8%	41	9%	31	6%	20	4%
	≥ 2 hours	1	0%	0	0%	0	0%	5	1%	4	1%	0	0%	1	0%
The Villages Regional Hospital	Total Pt	254		220		241		296		242		279		221	
	Max Offload	2:18:11		2:42:42		3:40:37		4:25:52		3:01:54		2:58:03		2:46:06	
	Avg Offload	0:27:44		0:35:41		0:41:33		0:46:43		0:39:11		0:40:52		0:35:01	
		#	%	#	%	#	%	#	%	#	%	#	%	#	%
	≥ 30 minutes	73	29%	93	42%	113	47%	161	54%	128	53%	154	55%	92	42%
	≥ 1 hours	15	6%	30	14%	49	20%	64	22%	37	15%	51	18%	27	12%
	≥ 2 hours	1	0%	5	2%	12	5%	20	7%	7	3%	10	4%	2	1%

APPENDIX F – Schedule of Revenues and Expenditures

Lake Emergency Medical Services, Inc.
Schedule of Revenues and Expenditures
(Unaudited)

	Actual FY 2012	Amended Budget FY 2013
Revenues		
Private Pay Fees	$ 3,078,719	$ 2,521,020
Medicare Fees	8,785,173	10,258,640
Medicaid Fees	1,640,896	1,826,343
Contract Fees	187,736	172,089
Commercial & HMO Fees	2,177,519	2,234,293
Less Bad Debt Expense	(2,581,396)	(2,511,825)
Less Contractual Allowances	(2,531,419)	(3,403,222)
Net Charges for Services	**$ 10,757,228**	**$ 11,097,338**
Urban Areas Security Initiative Grant	$ -	$ 142,745
Other Miscellaneous Revenues	71,679	20,000
Other Dispatch Fees	103,620	-
Ins Proc/Loss Furn/Fix/Equipment	49,959	-
Other Charges for Services	816	1,000
Reimbursements	1,034	-
Interest	393	-
Donations	125	100
Other Public Safety	60	2,000
Lake County Subsidy	5,482,993	5,208,843
Total Miscellaneous Revenues	**$ 5,710,679**	**$ 5,374,688**
Balance Carried Forward	**-**	**329,452**
Total Revenues	**$ 16,467,907**	**$ 16,801,478**
Expenditures		
Personal Services	$ 12,456,635	$ 12,268,612
Operating Expenditures	3,499,188	3,600,101
Capital Outlay	22,630	517,765
Administration Costs	160,000	160,000
Total Expenditures	**$ 16,138,453**	**$ 16,546,478**
Reserve for Contingencies	150,000	255,000
Total Expenditures plus Reserve	**$ 16,288,453**	**$ 16,801,478**
Excess of Revenues Over Expenditures	$ 179,454	$ -

APPENDIX G – Schedule of Personal Services and Operating Expenditures

Lake Emergency Medical Services, Inc.
Schedule of Personal Services and Operating Expenditures Detail
(Unaudited)

	Actual FY 2012	Amended Budget FY 2013
Personal Services		
Executive Salaries	$ 192,986	$ 128,735
Regular Salaries	8,252,368	8,259,018
Overtime	821,014	843,320
Special Pay	5,325	5,400
Social Security Matching	672,747	706,177
Retirement Contributions	649,242	630,705
Life and Health Insurance	1,606,503	1,447,588
Workers Compensation	255,967	238,669
Unemployment Compensation	483	9,000
Total Personal Services	**$ 12,456,635**	**$ 12,268,612**
Operating Expenditures		
Professional Services	$ 122,178	$ 136,646
Contractual Services	131,064	124,225
Collection Fees	53,800	50,000
Travel and Per Diem	15,163	14,408
Communications	63,376	61,512
Telephone	93,923	99,231
Cellular Telephone	25,336	31,314
Paging Service	1,044	1,439
Freight & Postage	27,932	28,300
Utility Services	126,529	147,635
Rental Leases	5,796	110
Property Leases	336,013	323,170
Equipment Leases	13,138	13,418
Insurance	298,368	249,952
Repair and Maintenance	379,581	399,667
Auto Repairs/Supplies	211,548	225,000
Printing and Binding	12,125	12,750
Reprographic Charge	41	-
Promotional Activities	1,925	4,500
Employee Recognition	7,874	7,500
Other Current Charges/Obligations	11,830	15,500
Office Supplies	155,414	328,348
Operating Supplies	22,746	52,511
Motor Fuel/Oil	476,981	525,000
Linen Supplies	48,098	30,000
Cleaning Supplies	24,709	20,000
Uniforms	109,166	112,485
Medical Supplies	517,918	402,900
Oxygen	65,836	60,000
Pharmacy Supplies	93,882	70,000
Books, Publications & Dues	31,215	36,861
Training	14,639	15,719
Total Operating Expenditures	**$ 3,499,188**	**$ 3,600,101**

APPENDIX H – Balance Sheet

Lake Emergency Medical Services, Inc.
Balance Sheet
(Unaudited)

	As of September 30, 2012	
Assets		
Cash	$	200
Accounts Receivable		1,751,634
Total Assets	**$**	**1,751,834**
Liabilities		
Accounts Payable	$	324,622
Accrued Liabilities		506,800
Due to Other Funds		590,960
Total Liabilities	**$**	**1,422,382**
Fund Balances		
Restricted	$	-
Committed		329,452
Assigned		-
Total Fund Balances	**$**	**329,452**
Total Liabilities and Fund Balances	**$**	**1,751,834**

APPENDIX I – Management Response

MEMORANDUM

Lake Emergency Medical Services, Inc.
2761 W. Old US Highway 441 – Mount Dora, FL 32757
Voice: 352-383-4554 – FAX: 352-735-4475 – www.lakeems.org

To: Robert Melton, Director of Internal Audit, Lake County Clerk of the Circuit and County Courts

From: Gerald (Jerry) L. Smith II, Interim Executive Director

Date: May 23, 2013

Subject: Audit of Lake EMS – Response Times and User Fees

In March of this year Lake EMS staff discovered the automated reports from the Zoll Computer Aided Dispatch (CAD) system contained inaccuracies which caused staff to provide response time reports to the Lake EMS Board of Directors which contained errors. While staff was working with Zoll on correcting the software anomalies I requested your office to conduct an audit of our previous processes and validate our new processes. Additionally, March is when Lake EMS management began developing our proposed Fiscal Year 2013-2014 budget. Each year during the budget development process questions arise pertaining to the adequacy of our rates. Therefore, I also requested your office conduct an audit to determine if the Lake EMS user fee rates are reasonable.

Your office began immediately on the audit and has completed it in an exceedingly rapid manner. Lake EMS accepts the audit and appreciates how your staff conducted the audit in a positive professional manner providing solid and well researched recommendations. We recognize the complexity of the data which had to be interpreted and the effort by your staff to create comparison between average response times, which has been the customary measure of EMS response in Lake County, as well as the 90th percentile, which was reported to the Lake EMS Board of Directors but is now being considered as the measure to determine the performance of Lake EMS.

As Lake EMS staff develops plans for the implementation of the audits recommendations for the Lake EMS Board of Directors' consideration we look forward to consulting with your office to confirm the plans will meet the intent of the recommendations.

GLOSSARY

Advanced Life Support, Level 1 (ALS1) - Transportation by ground ambulance vehicle and the provision of medically necessary supplies and services including the provision of an ALS assessment or at least one ALS intervention.

Advanced Life Support, Level 2 (ALS2) - Transportation by ground ambulance vehicle and the provision of medically necessary supplies and services including (1) at least three separate administrations of one or more medications by intravenous push/bolus or by continuous infusion or (2) ground ambulance transport, medically necessary supplies and services, and the provision of at least one of the ALS2 procedures, such as manual defibrillation/cardioversion, endotracheal intubation, central venous line, cardiac pacing, chest decompression, or surgical airway.

Advanced Life Support Personnel – Personnel trained to the level of the emergency medical technician intermediate (EMT-Intermediate) or paramedic.

Answer Time - The date/time that the call was first answered by the call taker.

At Hospital Time - The date/time that the unit arrived at the transport destination with the patient(s).

Basic Life Support (BLS) - Transportation by ground ambulance vehicle and the provision of medically necessary supplies and services, including BLS ambulance services as defined by the State. The ambulance must be staffed by an individual who is qualified in accordance with State and local laws as an emergency medical technician-basic (EMT-Basic).

Basic Life Support, Emergency (BLS E) - When medically necessary, the provision of BLS services, in the context of an emergency response. An emergency response is one that, at the time the ambulance provider or supplier is called, it responds immediately. An immediate response is one in which the ambulance provider/supplier begins as quickly as possible to take the steps necessary to respond to the call.

Chute Duration - The difference between the date/time that the unit was assigned, and the date/time that the unit said they were responding. Measures how long it took for the unit to recognize that they had been assigned to an incident, and began to respond to that incident.

Emergency Response - Emergency response is a BLS or ALS1 level of service that has been provided in immediate response to a 911 call or the equivalent. An immediate response is one in which the ambulance provider/supplier begins as quickly as possible to take the steps necessary to respond to the call.

Incident Start Time - The date/time that the call was first answered by the call taker.

Non-Emergency - Ambulance transportation is covered when it meets medical necessity requirements. One of the primary, but not the sole, determining factors of medical necessity for non-emergency transport is the status of whether the patient is "bed confined." For bed confinement, the following criteria must be met:

1. The beneficiary is unable to get up from bed without assistance;
2. The beneficiary is unable to ambulate; and
3. The beneficiary is unable to sit in a chair or wheelchair.

This term applies to patient's who are unable to tolerate activity out of bed. Please note that bed confinement is not the sole criteria for medical necessity of a non-emergent transport.

On Scene Time - The date/time that the unit arrived on scene.

Public Safety Answering Point (PSAP) - a physical location where 911 emergency telephone calls are received and then routed to the proper emergency services

Respond(ing) Time - The date/time that the unit announced that they were responding to this incident.

Ring Time - The date/time that the call first arrived at EMS in the caller queue as a new call.

Rural - Any portion of our service area that surrounds a suburban area. These areas are unincorporated portions of Lake and Sumter Counties and do not have fulltime public safety personnel or ready access to emergency department facilities. Rural areas may be improved or unimproved and will generally have fewer than 1,000 fulltime residents. **Response Goal: Average 15:00 minutes**

Specialty Care Transport (SCT) - Specialty care transport (SCT) is the interfacility transportation of a critically injured or ill beneficiary by a ground ambulance vehicle, including the provision of medically necessary supplies and services, at a level of service beyond the scope of the EMT-Paramedic. SCT is necessary when a beneficiary's condition requires ongoing care that must be furnished by one or more health professionals in an appropriate specialty area, for example, emergency or critical care nursing, emergency medicine, respiratory care, cardiovascular care, or a paramedic with additional training.

Suburban - Any portion of our service area that immediately surrounds an urban area. These areas usually have less than 5,000, but greater then 1,000, fulltime residents and may be incorporated or unincorporated. Public safety personnel are usually available (such as volunteer agencies) however they need not be fulltime. **Response Goal: Average 12:00 minutes**

Tones Time - The date/time that the first unit (of any type) was assigned to the incident.

Transport Time - The date/time that the unit announced that they were transporting patient(s) away from the scene of the incident.

Turn Around Duration – The difference between the date/time that the unit arrived at the transport destination, and the date/time that the unit returned to service or became available. Measures how long it took for the unit to drop off their patient, restock, and become available for the next call.

Unit Assigned - The date/time that the first unit(s) were assigned to this incident.

Urban - Any portion of our service area that has a population of greater than 5,000 fulltime residents. While these areas are usually incorporated they can be unincorporated. Additionally, full time public safety personnel must be available in the area and emergency department facilities must be within close proximity. **Response Goal: Average 9:00 minutes**