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# FAYETTE COUNTY AMBULANCE SERVICE

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## AN ASSESSMENT



*October 2008*

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# BACKGROUND

The Fayette County Ambulance Service, in conjunction with The Fayette County Fire Department and the various municipal fire departments within Fayette County, provides Emergency Medical Services to a population of 35,471, over an area of 704.50 square miles. *Source: Applied Geographic Solutions, Thousand Oaks. CA*

Since its' inception as a public utility, The Service has struggled with a myriad of problems including budget, operations, vehicle deployment, political manipulation, insufficient revenue capture, and lack of planning.

Recently, deployment questions and delayed response times, along with rising costs, have caused the Fayette County Commission to focus on the service. The introduction of a private ambulance service to provide Emergency Medical Services to the Town of Oakland, while taking some pressure off the Service, has also diluted the revenue stream available to the Service and has the potential to compromise the coordinated delivery of Emergency Medical Services in Fayette County. A lack of sufficient information has prevented the commission from finding appropriate solutions.

It is the intent of this analysis to provide the commission with all of the pertinent information and appropriate recommendations so as to enable them to arrive at a solution that provides well balanced and cost sensitive Emergency Medical Services to Fayette County based on the Public Utility model. However, the main thrust of these conclusions and recommendations are not cost-driven, they are aimed at providing appropriate levels of Emergency Medical Services to all citizens of Fayette County.

# OVERVIEW

This analysis of the Fayette County Ambulance Service included an in depth study of the structure of the organization, the quality of service it provides, the management methods employed, its' ability to maximize revenue capture and conservation, and its' ability to appropriately meet the needs of the community it serves now and in the future.

The Fayette County Ambulance Service is operated as a third public safety agency, (separately from the sheriff's dept. and fire dept.) a model that has proved effective in many municipalities and counties throughout the nation. All units are operated at the Advanced Life Support level, with few exceptions; usually those exceptions are dictated by staffing shortages. It is funded through income from services provided as well as supplemental funding, as needed, from the County general fund.

The Fayette County Emergency Medical Services System, of which the Ambulance Service is a principal component, consists of First Responders from several Fire Departments within the County working in conjunction with the Ambulance Service to provide a timely response to medical emergencies. These departments vary in their ability to provide Basic Life Support and are unable to provide Advanced Life Support thereby making a timely ambulance response critical in the case of life threatening medical emergencies. Proper deployment of ambulances therefore becomes a major factor in successful Emergency Medical Services delivery.

Serious lack of convenient access to run data required extensive research and cross comparisons of reports from several agencies to develop appropriate deployment requirements, therefore, deployment information was developed on the basis of three years of statistics with an estimated accuracy of +/-10%.

Evaluation of all of the factors involved has resulted in an extensive list of findings and the recommendations to address these findings are as follows.

# RECOMMENDATIONS

TABLE 1. Recommendations

number	recommendation	discussion	page
1	Development of a long range coordinated plan.	No plan currently exists and coordination is not well developed.	5
2	Establish a comprehensive electronic database.	Presently there is no convenient access to the data required to effectively respond to the needs of the service or plan for future growth.	6
3	Define and document the organizational structure.	The organizational structure should be documented and the role of each member should be clearly defined.	6
4	Designate a monitoring committee and document a system of accountability.	The Service should be monitored by a separate committee and held accountable to that committee's documented standards.	7
5	Restructure the administrative staff.	The administrative staff is presently not structured to meet the needs of the organization.	7
6	Establish and document standard operating procedures.	Presently there are no documented standard operating procedures.	8
7	Implement a comprehensive in service training program for field personnel.	The majority of in service training presently consists of the provision of self-study video modules.	8
8	Revise, update and implement all TOSHA required documentation and plans.	TOSHA has certain requirements for documentation of required plans, these requirements are not being met.	9
9	Complete a HIPAA compliant risk assessment and implement a HIPAA compliant plan specific to the services needs.	There is no evidence that a risk assessment has ever been completed. Further, the plan presented is generic in nature and does not address the needs of the service.	9
10	Establish an inventory control system for all supplies and equipment.	There is no logical system for control of inventory.	10
11	Establish a comprehensive program to ensure proper maintenance of durable medical equipment.	There is no documented plan providing for the maintenance of such equipment.	10
12	Enhance dispatch procedures to provide for more efficient use of resources.	A computer aided dispatch system; along with EMD trained dispatchers would enhance the performance of the service.	11
13	Review the fees presently charged to ensure maximum revenue capture.	Although Medicare and TennCare allowed rates are capped, an adjustment of the current fee schedule could provide enhanced revenues from other sources.	12
14	Implement an effective billing and collection program to maximize the capture of revenue.	Presently the Service is collecting 50% or less than the amount it is billing.	12
15	Establish a deployment plan that provides appropriate response times to all areas of the county.	The ambulances are not presently deployed in a manner that is most effective in providing appropriate response times.	13

**1. Using this analysis, The Commission should develop a long range plan dealing with the existing service deficiencies and anticipating the needs of the community as it grows.**

The purpose of this study is to focus on the existing situation within the service and establish a base point from which to develop a plan to improve the effective delivery of emergency medical services now and in the future. The goal of any EMS system is the timely and reliable response to and transportation of the sick and injured. When a 911 request for emergency medical services is initiated, a series of synchronized events should take place. The coordination of the 911 service, the fire departments, and the ambulance service is critical to any such synchronization; therefore, unified performance standards and protocols are essential.

As the lead provider of emergency medical services, the ambulance service should take a lead role in establishing, supervising and maintaining these standards and protocols. Presently, there is no such plan and, although cooperation exists between the agencies, there is very little coordination.

From this base point, a long range plan should be established and reviewed on an annual basis to determine if the County's needs for appropriate Emergency Medical Services are being met. This is best accomplished by the establishment of an appropriately constituted monitoring committee. (see recommendation 4)

## **2. Establish a comprehensive electronic data base.**

The collection and assembly of appropriate data is essential to effective analysis, budgeting, and planning. The technology exists to provide for such collection and assembly along with convenient access to that data.

Regularly scheduled automated reports, along with the ability to extract reports of specific purpose, provide for timely discovery of problems or developing trends and ease the process of responding to changing operational needs as they occur. The importance of the ability to rapidly analyze these situations cannot be overstated.

It is essential that such a system be installed and implemented immediately.

Further, any system implemented should be integrated with both the dispatch system and billing system to provide a complete and accurate flow of data on all aspects of any request for service.

## **3. Document the organizational structure with a clear definition of each member's role and responsibilities.**

A basic requirement of any organization is the documentation of its structure. This outlines the division of responsibility within the organization and provides accountability.

Within this structural document each member's role should be clearly defined, thereby providing guidance to all regarding their responsibilities. It also establishes the basis for effective review of the performance of each individual and the organization overall.

#### **4. Designate a monitoring committee and document a system of accountability.**

Accountability of the administrators of the Service is critical to its' continued development and improvement. Specific local standards should be established and a method of monitoring compliance to those standards put in place. Although the Service is meeting the requirements of the State Board, at the present time it is doing a marginal job of complying with the standards of the other regulatory agencies that govern its' operation. Appropriate compliance serves to protect the Service employees, the public and the County.

Such monitoring is best accomplished by the establishment of a committee composed of various representatives of each of the agencies involved as well as those receiving the benefit of these services. This monitoring committee should also be tasked with reviewing all operations, long term planning, and the interaction of all agencies involved in the delivery of Emergency Medical Services.

#### **5. Restructure the administrative staff.**

The administrative staff is insufficient to meet the needs of the organization. Presently, the Director of Service is tasking field personnel with duties that should be assigned to an Assistant Director with full time responsibilities in regulatory compliance and training. Tasking field personnel with administrative duties that require part-time commitments of time is appropriate. However, development of training programs, regulatory compliance, and other associated tasks require a full time commitment. This position should also include responsibility for comprehensive evaluation and orientation of all employees. In addition, if the Assistant Director were required to be licensed, it would provide staffing for a back up unit in the event all regularly deployed units were committed.

## **6. Establish and document standard operating procedures.**

Standard operating procedures are essential to the evaluation of employee performance. They also provide a method by which the quality of service can be controlled and maintained. Employees are provided a framework of guidance they can depend on to improve their performance within the organization. Variance from the standard can be quickly detected and problems avoided or corrected in a timely manner. These procedures should also be provided to the First Responders to enhance the coordination and quality of Emergency Medical Services.

With the exception of Medical Protocols, most of the service procedures are presently based on history and tradition.

## **7. Implement a comprehensive in service training program for field personnel.**

Presently, the majority of in service training consists of the provision of self study video modules for field personnel. A program needs to be implemented whereby all field personnel are afforded the opportunity to participate in a formal in service training program that will provide them with sufficient continuing education units to allow them to fulfill all requirements for renewal of their professional license at no cost to them. CPR Healthcare Provider courses should also be offered at no cost to all personnel. Further, all personnel licensed at the Paramedic level should be provided the opportunity to participate in the courses required to renew their ACLS and PALS certification at no cost to them. This will ensure the quality of training received and enhance the quality of care provided.

## **8. Revise, update, and implement all TOSHA required documentation and plans.**

At the present time, The Service is non-compliant with TOSHA and OSHA regulations regarding the Infectious Disease Exposure Control Program. The plan was last updated in 2005 and does not include important provisions since required. Both agencies require annual updates of this plan. Further, there is no documented Respiratory Protection Plan, another clear violation of both agencies' regulations. Both of these requirements provide protection for employees and patients and are mandated by Federal Law.

## **9. Complete a HIPAA compliant risk assessment and implement a HIPAA compliant plan specific to the Service's needs.**

According to the Health Insurance Portability and Accountability Act of 1996 (Public Law 104-191), Covered Entities must maintain reasonable and appropriate administrative, physical, and technical safeguards to protect the confidentiality, integrity, and availability of their EPHI against any reasonably anticipated risks. They must also regularly conduct a thorough and accurate risk analysis to determine how best to protect their EPHI against both internal and external threats. They must also provide regular security training and awareness to their workforce and revise their security policies and procedures as needed.

There is no evidence that a risk assessment has ever been completed. Further, the plan presented is generic in nature and does not meet the needs of the service. There is nothing in writing that designates the person responsible for HIPAA compliance. Any plan developed must be specific to the Service and provide clear direction to all employees as regards compliance with HIPAA regulations.

## **10. Establish an inventory control system for all supplies and equipment.**

Maintaining control over the inventory of supplies and equipment is critical to controlling costs. There is no system to effectively track the use of supplies. Such a system would reveal unnecessary usage and reduce shrinkage of inventory in addition to providing a method to prevent shortages of needed supplies as well as overstocking of little used supplies. A properly maintained data base of supply inventory would enhance the ability of the Service to maintain control over the inventory and serve to contain costs in this area.

## **11. Establish a comprehensive program to ensure proper maintenance of durable medical equipment.**

There is no documented plan providing for the maintenance of such equipment. AEDs and monitor/defibrillators are designated as Class II medical devices by the Food and Drug Administration. (21 CFR § 870.1425 - § 870.1435) They are covered by both General Controls and Special Controls. All of the presently owned devices meet the General Control requirements. All of the Special Control requirements are not presently being met. Specifically, these devices must meet mandatory performance standards and undergo post market surveillance. Documentation of all maintenance of such devices along with an annual evaluation of the device's compliance with the standards must be maintained by the Service. There is no evidence that this is being done. In addition, stretchers are also classified as Class II medical devices (21 CFR § 880.6910) and are subject to the same requirements, again, there is no evidence that this is being done.

## **12. Enhance dispatch procedures to provide for more efficient use of resources.**

There is a single number (9-1-1) available for citizens to access all emergency services in the county. These calls are answered in the Sheriff's dispatch office, where they are processed and dispatched. Presently, certain calls are accepted on the Service's phone directly. For the protection of the County and the Service, all institutions should be directed to request ambulance service through the dispatch center only.

There is a one-minute benchmark for processing 9-1-1 calls established by the National Fire Protection Association (NFPA1221, 6.4.3). Prioritizing calls and standardizing dispatch procedures by use of a computer aided dispatch program, along with EMD certified dispatchers would allow for meeting this benchmark as well as providing an enhanced level of service to the citizens along with accurate records of all data related to the request for service. In addition, integrating this system with the billing system at the ambulance service would provide all of the necessary data to provide ongoing accurate analysis of service performance, as well as enabling the Service to detect problems as they occur and make reasonable projections as to need for changes.

Although this consultant did not research the present dispatch procedures, it is apparent from monitoring the dispatch frequency that the procedures vary from dispatcher to dispatcher. A substantial amount of the dispatcher's time is required to document requests for Emergency Medical Services and fax that information to the various Fire Departments after they have completed their response. An appropriate computer aided dispatch system would decrease the dispatcher's work load, provide for more accurate data storage, and provide for rapid data retrieval and transmission.

In addition, presently there are no formal quality control procedures in place to assess the performance of the dispatchers.

### **13. Review the fees presently charged to ensure maximum revenue capture.**

Although Medicare and TennCare allowed rates are capped, an adjustment of the current fee schedule could provide enhanced revenues from other sources. It is appropriate to review the Service's fee structure on an annual basis to ensure that it reflects the true cost of the provision of service. This review should be conducted in a manner that gives consideration to other comparable services providing similar levels of service, however, the primary consideration should be the total cost of service, with a modifier included that takes into account the high ratio of uncollectible accounts.

A comparison of gross billed services with that of gross collected accounts demonstrates that the ratio of uncollected accounts is much higher in Emergency Medical Services than most other businesses. This is a problem throughout the country. The public utility model rate structure should be designed to account for this disparity. (*See fiscal analysis on page 14 of this report.*)

### **14. Implement an effective billing and collection program to maximize the capture of revenue.**

Presently the Service is collecting 50% or less than the amount it is billing. (*See fiscal analysis on page 14 of this report.*) This is a product of poor data collection and inefficient billing practices. The complexities of the Medicare system are such that it is difficult for a small service to keep abreast of the changes in that systems accepted billing practices. The cost of employing a Medicare billing specialist is such that out-sourcing this task is an appropriate solution to the problem. Other services presently out sourcing their billing and collection services are seeing collection ratios approaching 80% of total billing. Given the demographics of the County, that high ratio may not be attainable, but a 70% ratio is definitely feasible.

**15. Establish a deployment plan that provides appropriate response times to all areas of the county.**

The ambulances are not presently deployed in a manner that is most effective in providing appropriate response times. There are two ambulances stationed at headquarters in Somerville and a third unit is stationed in the southwest quadrant on highway 196 approximately half-way between Highway 64 and Rte 57. A fourth unit, operated by a private company under contract to the Town of Oakland is stationed at the Fire Station in Oakland. This unit does provide mutual aid as needed to the County service. *(See deployment map on page 16 of this report.)*

Although response times are generally good, given the limited resources, they meet the accepted standard which is 8 minutes 90% of the time only about 65% of the time. Some responses are beyond the 20 minute mark, a result of inappropriate deployment or the fact that all units are committed. *(See response time graph on page 15 of this report.)*

The most appropriate deployment plan would be accomplished by dividing the county into four geographical quadrants. Each quadrant should be analyzed for number and location of responses within that quadrant and the unit should then be located at the point most accessible to those responses. This deployment plan, along with a modified system status management plan, wherein each uncommitted unit has a pre-assigned move up point when a particular quadrant's unit is utilized would more closely meet the accepted response standard. *(See supporting data and documentation on page 17 of this report.)*

At the present time, unless the County is willing to station an ambulance in the Town of Oakland, the Mayor has stated that he is not willing to terminate that town's contract with the private service now serving them. Nevertheless, my recommendation remains that the County should deploy four units, as previously outlined. The unit in Oakland should be considered as ancillary to the system and available for mutual aid when needed.

# FISCAL ANALYSIS

## Collections per year - last three years

Data source: Fayette County Ambulance Service. – Donna Walker

	F. Y. 2005 - 2006	F. Y. 2006 - 2007	F. Y. 2007 - 2008
<b>Total Calls</b>	<b>3017</b>	<b>3176</b>	<b>2959<sup>1</sup></b>
<b>Total billed amount</b>	<b>\$1,398,847.00</b>	<b>\$1,611,805.00</b>	<b>\$1,268,241.50</b>
<b>Total collected amount</b>	<b>\$802,396.32</b>	<b>\$758,936.22</b>	<b>\$724,304.70</b>
<b>Percent collected</b>	<b>57%</b>	<b>47%</b>	<b>57%</b>

<sup>1</sup> Reduction in volume attributed to introduction of additional service in Oakland in January 2008. During the period Jan. through June, that service did 282 calls, substantially diluting FCAS revenue.

## Ambulance Service budget - last three years

Data source: Fayette County Commission Budget

<b>Budgeted</b>	<b>\$1,139,249.00</b>	<b>\$1,189,316.00</b>	<b>\$1,357,974.00</b>
<b>Deficit</b>	<b>\$380,612.78</b>	<b>\$465,011.30</b>	<b>\$633,669.30</b>

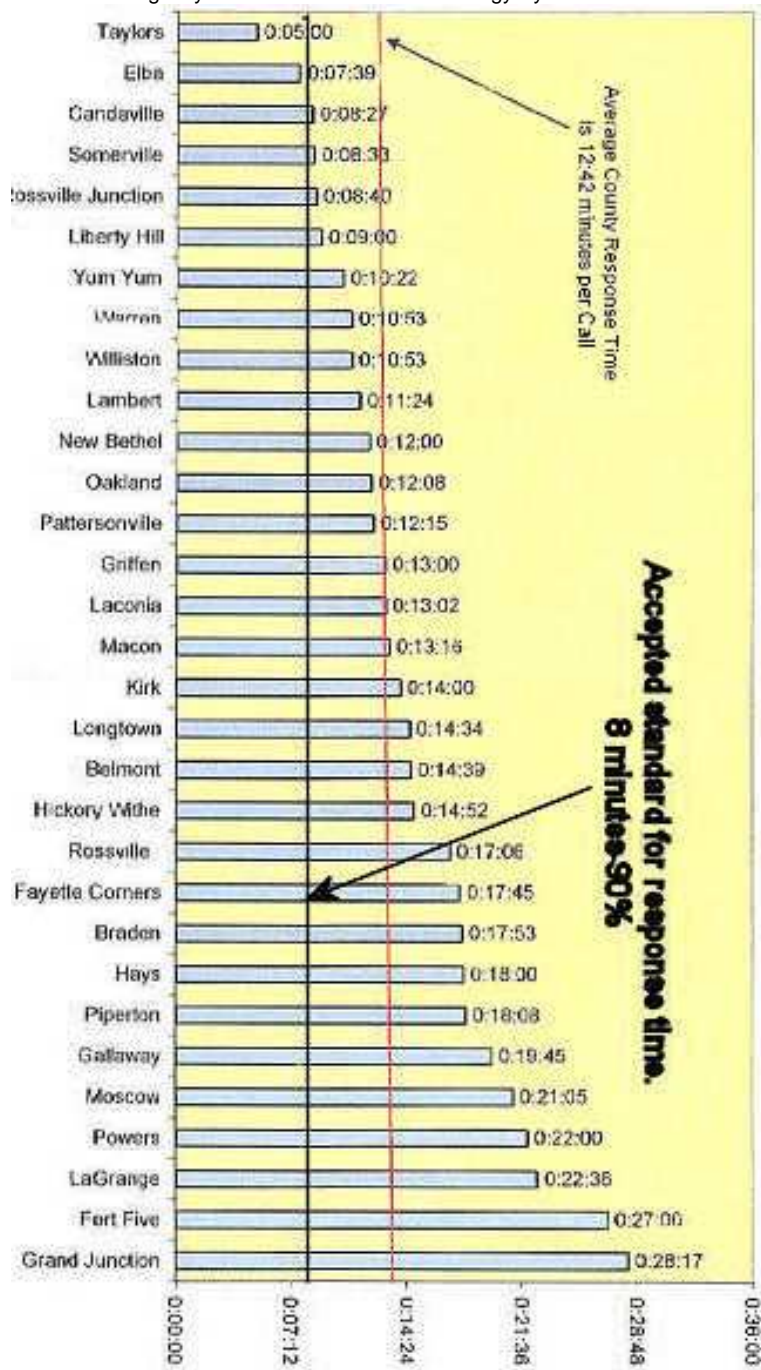
## Adjusted collections per year - last three years, using the bench mark of 70% collected subtracting a 6% billing service fee.

<b>Total billed amount</b>	<b>\$1,398,847.00</b>	<b>\$1,611,805.00</b>	<b>\$1,268,241.50</b>
<b>Adjusted collected amount</b>	<b>\$920,441.43</b>	<b>\$1,060,677.69</b>	<b>\$834,502.91</b>
<b>Adjusted Deficit</b>	<b>\$262,569.78</b>	<b>\$128,638.40</b>	<b>\$523,471.09</b>

As you can see, the dramatic drop in the amount billed for F.Y. 2007- 2008 had a profound effect on the deficit amount for that year. Despite that difference, it is apparent, based on the bids received on the RFP Dated 08.08.11, it will be more economical for the county to correct the existing problems and maintain the Service as a County owned and operated entity.

# RESPONSE TIME ANALYSIS

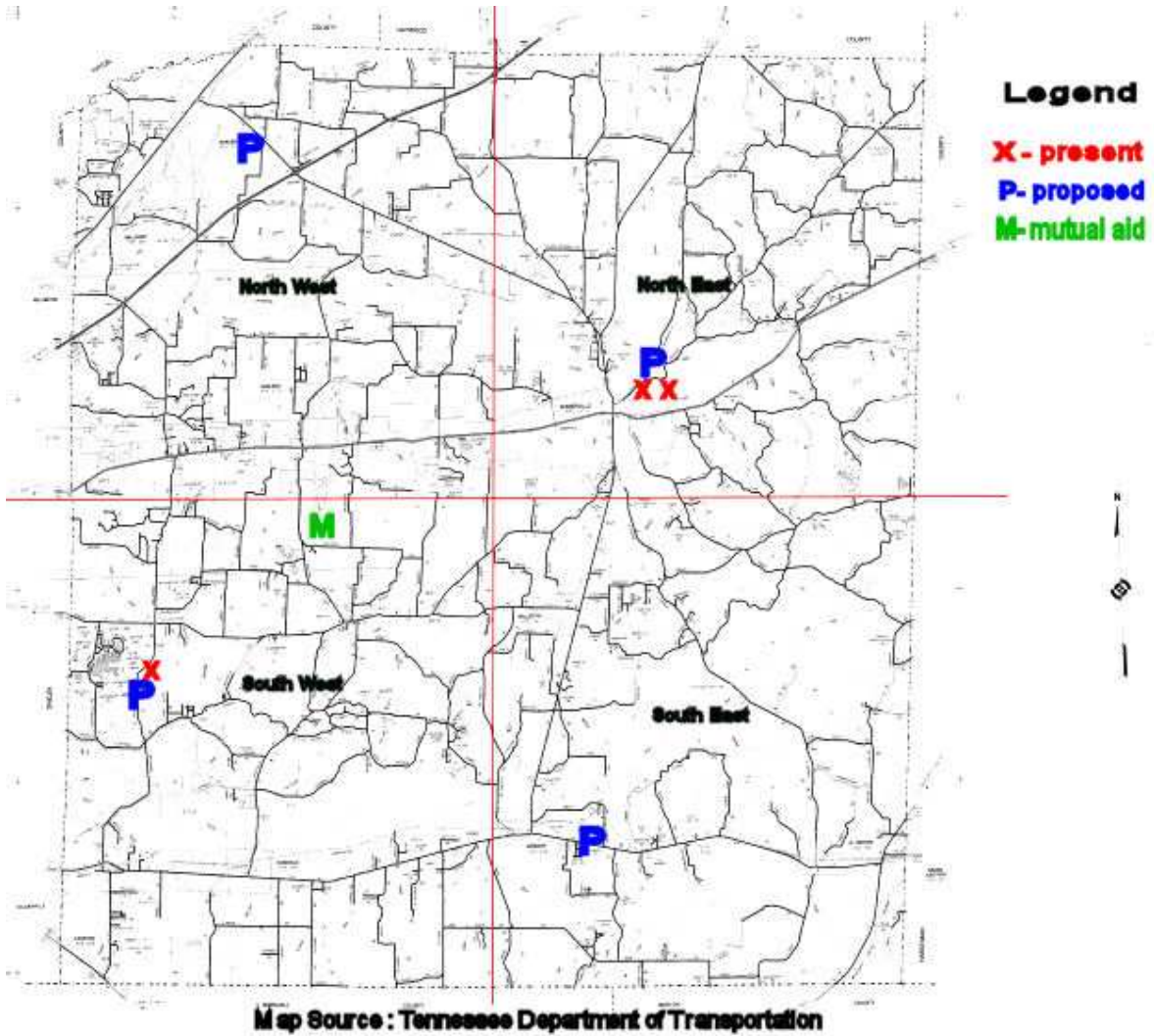
Graph source: Ambulance study for the Fayette County Ambulance Service. – Rhea Taylor  
 Data source: Emergency Medical Information Technology System. – State of Tennessee



N.F.P.A. 1710 standard requires ALS unit on scene within 8 minutes 90% of the time

# DEPLOYMENT MAP

(Showing present and recommended deployments)



# **RESPONSE PERCENTAGE**

## **(PER QUADRANT)**

**North West Quadrant includes:**

<b>Braden</b>	<b>Hickory Wythe</b>
<b>Oakland</b>	<b>Long Town</b>
<b>Galloway</b>	

**Accounting for 28% of calls per year on average**

**North East Quadrant includes:**

<b>Somerville</b>	<b>Fayette Corners</b>
<b>Yum Yum</b>	<b>Liberty Hill</b>
<b>Miller</b>	<b>Laconia</b>
<b>Warren</b>	

**Accounting for 34% of calls per year on average**

**South West Quadrant includes:**

<b>Macon</b>	<b>Piperton</b>
<b>Canadaville</b>	<b>Rossville</b>
<b>Elba</b>	

**Accounting for 22% of calls per year on average**

**South East Quadrant includes:**

<b>Williston</b>	<b>Hays</b>
<b>Forty Five</b>	<b>La Grange</b>
<b>Moscow</b>	<b>Grand Junction</b>

**Accounting for 16% of calls per year on average**

**Data Sources:** Emergency Medical Information System – State of Tennessee  
Fayette County Fire Department  
Moscow, Piperton, Oakland, and Rossville Fire Departments

# DEPLOYMENT RECOMMENDATION

The recommendation for deployment of four ambulances in county service is based on the primary criteria of appropriate response times. Obviously, consideration has to be given to the cost factor and a balance must be found. The recommendation seeks to find that balance, without creating an undue financial burden on the County. The unit contracted to the Town of Oakland can only be considered as an ancillary unit available for mutual aid as needed and when available.

Deployment of a fourth unit would not require the purchase of an additional ambulance as the Service presently owns five units. A ratio of one spare unit to four active units is not inappropriate. Consideration needs to be given by the repair facility to prioritizing repairs to any unit to reduce down time to a minimum. Any agreement with a repair facility must include that contingency.

The recommended deployment of four units would enable the Service to meet the accepted standard for response times of 8 minutes 90% of the time.

# CONCLUSION

It is apparent that, due to a core of dedicated personnel, the Service is doing an admirable job of providing Emergency Medical Services to the community despite the many problems with which they are faced. They are constrained only by the limitations of the organization. Each of these limitations can be easily addressed.

Foremost, a development program for the administrative staff must be instituted to provide the tools necessary to bring about the changes necessary to elevate the Service to the level of excellence required.

Decision making affecting the service must be purged of political manipulation. The tools are provided herein to make that possible.

A strategic error was made in failing to deploy a unit to the Oakland Fire Department when it was requested. This decision has the potential to fracture the coordinated provision of Emergency Medical Services within the county. In addition, it has diluted the revenue stream available to the Service by approximately \$350,000 in F.Y. 2007- 2008 alone. Reversal of this decision is possible; however, doing so now will complicate other decisions that need to be made regarding deployment of units throughout the County.

A third public safety agency for the provision of Emergency Medical Services is an ideal model for this County, properly constituted and administered, it provides a flexibility of decision making that will serve the County well in the future. Establishing a base point from which to develop a long range plan is critical and monitoring and maintaining the long term plan will provide the County with a service that could well become the model that other counties and municipalities strive to match.

# ACKNOWLEDGEMENTS

Ambulance Service Consultants of Tennessee would like to acknowledge, with deep appreciation, the cooperation and assistance of the Administrative Staff and field service personnel of the Fayette County Ambulance Service.

In addition, the command staff of the Fayette County Fire Department, as well as the Chiefs of several Town Departments in the County contributed valuable information, without which, the accuracy of the data in this report would not have been possible.