

Benton County, Arkansas

An EMS System Analysis



Prepared by:

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July 2012

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Chapter I

Executive Summary

Benton County is a rapidly growing community whose population based increased by more than 100 percent in the last 20 years. This growth has brought a variety of EMS system challenges resulting in a decentralized delivery model with 26 different fire departments providing various levels of first response. Of those 26 departments, eight provide EMS transport to the County as a whole. However, the service varies greatly in terms of Advanced Life Support (ALS) or Basic Life Support (BLS), as well as in response time. In some cases, it is necessary for the eight different fire departments to respond outside their corporate boundaries to provide EMS transport. However, there is a structured format as a result of the establishment of eight EMS districts, and operationally all eight fire departments cooperate and function with each other with respect to the delivery of EMS care.

There is no dedicated funding source for EMS in the county resulting in the eight different fire departments that provide EMS transport relying off dedicated taxes from their respective municipalities and reimbursement from ambulance transport to provide the service. However, last year, the County did divide \$100,000 among seven fire departments as a subsidy for the EMS operation. There are some contractual arrangements between municipalities and some of the transporting fire departments for reimbursement for each patient transported from their community. One fire department (NEBCO) does have a dedicated subscription tax that is levied against each residential property within their EMS district to fund the EMS operation. For some of the remaining seven fire departments who provide EMS transport, responding outside their corporate boundaries has created some angst with some community leaders and there has been a call for the County to fund some or part of their operations.

Due to these differing funding and operational sources, there are widely varying response times throughout the county, and differing levels of EMS delivery - six departments provide ALS and two provide BLS.

Benton County should adopt one of the options found in Chapter Six, and create a single dedicated funding source to manage and operate the option selected by your decision-makers. This will result in a more cohesive and organized approach to EMS delivery in the unincorporated areas of the county, as well as in the municipalities that lack a dedicated ambulance service. Table 1.1 and Table 1.2 provide a compilation of recommendations and options for discussion.

Table 1.1 Compilation of Recommendations

Number	Recommendation	Issue/Discussion
2.1	Benton County should consider enacting any necessary rules, codes, laws or regulations up to and including all necessary business licenses for the operation of private ambulances in Benton County.	Necessary for regulation of private commercial ambulances within the County.
3.1	Benton County should seek an opinion from the Office of the Inspector General from the Centers for Medicare and Medicaid Services whether this arrangement is valid prior to entering into such an agreement with Bentonville to pay for ambulance transport services.	May violate double-dipping standards from the Centers for Medicare and Medicaid Services
5.1	Benton County needs to create a separate funding source in the unincorporated and incorporated areas without a dedicated ambulance service to create a more unified, sustained, and centralized EMS delivery model.	Dedicated funding source needed for future EMS system.
5.2	Benton County needs to create a position of EMS Director.	Position needed to manage components of EMS system.

Table 1.2 on the following page provides a listing of all the options available to the decision-makers in Benton County. Further details of these options are found in Chapter VI.



Table 1.2 – Compilation of Options

Option	Description
1	Maintain Status Quo
2	County-operated Government Ambulance Service with NEBCO Retaining Their Existing Area
3	Form Partnership with Central EMS
4	Contract Out All Services Areas To a Single Private Ambulance Provider
5	Contract Out Service Areas to Fire Departments Already Providing Transport Service.
6	Form Public Utility Model
7	A Combination of Contracting Zones to Private Ambulance Providers and Fire Departments

Gathering data for this report proved challenging, as some departments lacked the requested data, but some had collected the data but in different formats with different definitions. Additionally, some departments had trouble determining if a call was within their department boundaries or was in the unincorporated part of the county. And other departments had to reconcile their data with other departments prior to releasing it. Every effort was made to reconcile the data among the eight fire departments so that there was consistency with the representation of the data.

Additionally, some of the data may have been skewed from some fire departments because of policy changes during the last five years. For example, Siloam Springs Fire Department no longer responds into the State of Oklahoma as a primary response area unless requested to under mutual aid agreements. This dropped their total run volume after the policy change was made. Additionally, the Rogers Fire Department has remained relatively flat because they have reduced the number of communities they serve over the last several years. In 2009, the Rogers Fire Department served three

municipalities (Little Flock, Cave Springs, and Lowell). Through their efforts to establish a subsidy and inter-local agreements, they have eliminated Lowell and Cave Springs from their responsibilities. Finally, the Rogers Fire Department also assigns low acuity EMS calls to private ambulance providers.

Conclusion

The intent of The Ludwig Group with this study is to provide the decision-makers of Benton County with ample information and options to make knowledgeable decisions regarding the EMS delivery system. With commitment and strategic planning with respect to the recommendations contained in this report, Benton County can significantly improve EMS delivery care in the community.

Chapter II

Project Approach

The Ludwig Group approach to the Benton County project was multi-faceted. A careful balance of academic principles and realistic understandings of the challenges that government entities face today were prioritized and deliberated in order to form a consensus represented in this document.

For purposes of this report, the assessments and any recommendations provided will attempt to relay the fiscal impact of such where applicable. However, The Ludwig Group determined the primary function of this assessment was to evaluate the current EMS delivery model in Benton County, and then recommend what delivery model would actually be best, keeping in mind the fiscal responsibilities and constraints of the county.

Data Study and Review of the Literature

One aspect of this project was to review a myriad of literature and data from various sources, including documents from Benton County and the State of Arkansas.

Additionally, this project included a review and analysis of laws, rules and regulations, financial data, planning documents, standard operating procedures, service delivery organizations, and performance data.

There are several Arkansas laws that are applicable to this study and they were considered when applied to this report. They are:

Chapter 266 of Arkansas State Law, [14-266-102 (c) and 14-266-105 (4)]:

- a. *...The General Assembly has further determined that cities of the first class and second class should be allowed to enter into agreements with other cities within the county where they are located or with the county wherein they are located*

regarding emergency and nonemergency medical services. Therefore, cities of the first class and second class may enter into interlocal agreements with other cities located within the county wherein the city of the first class or second class is located, or with the county wherein the city of the first class or second class is located, and thereby exercise as a cooperative governmental unit all power granted to the city of the first class or second class by this chapter.

- b. Cities of the first class and cities of the second class are authorized: (4) To provide emergency medical services to its residents and to the residents of the county, surrounding counties, and municipalities within those counties, but only if the governing bodies of the counties and municipalities request and authorize the service under §14-14-101, §14-14-103 – §14-14-110 or §25-20-101 et seq.;*
- c. All direct and indirect costs of extending those services shall be borne entirely by patient user fees or subsidies provided by the patient, municipalities or county to whom those services are rendered. In no event shall the city extending ambulance services beyond its boundaries be required in any manner to subsidize or otherwise extend financial support to render those services.*

Other EMS legislative issues that were considered included the State of Arkansas, Rules and Regulations for Emergency Medical Services promulgated under the Act 435 of 1975.

It was interesting to note that a review and search did not disclose any laws or regulations regarding ambulance operations in Benton County, even though multiple private ambulance companies operate inside Benton County.

Recommendation 2.1 Benton County should consider enacting any necessary rules, codes, laws or regulations up to and including all necessary business licenses for the operation of private ambulances in Benton County.

Benton County should consider enacting any necessary rules, codes, laws, or regulations regarding the use of commercial ambulances in Benton County to ensure the public health and safety regarding ambulance usage in the County. These rules, codes, laws, or regulation are not necessary to duplicate existing State laws and regulations, but to supplement needs in Benton County pertaining to licensing, operation, and service and performance requirements.

Observations

Consulting projects should not operate in a vacuum. Observations were also conducted in the community, at fire stations, and the communications center to gain a fuller understanding of how the system operates.

Interviews

The Ludwig Group conducted on-site interviews with various stakeholders in Benton County, including leadership from each EMS transport provider, leadership from a number of the fire departments/districts, some elected officials, and select others.

Methodology

The delivery of fire and emergency medical services (EMS) is essential to the public safety and health of the general public. In order to provide a complete analysis of the EMS system in Benton County, a detailed scope of work was established for this project resulting in specific comparable distinctions. The methodology of the study includes the following items:

- Analysis of the existing EMS delivery system in Benton County with a comprehensive description of the roles of various participants.
- Development of minimum performance standards that should be implemented in a high quality fire, rescue, and EMS system.
- The preparation of specific recommendations to improve and enhance the current EMS system in Benton County in the areas of efficiency, effectiveness, quality, and long-term stability. The provided recommendations are structured to support evolutionary improvements to the system with continuous strengthening of the system's stability. The proposed activities prepare the system to respond effectively to changes with respect to its strengths, weaknesses, opportunities, and threats (SWOT).

The forthcoming recommendations were established with specific goals in mind. The goals are:

1. Improve response times.
2. Improve patient care.
3. Provide consistency in patient care and performance.
4. Increase efficiency and effectiveness of the system.
5. Improve financial stability of the system by maximizing the use of resources while improving efficiency and economy.

Key Criteria Points

In developing the comparable analysis, The Ludwig Group made a series of factual observations based on data, interviews, history and tradition, stakeholder input, available resources, future planning, growth predictions, changing demographics, risk profile, system demands, community expectations, and perceived value of stakeholders.

The key criteria points for the Benton County project are as follows:

1. Service to the citizen is paramount.
2. Effective communications among County government and the various fire departments/fire districts or municipalities is critical.
3. There will be increased performance accountability over the next several years.
4. System operation changes have to be data driven.
5. Benton County should take advantage of all system resources.
6. Fire and EMS service delivery is predicated on performance measures.
7. Benton County will continue at predicted growth rates for the foreseeable future.

Chapter III Background

The concept of performing an assessment study of the EMS system in Benton County was initiated when representatives from Benton County government contacted The Ludwig Group in the late spring of 2011 concerning the EMS system in Benton County.

The genesis of the study request was a result of questions that arose when municipal ambulance fire service providers in the County responded to areas outside their corporate boundaries to handle EMS calls. Some of these calls are outside of their corporate boundaries and are to unincorporated areas of the county, and others are to incorporated municipalities who do not have their own ambulance service.

Additionally, there is debate within the community whether County government is responsible for reimbursement to the municipal ambulance service providers for calls that occur outside their corporate boundaries. Furthering that debate and discussion is what the cost for those services is.

The scope of the study included:

- Analyze the current Systems abilities and deficiencies
- Examine how the System could best be improved especially in the following areas:
 - Response times of initial BLS care, ALS care, and Transport
 - Covering a greater percentage of call volume without the need of mutual aid
 - Staffing and management
 - Billing and collectables

- Compare and outline various types of EMS services provided with reference to the following:
 - Hospital based, Municipal, Fire-based, Private, Volunteer, etc.
 - First responders, Transport, ALS Providers
 - Size of community served
 - Geographic concerns
 - How funded

- Provide various models for improving the current system with the fiscal impact.

On January 1, 2012, The Ludwig Group officially entered into a contract with Benton County to conduct a study identified in the scope above.

An initial kick-off meeting with a large amount of stakeholders was conducted on January 5, 2012 at the Benton County Administration building. The site visit included clarifying the scope of the study, clearly defining goals and objectives, gathering appropriate data, and identifying key stakeholders to be interviewed during the process.

A great deal of data and many reports were requested. Additionally, each of the eight primary EMS providers in the County were provided with a questionnaire, the results of which were the foundation for this report, including data analysis and the development of the possible EMS models appropriate for Benton County.

A very inclusive stakeholder process was conducted in which more than 30 people that are a part of or interface with the EMS system in Benton County were interviewed collectively or individually.

After the interviews, numerous emails and a series of telephone conversations were held over the course of the project between the principal consultant, the person identified as the Point of Contact, or others that somehow are a part of or interface with the EMS system in Benton County to seek additional information or to clarify items.

The principal consultant worked closely with Marshal Watson, Administrator of Public Safety, who served as the contact person for helping to identify stakeholders, identifying those who needed to be interviewed, the gathering of data and other valuable information. The Ludwig Group appreciates his efforts and attention to matters that arose during the course of the study.

The Community

Benton County is located in the northwest corner of the State of Arkansas. Bentonville is the county seat and is the corporate home of Walmart and many other Fortune 500 companies with satellite offices. Benton County traces its root back to 1836. It was named for a Missouri Senator who was responsible for the admission of Arkansas to the Union. In twenty years, Benton County has seen an approximate 100 percent increase in population. As of the 2000 census, the population was 153,406. The U.S. Census Bureau 2010 population is 221,339. The County has seen over a 100 percent increase in population since 1990.



Geographically, according to the 2000 census, the county has a total area of 880.24 square miles (2,279.8 km²), of which 845.99 square miles (2,191.1 km²) (or 96.11%) is land and 34.25 square miles (88.7 km²) (or 3.89%) is water. Most of the water is in Beaver Lake.

The following are incorporated communities inside Benton County.

- Avoca
- Bella Vista
- Bentonville
- Bethel Heights
- Cave Springs
- Centerton
- Decatur
- Elm Springs
(mostly in Washington County)
- Garfield
- Gateway
- Gentry
- Gravette
- Highfill
- Little Flock
- Lowell
- Pea Ridge
- Rogers
- Siloam Springs
- Springdale
(mostly in Washington County)
- Springtown
- Sulphur Springs

The form of government in Benton County consists of an elected County Judge who serves as the Chief Executive Officer of the County. He presides over a Quorum Court of 13 elected members know as a Justices of the Peace. There are various committees within the Quorum Court including Public Safety.

Table 3.1 reflects the latest United States Census Bureau data on Benton County.

Table 3.1: 2010 Census Data

Population, 2010	221,339
Population, percent change, 2000 to 2010	44.3%
Population, 2000	153,406
Persons under 5 years, percent, 2010	8.1%
Persons under 18 years, percent, 2010	27.9%
Persons 65 years and over, percent, 2010	12.2%
Female persons, percent, 2010	50.7%
White persons, percent, 2010 (a)	82.6%
Black persons, percent, 2010 (a)	1.3%
American Indian and Alaska Native persons, percent, 2010 (a)	1.7%
Asian persons, percent, 2010 (a)	2.9%
Native Hawaiian and Other Pacific Islander, percent, 2010 (a)	0.3%
Persons reporting two or more races, percent, 2010	2.7%
Persons of Hispanic or Latino origin, percent, 2010 (b)	15.5%
White persons not Hispanic, percent, 2010	76.6%

Fire Departments in Benton County

There are 26 fire departments or fire districts in Benton County. They are:

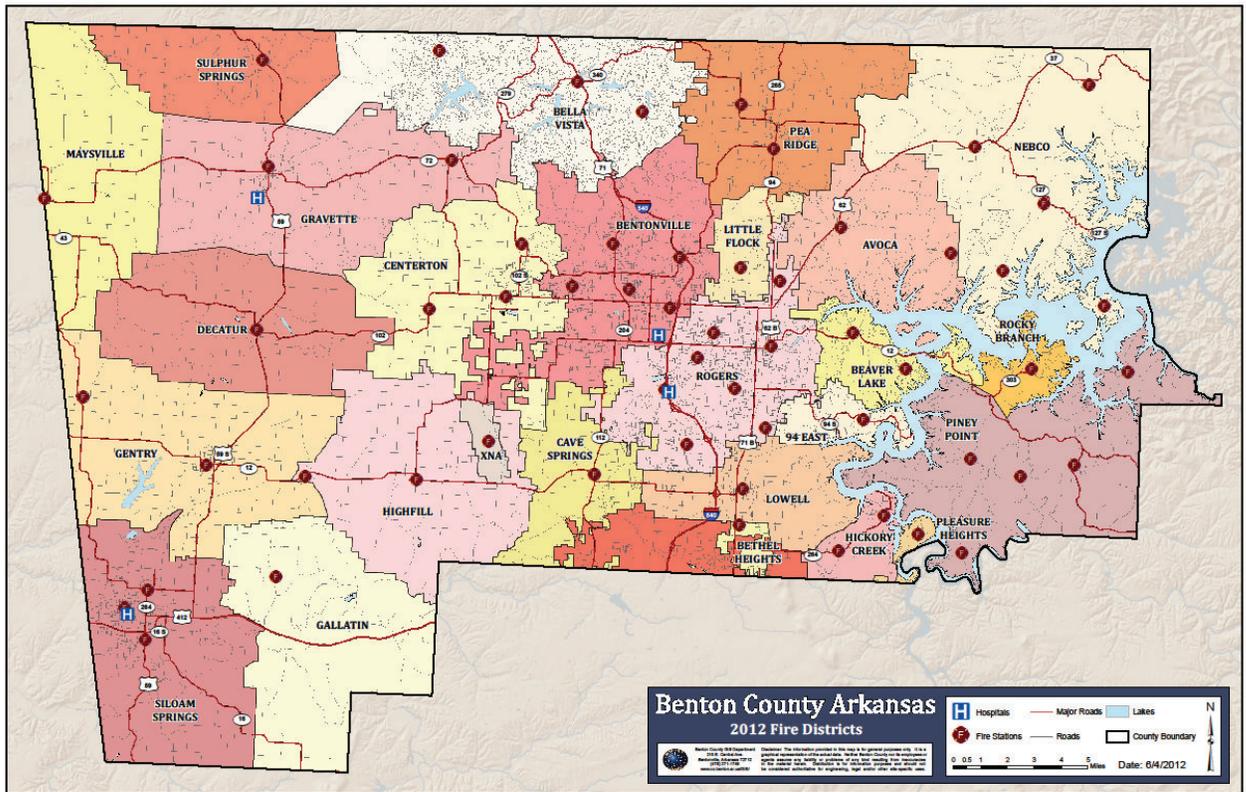
- Avoca Fire
- Beaver Lake
- Bella Vista
- Bentonville
- Cave Springs
- Centerton
- Decatur
- Gallatin
- Gentry
- Gravette
- Hickory Creek
- Highfill
- Highway 94 East
- Little Flock
- Lowell Fire
- Maysville
- NEBCO
- Pea Ridge
- Piney Point
- Pleasure Heights
- Rocky Branch
- Rogers
- Siloam Springs
- Springdale
- Sulphur Springs
- XNA

Benton County, Arkansas

These fire departments and/or fire districts provide varying levels of EMS service from BLS first response up to and including ALS transport. This will be discussed later in this report under “Benton County EMS System.”

Figure 3.1 reflects the boundaries for the fire departments in Benton County.

Figure 3.1



Benton County does have a Division of Public Safety that either administrates or coordinates various functions including:

- 911 Administration
- Emergency Management Agency
- Emergency Medical Services
- Fire Protection Services
- Juvenile Detention
- Search and Rescue
- Hazardous Materials Response
- Local Emergency Planning Committee
- Office of Emergency Communications

Benton County EMS System

The delivery of emergency medical services in Benton County is a decentralized form of delivery with inconsistencies of funding and EMS care, dependent upon where the medical emergency occurs. There are a total of eight different fire departments that provide ambulance service throughout Benton County. All of these fire departments respond outside their traditional corporate boundaries and/or districts in pre-established EMS districts to provide ambulance services. Those fire departments are reflected in Table 3.2:

Table 3.2

Department	Type of Service
Bella Vista Fire Department	ALS Transport
Bentonville Fire Department	ALS Transport
Gravette Fire Department	BLS Transport
NEBCO Fire District	ALS Transport
Pea Ridge Fire Department	BLS Transport
Rogers Fire Department	ALS Transport
Siloam Springs Fire Department	ALS Transport
Springdale Fire Department	ALS Transport

When a person calls 9-1-1 for a medical emergency in Benton County, if they reside within the corporate boundaries of Rogers, Bentonville, or Siloam Springs, the call is processed and dispatched within their individual communications centers. Any other 9-1-1 calls placed anywhere else in the County are processed and dispatched from the Benton County 9-1-1 communications center. If a medical emergency occurs within Bella Vista, the 9-1-1 call is answered at the Benton County 9-1-1 communications centers and forwarded to the Bella Vista communications center.

Table 3.3 reflects an overview of the EMS system among the eight fire departments that provide EMS transport.

Table 3.3

	Front-Line Ambulances	Paramedics	EMTs	Type of Transport
Bella Vista	4	24	15	ALS
Bentonville	5	36	29	ALS
Gravette	1	2	12	BLS
NEBCO	1	17	9	ALS
Pea Ridge	1	4	9	BLS
Rogers	4	70	36	ALS
Siloam Springs	4	31	17	ALS
Springdale	4	43	69	ALS
Total	24	227	197	

With respect to 9-1-1 calls that fall outside the corporate boundaries of the eight EMS providers, there are varying levels of first response by the remaining 18 fire districts. Those levels of service are as follows in Table 3.4



Table 3.4

Department	First Response Level of Service
Avoca Fire	BLS First Response
Beaver Lake	BLS First Response
Cave Springs	BLS First Response
Centerton	BLS First Response
Deactur	BLS First Response
Gallatin	BLS First Response
Gentry	BLS First Response
Hickory Creek	BLS First Response
Highfill	BLS First Response
Highway 94 East	BLS First Response
Little Flock	BLS First Response
Lowell Fire	BLS First Response
Maysville	BLS First Response
Piney Point	BLS First Response
Pleasure Heights	BLS First Response
Rocky Branch	BLS First Response
Sulphur Springs	BLS First Response
XNA	BLS First Response

Table 3.5 reflects the number of fires, EMS calls, the number of all patients transported, and then finally, from all the patients who were transported, a number reflecting a sub-group of patients transport from unincorporated areas of the county or municipalities with no ambulance service by the eight fire departments that provide EMS in Benton County during 2011.

Table 3.5 – 2011 Fire and EMS Run Breakdown in Benton County

	Fire Calls	EMS Calls	All Patients Transported Including from Unincorporated Area or Municipalities With No Ambulance Service	Total Patients Transported From Unincorporated Areas or Municipalities With No Ambulance Service
Bella Vista	704	2,125	1,911	47
Bentonville Fire	1,128	3,379	2,703	590
Gravette	117	661	605	455
NEBCO	236	469	339	0
Pea Ridge	158	356	203	58
Rogers	2,035	3,423	2,975	378
Siloam Springs	529	2,122	1,527	624
Springdale	262	5,025	926	476
Total	5,169	17,560	11,189	2,618

Table 3.6 reflects the total number of patients transported from unincorporated areas of the County or municipalities that do not have their own ambulance service in 2011.

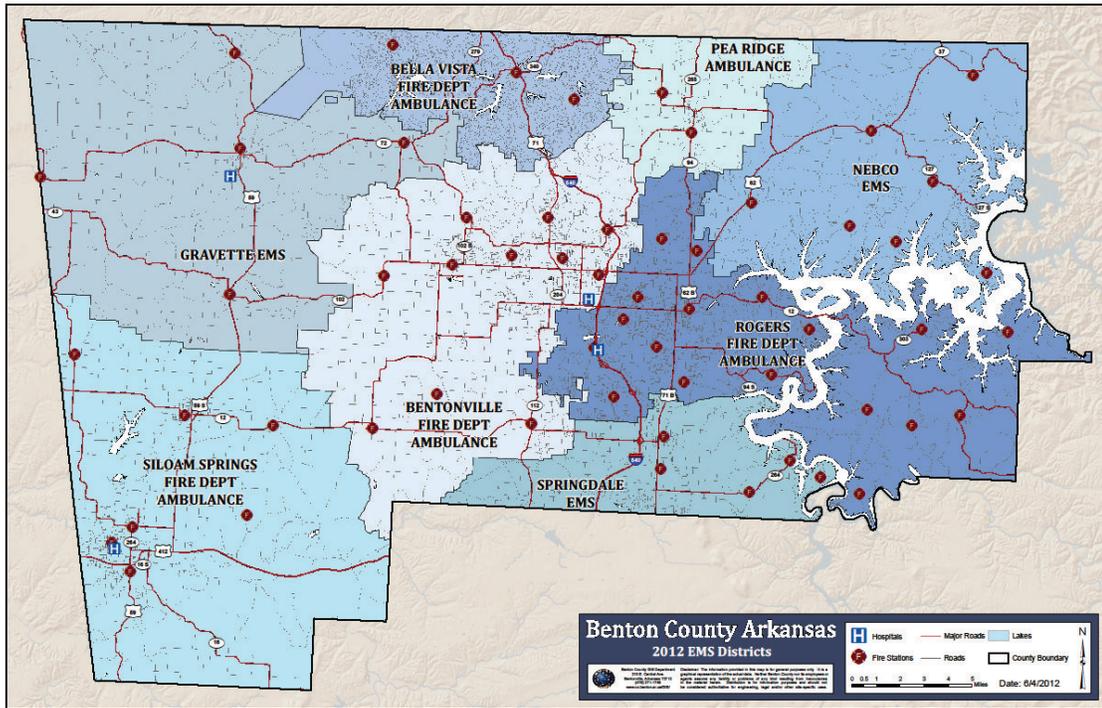
Table 3.6

Department	2011 Total Patients Transported From Unincorporated Areas or Municipalities With No Ambulance Service
Bella Vista Fire	47
Bentonville Fire	590
Gravette Fire	455
NEBCO Fire District	0
Pea Ridge Fire	58
Rogers Fire	378
Siloam Springs	624
Springdale	476
Total	2,618

All of the EMS transport providers with the exception of Siloam Springs in Benton County utilize Dr. Brad Johnson and operate under Arkansas's Northwest Regional Medical Protocols.

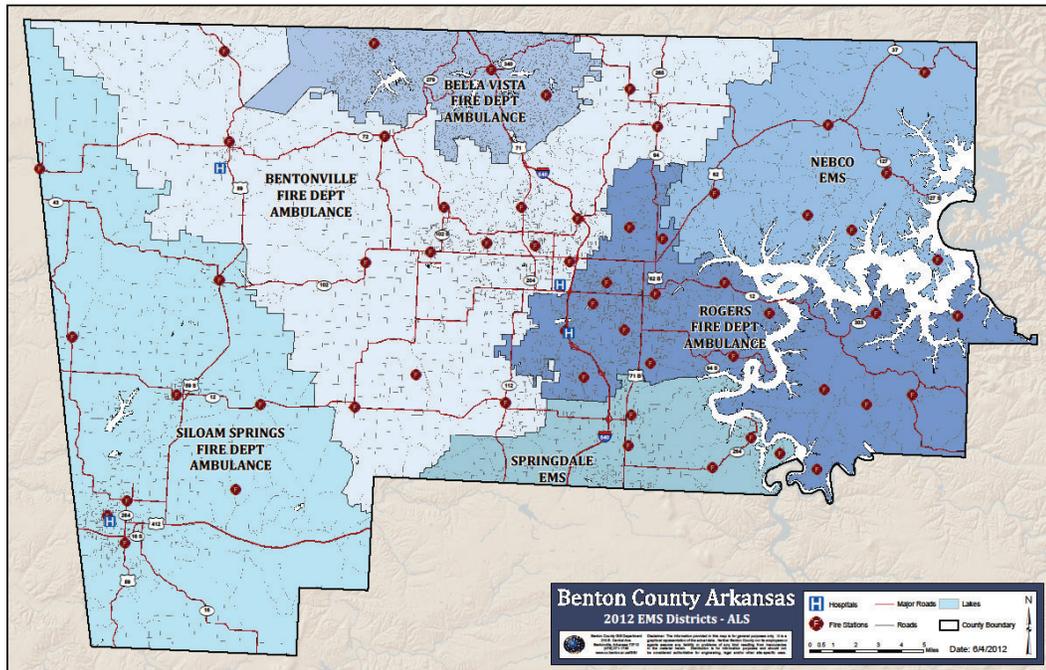
Figure 3.2 reflects the eight EMS districts.

Figure 3.2 – EMS Districts in Benton County



All fire departments provide advanced life support ambulance service within their respective EMS districts, with the exception of Gravette Fire Department and Pea Ridge Fire Department. During interviews, management from Gravette Fire Department and Pea Ridge indicated their desire to move to an advanced life support level and had plans to do so. Because of different levels of EMS service delivery, if ALS care is needed in the response areas of Gravette and Pea Ridge, the map as displayed in Figure 3.3 reflects where those intercept services occur.

Figure 3.3 – Benton County Advanced Life Support Districts



EMS Transport Providers in Benton County

There are a total of eight primary EMS transport providers in Benton County. All eight EMS transport providers interface and contribute to the overall system.

Bella Vista Fire Department

The Bella Vista Fire Department was formed in 1969, and is located in northern Benton County. Its primary mission is to provide protection against loss of life and property due to fire, explosion and other emergencies, as well as to provide high quality emergency medical care to the sick and injured. The ISO rating is 6.

The Bella Vista Fire Department operates from three fire stations with 24 paramedics and 15 EMTs. Ninety percent of the department is career and the remaining 10 percent are volunteers. The main functions of the department are fire, rescue, and EMS. Last year's budget was \$3,277,165.00.

Bella Vista became a municipality in 2008, but this did not include the property owners association which lies in unincorporated areas of Benton County. There is an election on May 22, 2012 for the purposes of determining if the unincorporated areas are to be annexed into Bella Vista.

The Bella Vista Fire Department has four engines, 1 ladder truck, 2 rescue units and operates four ambulances on a 24-hour basis.

The response configuration for an ambulance is one paramedic and one EMT.

9-1-1 calls in Bella Vista are initially answered by the Benton County 9-1-1 communications center. If it is a medical emergency, the call is forwarded to the Bella Vista 9-1-1 communications center. The dispatchers are trained to the APCO standard and criteria-based dispatching is utilized. Pre-arrival instructions are provided to 9-1-1 callers.

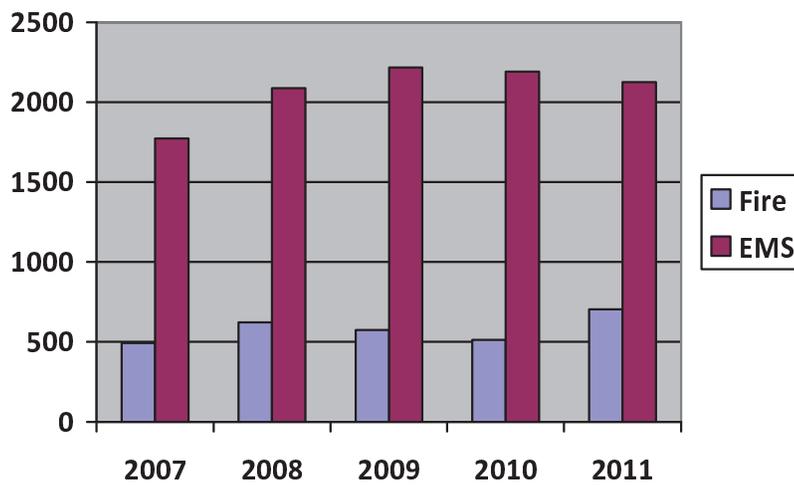
Table 3.7 reflects the five year fire and EMS call volume for the Bella Vista Fire Department.

Table 3.7 – Five Year Call Volume for Bella Vista Fire Department

	Fire	EMS
2007	493	1,774
2008	622	2,088
2009	574	2,217
2010	513	2,190
2011	704	2,125

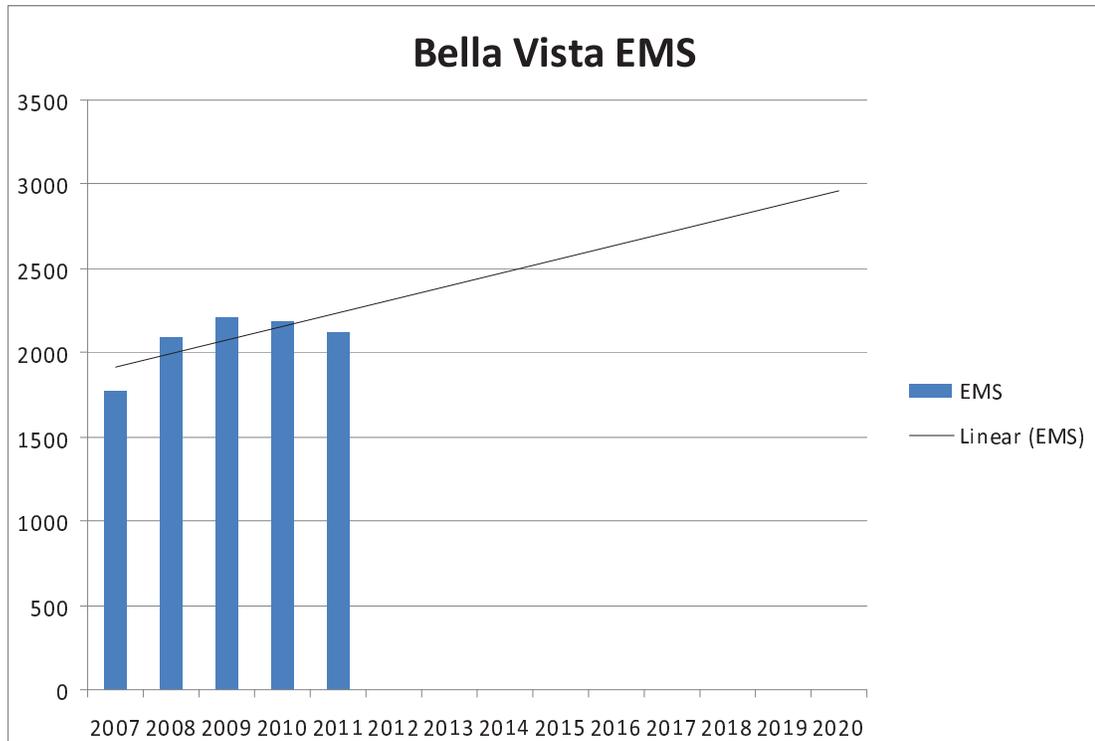
Figure 3.4 graphically reflects the five year run volume for fire and EMS for the Bella Vista Fire Department.

Figure 3.4



Using linear regression modeling as shown in Figure 3.5, it is predicted based upon the last five years of EMS run volume, the Bella Vista Fire Department EMS run volume will reach approximately 2,900 EMS runs annually by the year 2020 depending upon growth.

Figure 3.5



The EMS system in Bella Vista is funded by Medicare, private insurance, Medicaid, and self pay. The total amount of EMS reimbursement received during 2011 was \$725,199.07.

The EMS billing rates for ambulance transport in Bella Vista is:

Base rate:	\$550.00
Per Loaded Mile	\$10.00
Oxygen	\$40.00

Bentonville Fire Department

The Bentonville Fire Department was founded in 1887, and serves the community that is the county seat for Benton County. The Bentonville Fire Department operates from five fire stations and they have purchased land in three different locations to accommodate future growth. The Bentonville Fire Department has five pumpers, two quints, 2 brush trucks, 6 ambulances, 1 rescue, 1 support truck, and 2 special response vehicles.

The Bentonville Fire Department performs suppression, prevention, fire code enforcement, paramedic EMS, technical rescue and vehicle extrication, hazmat response, public education, CERT classes, and emergency management. The department is considered a combination department with 86 percent career personnel and 14 percent volunteers. The ISO rating is 2 and the current budget is \$7.26 million. The budget is funded by sales taxes and ambulance charges.

The Department has 36 paramedics and 29 EMTs. This does not include the part-time paid personnel. The response configuration on an ambulance is typically three personnel, with a minimum of one of the personnel being a paramedic. The first responder configuration varies on responses outside of the corporate boundaries of the city.

All 9-1-1 calls placed within the corporate boundaries of Bentonville are answered by the Bentonville Police Department Emergency Communications Center. The dispatchers

are trained to screen the 9-1-1 calls and provide pre-arrival instructions. There is a quality assurance process in place for the criteria-based dispatching program.

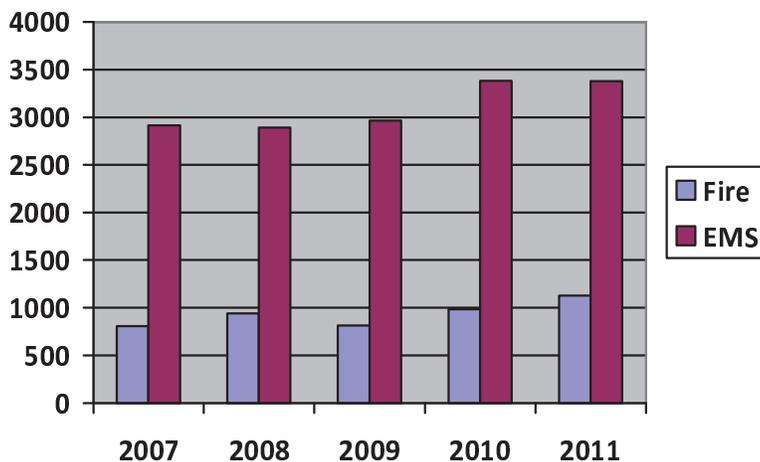
Table 3.8 reflects the run volume for fire and EMS calls for Bentonville for the last five years.

Table 3.8 – Fire and EMS Call Volume for 5 Years

	Fire	EMS
2007	808	2,914
2008	943	2,892
2009	815	2,964
2010	983	3,381
2011	1,128	3,379

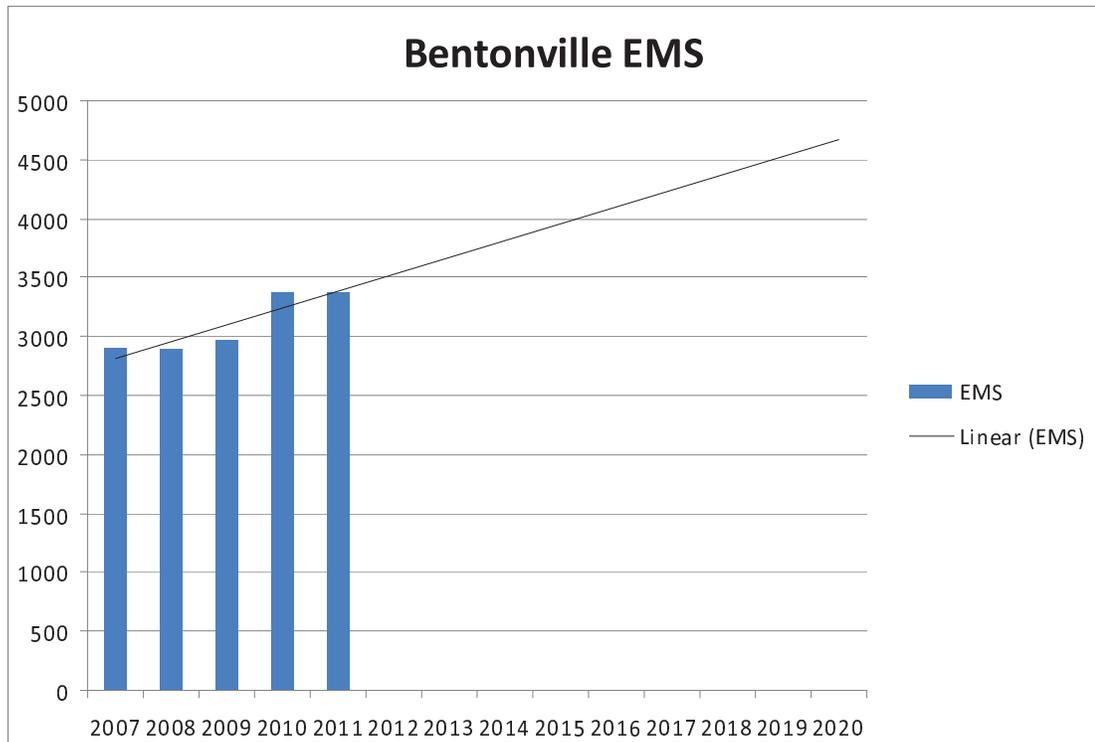
Figure 3.6 graphically reflects the five year run volume for fire and EMS for the Bentonville Fire Department.

Figure 3.6



Using linear regression modeling as shown in Figure 3.7, it is predicted based upon the last five years of EMS run volume, the Bentonville Fire Department EMS run volume will grow to approximately 4,600 calls or greater annually by the year 2020 depending upon growth.

Figure 3.7



The five year capital plan for EMS includes the remounting of ambulance boxes and replacing other EMS equipment such as monitors. Once purchased, the ambulance box is remounted after five years, remounted after another five years; then replaced with a new ambulance. Total life of ambulance box is fifteen years.

The Bentonville Fire Department provides EMS transport service to Cave Springs, Centerton, Highfill, and some unincorporated areas for Benton County. They also provide ALS backup services to Gravette, Sulphur Springs, Decatur, and Maysville.

The Bentonville Fire Department does charge for EMS services and the following is a breakdown of those charges.

BLS \$375 flat rate
ALS1 \$485 flat rate
ALS 2 \$550 flat rate
Out of city flat rate \$650 flat rate
\$7.50 per mile

Some municipalities, such as Centerton, Highfill, and Cave Springs also reimburse Bentonville \$400.00 for every patient transported from their city. During the first three months of 2012, Centerton has paid \$27,600 to Bentonville for transporting patients from within their city. Prorated, it appears Centerton will pay Bentonville approximately \$110,400.00 for transporting patients from their City in 2012.

Recommendation 3.1: Benton County should seek an opinion from the Office of the Inspector General for the Centers for Medicare and Medicaid Services whether this arrangement is valid prior to entering into such an agreement with Bentonville to pay for ambulance transport services.

The process of seeking reimbursement from Medicare and Medicaid, plus billing the municipality for each patient transported, might possibly be viewed as “double-dipping” by the Centers for Medicare and Medicaid Services (CMS). Under this arrangement, Bentonville receives \$400 from municipalities, plus if the patient is a Medicare or Medicaid beneficiary, Bentonville seeks reimbursement from Medicare and Medicaid for the same services at a higher billing rate than Medicare and Medicaid beneficiaries that reside in Bentonville. Reimbursement coming from two different sources on the same call may be considered “double-dipping.” This may not be applicable if Bentonville

charged the municipalities a flat rate per quarter, or per year for contracting for ambulance service.

Opinions that are given by the Office of the Inspector General for CMS are free and may prevent legal and financial issues with the federal government in the future.

The Ludwig Group consulted several EMS billing experts and some believe this practice was acceptable as long as the reimbursement from both sources did not exceed the cost of providing the service; others thought it was acceptable and was no different than citizens in Bentonville who pay taxes and also get billed for ambulance transport; while finally others felt this violated established standards for EMS billing from Medicare and Medicaid. It would be best to seek an opinion to alleviate any issues.

Gravette Fire Department

The Gravette Fire Department was founded in 1928 and is a combination fire department with two firefighters on-duty during a 24-hour shift and up to 25 volunteers also available. Gravette Fire Department provides EMS transport services to the City of Gravette, Maysville, Sulphur Springs, Decatur, and unincorporated areas of Benton County. The ISO rating is four and the budget of the fire department is \$217,418.00. The Gravette Fire Department provides brush/structure fire suppression, rescue, and BLS ambulance service. The ambulance service was taken over by the fire department in 2005 when the private ambulance company operating in the community could not fiscally survive and went out of business.

The City of Gravette has plans to expand their municipal boundaries east toward the Hiwasse area with a goal of annexation by January 1, 2013. At the time of this writing, this has already occurred.

There are a total of two paramedics and 12 EMTs in the department. The response configuration on the ambulance is one paramedic and one EMT although sometimes it is two EMTs.

Table 3.9 reflects the five year fire and EMS call volume for the Gravette Fire Department.

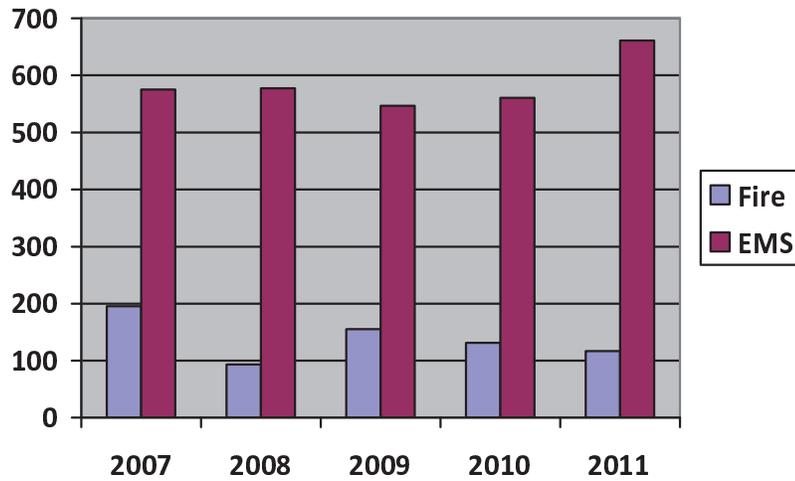
Table 3.9 – Five Year Call Volume for Gravette Fire Department

	Fire	EMS
2007	195	575
2008	93	577
2009	155	547
2010	131	561
2011	117	661

Figure 3.8 graphically reflects the five year run volume for fire and EMS for the Gravette Fire Department.



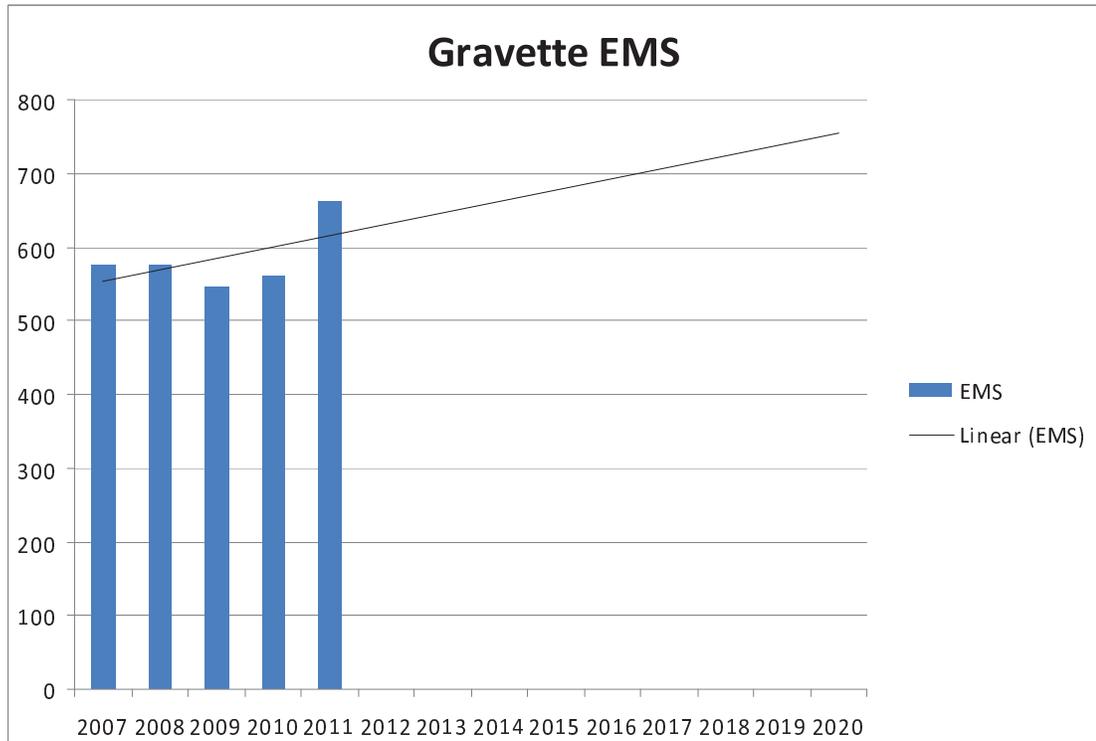
Figure 3.8



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Using linear regression modeling as shown in Figure 3.9, it is predicted based upon the last five years of EMS run volume, the Gravette Fire Department EMS run volume will rise to approximately 760 EMS runs annually by the year 2020 depending upon growth.

Figure 3.9



Gravette Fire Department operates one BLS ambulance full-time with two other ambulances as back-up reserves. All ambulances (two Freightliners and a Ford) are approximately 10 years or older.

The following are the charges for EMS service by Gravette Fire Department:

BLS Base Rate	\$400.00
Loaded Mileage	\$8.00
Rescue Apparatus	\$150.00
Oxygen	\$45.00

During 2010, the Gravette Fire Department total EMS billables was \$194,612.00 and total amount received was \$82,729.12 for a 43 percent collection rate.

The major challenge for the Gravette Fire Department is to upgrade the ambulance service to an ALS level, which plans are currently under way to do so. Any upgrade would have to be approved by the State of Arkansas.

Northeast Benton County (NEBCO) Fire and EMS

NEBCO Fire was founded in 1978. EMS was founded in 1980 as VAS basic life support then in 2010 was taken over by NEBCO and changed to an advanced life support service. NEBCO Fire and EMS is a combination fire department consisting of approximately 13 percent career members and 87 percent volunteer members. The ISO rating is a 5/7. There are approximately 17 paramedics and nine EMTs in the department. The response configuration on the ambulance is one paramedic and one EMT.

NEBCO Fire and EMS provides services to the NEBCO Fire District, the Avoca Fire District, and the cities of Garfield, Gateway and Avoca. NEBCO has seven ALS engines, two BLS engines, and two ALS ambulances.

NEBCO Fire and EMS collects a \$40 subscription fee a year for EMS service from each residential property within the EMS district. As of this writing, there are 3,939 subscriptions. This raises approximately \$157,560 a year to support the EMS program. The major concern NEBCO Fire and EMS has depends on whatever solution the County decides for providing EMS since 3,337 residential subscriptions are located in the unincorporated areas the EMS district. NEBCO Fire and EMS is considering going to a vote to raise the subscription fee in order to support increased call volume with the goal of putting a second full-time ambulance in service.

NEBCO does charge Medicare, Medicaid, and private insurance for ambulance reimbursement, but their by-laws preclude them from billing for the balance of any ambulance bill.

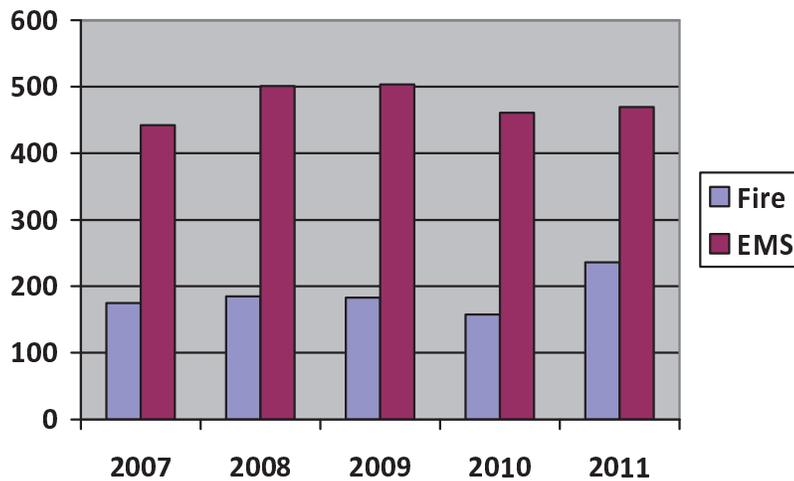
Table 3.10 reflects the five year fire and EMS call volume for NEBCO Fire and EMS.

Table 3.10 – Five Year Call Volume for NEBCO Fire and EMS

	Fire	EMS
2007	175	442
2008	185	501
2009	183	503
2010	158	461
2011	236	469

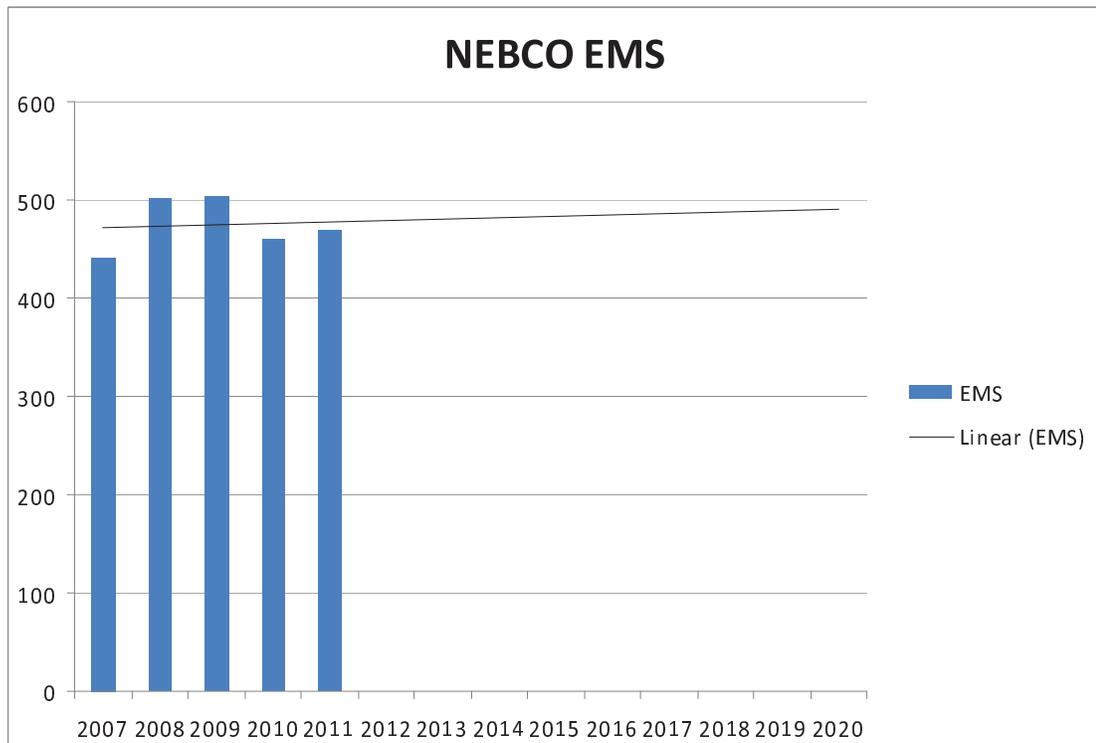
Figure 3.10 graphically reflects the five year run volume for fire and EMS for NEBCO Fire and EMS.

Figure 3.10



Using linear regression modeling as shown in Figure 3.11, it is predicted based upon the last five years of EMS run volume, NEBCO Fire and EMS run volume will remain mainly consistent around 500 EMS runs annually by the year 2020 depending upon growth.

Figure 3.11



NEBCO Fire and EMS during 2011 collected \$144,843.63 for ambulance response. This breaks down to 18 percent Medicaid; 33 percent Medicare; 3 percent self pay; 30 percent from private insurance, and 16 percent from fund raisers. Trinity Medical Billing is responsible for EMS reimbursement and the collection rate is 42 percent.

Pea Ridge Fire Department

The Pea Ridge Fire Department was founded in 1950 and serves the City of Pea Ridge and unincorporated areas of the County. The Pea Ridge Fire Department is a combination department and provides fire suppression, basic life support EMS transport, hazmat mitigation, and code compliance inspection enforcement. The ISO rating for the fire department is a 5/9. There are 28 members of the department on the roster. Six are

paid career positions and the rest of the members of the department are volunteers. The paid staffing is only available from Sunday through Thursday from 7 am – 1 am and Friday and Saturday from 7 am until 4 pm. The Pea Ridge Fire Department took over EMS transport in 2010 and their biggest challenge is trying to move the transport service to an ALS level because of finances. There are four paramedics and nine EMTs in the department. As is the case with the Gravette Fire Department, the State of Arkansas would have to approve any ALS license for the service.

The staffing configuration on the ambulance is one EMT and one first responder but often it is 2 EMTs.

9-1-1 is the emergency number in Pea Ridge for a fire or EMS emergency as this service is supplied by Benton County Central Communications. As a result, pre-arrival instructions are provided.

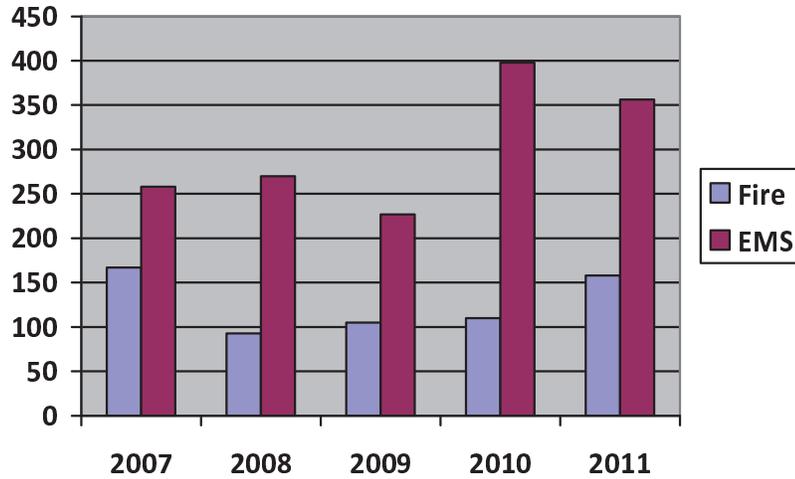
Table 3.11 reflects the five year fire and EMS call volume for the Pea Ridge Fire Department.

Table 3.11 – Five Year Call Volume for Pea Ridge Fire Department

	Fire	EMS
2007	167	258
2008	110	270
2009	105	227
2010	93	398
2011	167	356

Figure 3.12 graphically reflects the five year run volume for fire and EMS for the Pea Ridge Fire Department.

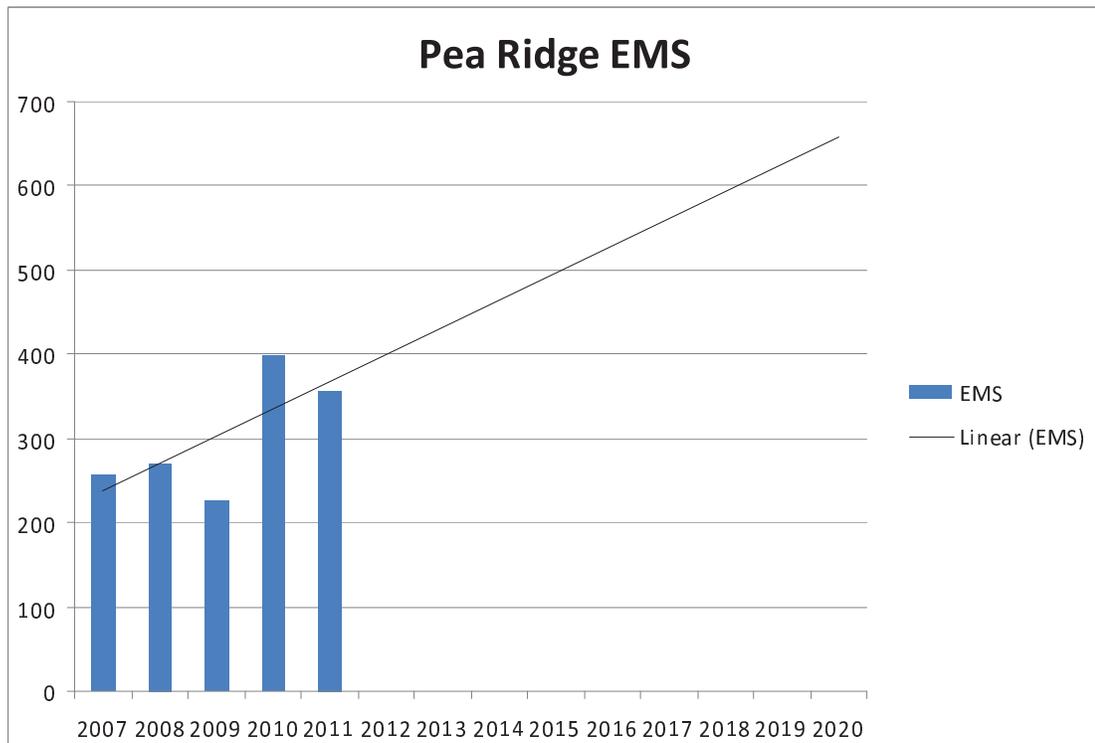
Figure 3.12



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Using linear regression modeling as shown in Figure 3.13, it is predicted based upon the last five years of EMS run volume, the Pea Ridge Fire Department EMS run volume will rise to approximately 650 EMS runs annually by the year 2020 depending upon growth.

Figure 3.13



The following are the EMS billing rates for the Pea Ridge Fire Department:

BLS non emergency	\$375.00
BLS emergency	\$400.00
Disposable supplies	\$12.50
Fracture immobilization	\$20.00
Cervical Spine immobilization	\$20.00
External defibrillator electrodes	\$48.00
Extrication	\$250.00
Child birth	\$30.00
ALS intercept	\$100.00
Treatment/ no transport	\$100.00
Mileage	\$8.00 per loaded mile

The EMS budget for the Pea Ridge Fire Department in 2011 was \$66,500.00.

Trinity Medical Billing is the EMS billing company for the Pea Ridge Fire Department and the total amount billed in 2011 was \$101,401.28. The total amount collected was \$77,338.27 for a collection rate of approximately 76 percent.

The breakdown of payors for transports in Pea Ridge is

Cash/ Check	\$7,772.86	10.05%
Medicaid	\$11,148.54	14.4%
Medicare	\$33,704.91	43.58%
Private insurance	\$24,711.96	31.95%

Rogers Fire Department

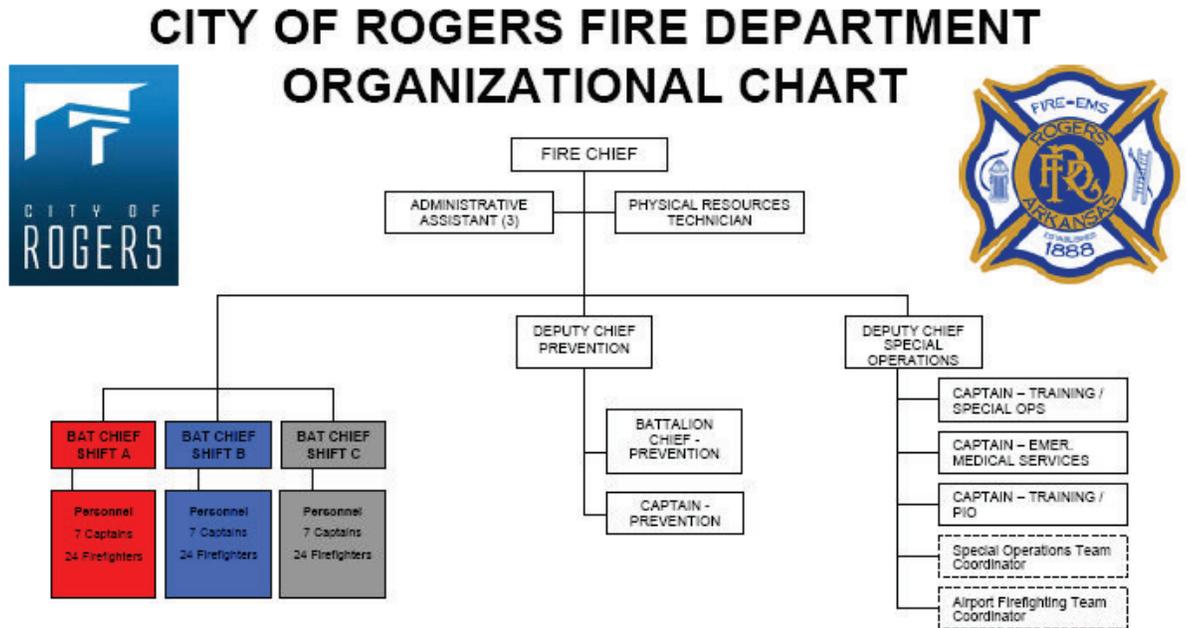
The Rogers Fire Department was founded as a fire department on December 19, 1888 and its main mission is to provide exceptional risk-related services to its customers. The vision of the Rogers Fire Department is to be an established authority, nationally recognized in every risk-related discipline. The Rogers Fire Department operates from seven stations with a total of 106 sworn members. All personnel are trained to the EMT-basic level and over 70 of the personnel are firefighter/paramedics.

The Rogers Fire Department is recognized as one of approximately 150 accredited fire departments in the United States by the Commission of Fire Accreditation International.

The main services that the Rogers Fire Department provides are fire suppression, emergency medical services, hazardous materials, technical rescue services, public education, fire investigation, and emergency management. The most frequently performed function is the delivery of EMS. The ISO rating for the department is 3, and the 2011 amended budget was \$8,600,679.

Figure 3.14 reflects the organizational chart for the Rogers Fire Department.

Figure 3.14 – Rogers Fire Department Organizational Chart



The response configuration on the ambulance is one paramedic and one EMT-Basic. Additionally, it is not uncommon to have two paramedics or three paramedics on an ambulance because of paramedic clinical training. With respect to first responder engine companies, three engines are ALS capable and the remaining are BLS. Because of population activity and density of population, the Rogers Fire Department can be challenged to provide ambulance service during normal work hours, Monday through Friday. According to the department, another fully-staffed ambulance would help alleviate the strain.

On a daily basis the Rogers Fire Department has four advanced life support paramedic ambulances, five engine companies, two quints, one heavy rescue and hazardous material unit, one airport response unit, two brush, and one collapse rescue unit.

When providing EMS transport services, the Rogers Fire Department provides EMS transport services to the City of Little Flock, and unincorporated areas that include the Piney Point Fire Department, Beaver Lake Fire Department, Rocky Branch Fire Department, and Highway 94 East Fire Department.

On-duty battalion chiefs must approve any response outside their corporate boundaries into the county. Any call in the city or outside the city that is classified as an Alpha or Omega call under the Medical Priority Dispatch System is directed and handled by one of four private ambulance companies.

Rogers Fire Department has its own 9-1-1 communications center and any 9-1-1 calls placed with the City of Rogers are answered directly at the Rogers 9-1-1 communications center. Any 9-1-1 call for medical services that fall within Rogers Fire Department EMS District but is outside the City of Rogers are first answered by Benton County 9-1-1 Center and then directed to the Rogers 9-1-1 communications center. All dispatchers are Emergency Medical Dispatcher certified and use the Medical Priority Dispatch System to evaluate 9-1-1 calls. Pre-arrival instructions are provided for all 9-1-1 calls that are of an emergency nature.

The response time standard within the City is six minutes and 30 seconds, 90 percent of the time. For areas outside the City, there is no response time standard and some responses to the eastern most sections of the EMS districts can take up to 30 minutes.

Table 3.12 reflects the five year fire and EMS call volume for the Rogers Fire Department.

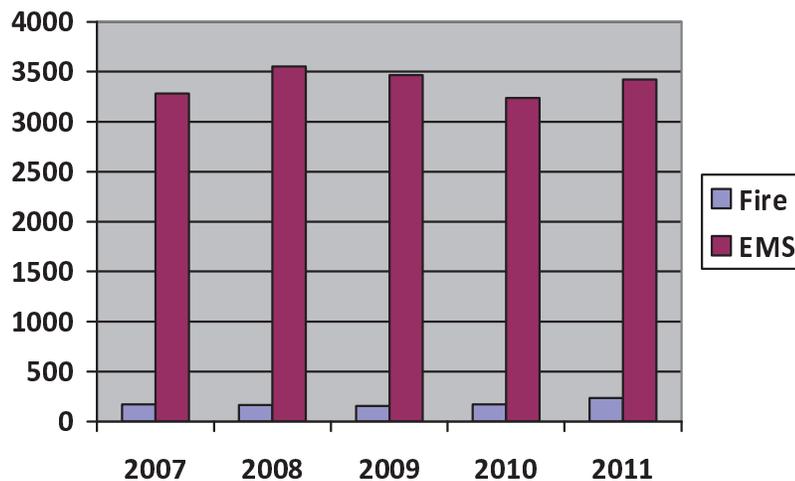


Table 3.12 – Five Year Call Volume for Rogers Fire Department

	Fire	EMS
2007	169	3,280
2008	165	3,553
2009	156	3,466
2010	171	3,238
2011	237	3,423

Figure 3.15 graphically reflects the five year run volume for fire and EMS for the Rogers Fire Department.

Figure 3.15

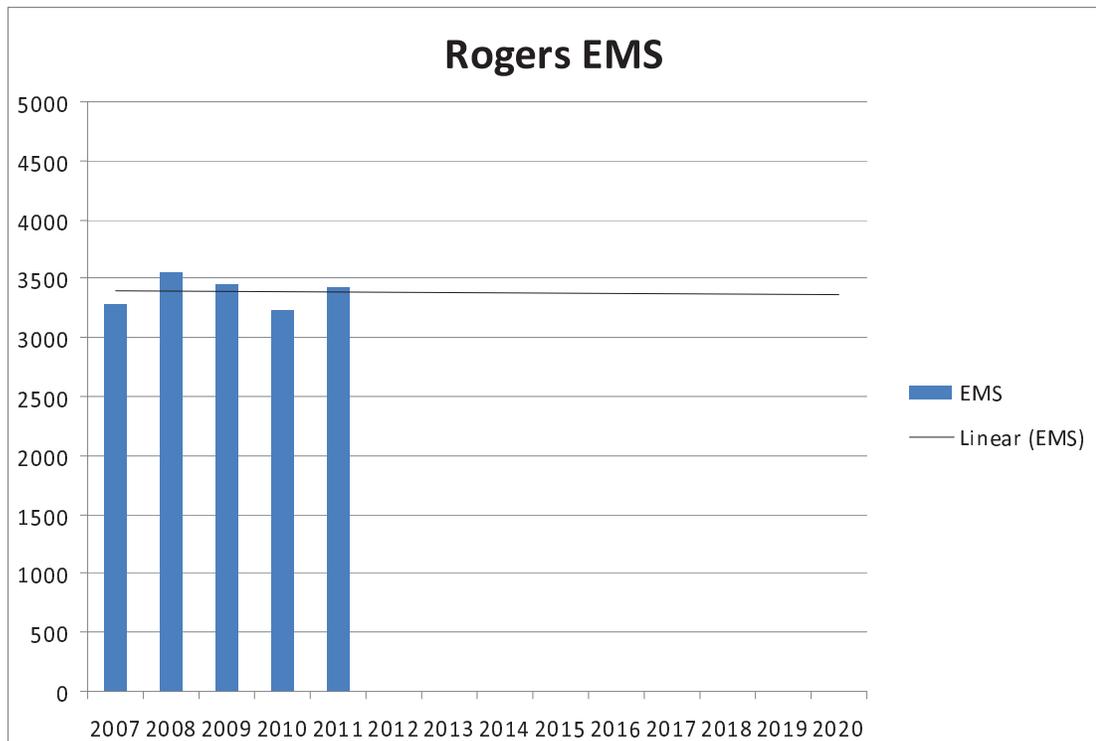


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Using linear regression modeling as shown in Figure 3.16, it is predicted based upon the last five years of EMS run volume, the Rogers Fire Department EMS run volume will remain relatively flat annually by the year 2020 depending upon growth.

The call volume has remained relatively flat because the Rogers Fire Department has reduced the number of communities they serve over the last several years. In 2009, the Rogers Fire Department served three municipalities (Little Flock, Cave Springs, and Lowell). Through their efforts to establish a subsidy and inter-local agreement, they have eliminated Lowell and Cave Springs from their responsibilities. In 2010, Cave Springs started being covered by Bentonville Fire Department and Lowell is exclusively covered by Springdale Fire Department (even though large portions of Lowell are closer to Rogers Fire Department stations). Another reason why the data may have skewed the projection modeling is because several years ago, the decision was made to have private ambulance companies respond on Alpha and Omega calls instead of a Rogers Fire Department response.

Figure 3.16



The EMS system in the Rogers Fire Department is funded entirely on sales tax from the city's general revenue fund. The Rogers Fire Department does bill for EMS transport services and these funds account for approximately 15 – 20 percent of the total fire department budget.

During 2011, the Rogers Fire Department had an 80.7 percent EMS collection rate.

The following are the billing rates charged by the Rogers Fire Department.

Transport to Hospital ALS Level 1	\$400.00
Transport to Hospital ALS Level 2	\$550.00
Transport to Helicopter	\$187.50
Treat patient, but no transport	\$187.50
Nursing Home Facility (patient assistance)	\$100.00
Extrication Provided	\$150.00
Mileage (per patient loaded mile)	\$10.00
Standby time per hour	\$90.00
Standby time per hour (non-profit organizations)	\$40.00
Supplies and/or drugs used for non-transport	Billed accordingly

Outside the City Limits of Rogers

Transport to Hospital any level of service	\$775.00
Transport to Helicopter	\$250.00
Extrication Provided	\$200.00
Mileage (per patient loaded mile)	\$10.00
Supplies and/or drugs used for non-transport	Billed accordingly

During 2011, the Rogers Fire Department had total EMS receivables of \$1,931,200.55 of which \$101,542.94 was Medicaid and \$428,659.29 was from Medicare providers.

Siloam Springs Fire Department

The Siloam Springs Fire Department was founded in 1901, and according to their mission statement they provide quality fire, EMS and other life safety services based upon community expectation and available resources. The Siloam Springs Fire Department operates from three fire stations and provides fire suppression, fire prevention through education and other services, full-time ALS ambulance transport service, vehicle and technical rescue, is a member of NWA Regional Haz-mat Team6 and assists the city water department with the maintenance of all of the fire hydrants within the city's water distribution system. The department has 45 full-time staff and three volunteers for three shifts. The Siloam Springs Fire Department has an ISO rating of three. The department has 17 EMT-basics and 31 paramedics.

9-1-1 is the emergency number for individuals to call for medical assistance. Those calls are answered and dispatched by the Siloam Springs Dispatch Center and the dispatchers are APCO EMD certified and pre-arrival instructions are provided.

The Siloam Springs Fire Department provides 9-1-1 ALS response and transport, and also provides ALS inter-facility transports when necessary. Four ALS ambulances are available with two staffed 24 hours a day. The department does have the personnel to activate the other two ALS ambulances when needed. Staffing for the ambulances is normally one Paramedic and one EMT. The fire engines (three) within the city are BLS but have Paramedic personnel attached to them. Normally there is one Paramedic and one EMT on each engine.

PULSE EMS, a private ambulance company, also provides mainly ALS and BLS Inter-facility transports but is able to respond to 911 calls as well if needed.

PULSE has three ambulances, of which two are ALS and one is BLS. The ALS ambulances have one Paramedic and one EMT and the BLS ambulance have two

EMT's. PULSE is not regularly staffed for immediate response, but crews are required to have a 15 minute or less response to the station.

The Siloam Springs Fire Department provides ambulance transport to Gentry, Gallatin, Decatur, West Siloam Springs, and unincorporated parts of Benton County. Gallatin is not an incorporated community.

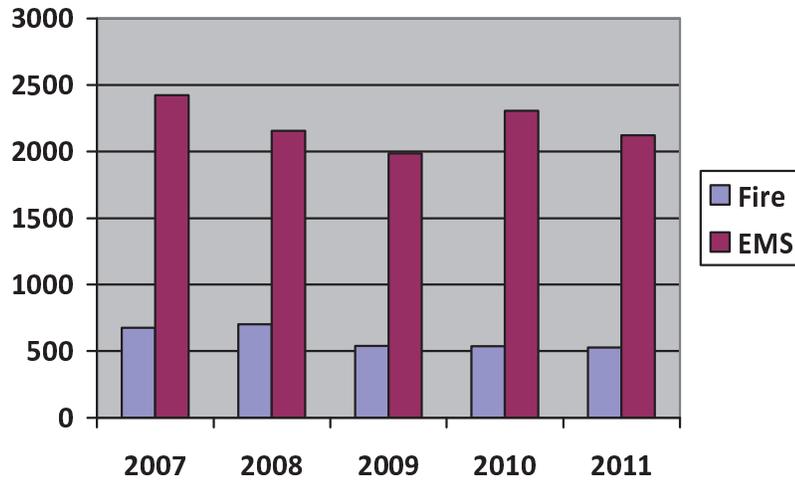
Table 3.13 reflects the five year fire and EMS call volume for the Siloam Springs Fire Department.

Table 3.13 – Five Year Call Volume for Siloam Springs Fire Department

	Fire	EMS
2007	674	2,422
2008	703	2,156
2009	540	1,986
2010	538	2,307
2011	529	2,122

Figure 3.17 graphically reflects the five year run volume for fire and EMS for the Siloam Springs Fire Department. The reason why there is an EMS call run volume drop in 2008 and 2009 is because Siloam Springs stopped running a large part of their Oklahoma response area. However, it is done as a secondary service when the primary provider needs mutual aid.

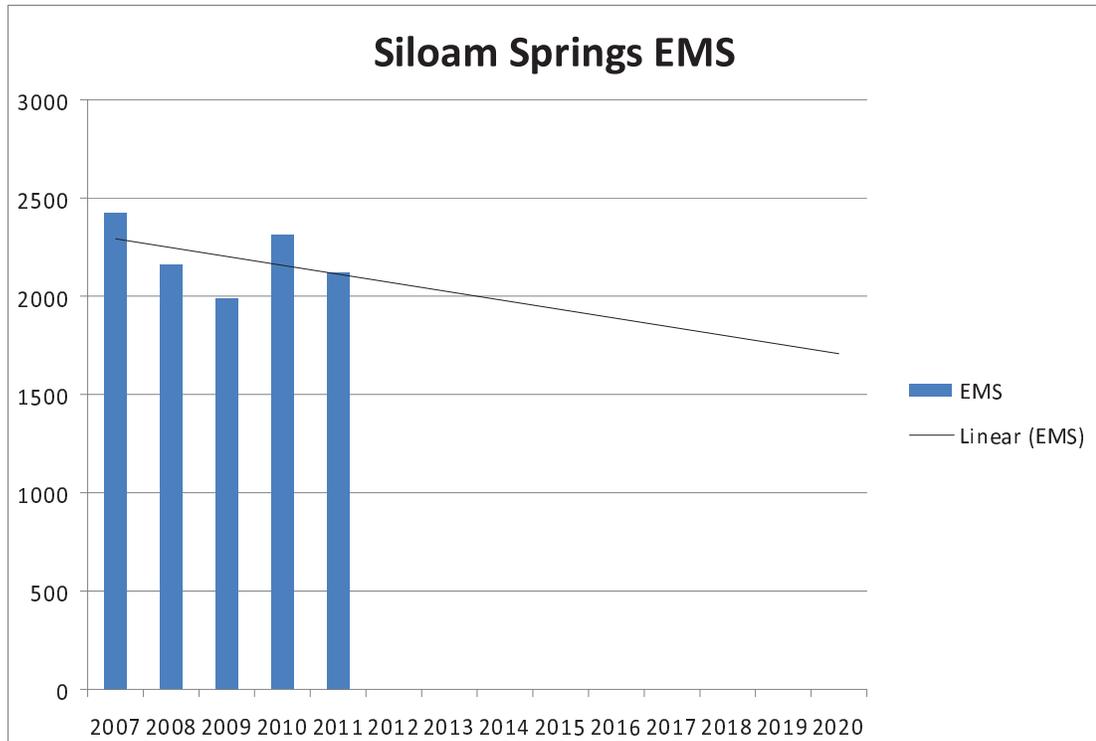
Figure 3.17



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Using linear regression modeling as shown in Figure 3.18, it is predicted based upon the last five years of EMS run volume, the Siloam Springs Fire Department EMS run volume will lower to approximately 2,200 EMS runs annually by the year 2020 depending upon growth. This data may be skewed because Siloam Springs stopped running calls in the State of Oklahoma and run data reflects that.

Figure 3.18



The revenue generated from Siloam Springs Fire Department EMS operation is 60 percent from Medicare and Medicaid, approximately 20 percent from private insurance and 20 percent from self-pay. The EMS collection rate was 75% in 2011. The projected EMS revenue in 2012 is \$944,669.12.

The total budget for the EMS operation is \$325,850 for 2011.

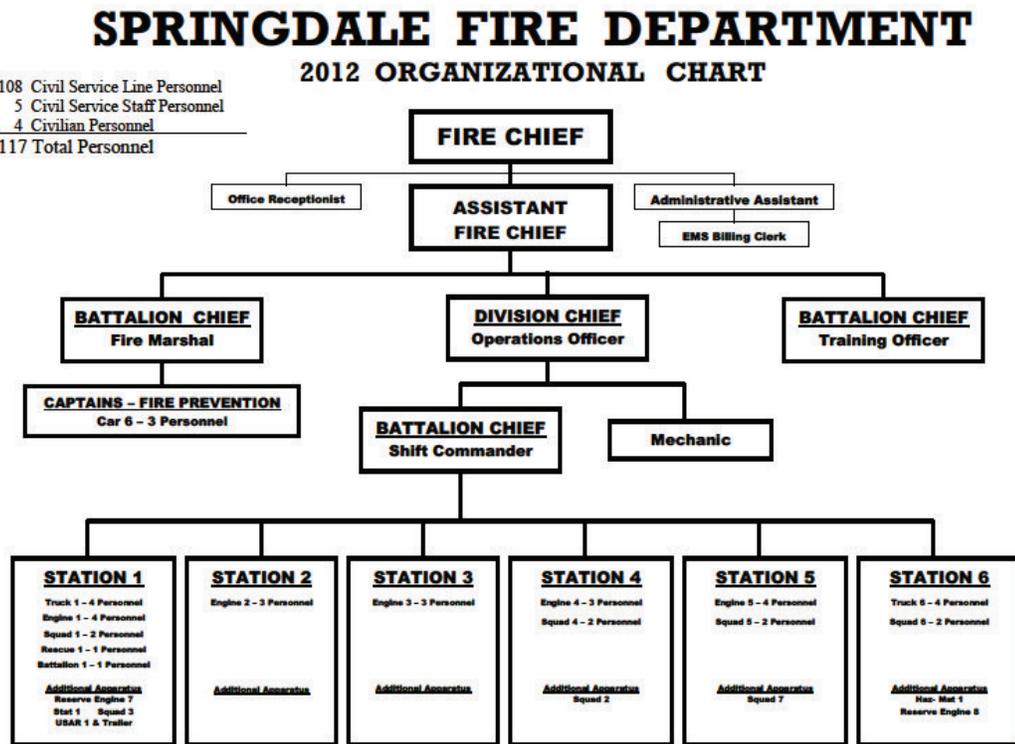
Springdale Fire Department

The Springdale Fire Department was founded in 1909 and according to their mission statement they exist to enhance the quality of life in Springdale by minimizing the devastating effects of fires, medical emergency medical emergencies, and natural and

artificial disasters. The Springdale Fire Department operates from six fire stations and provides fire, EMS, and rescue services. The department has an ISO class 2 rating and the annual budget is \$9.4 million. The Springdale Fire Department provides service into two different counties – Benton and Washington counties. The department has 117 members of which 43 are paramedics and 69 are EMTs. The response configuration on the ambulance is one paramedic and one EMT.

Figure 3.19 reflects the organizational chart for the Springdale Fire Department.

Figure 3.19



9-1-1 is the primary emergency number for anyone experiencing a medical emergency and needing assistance. The Springdale Police Department dispatch center is the primary answering point and pre-arrival instructions are provided.

Table 3.14 reflects the five year fire and EMS call volume for the Springdale Fire Department.

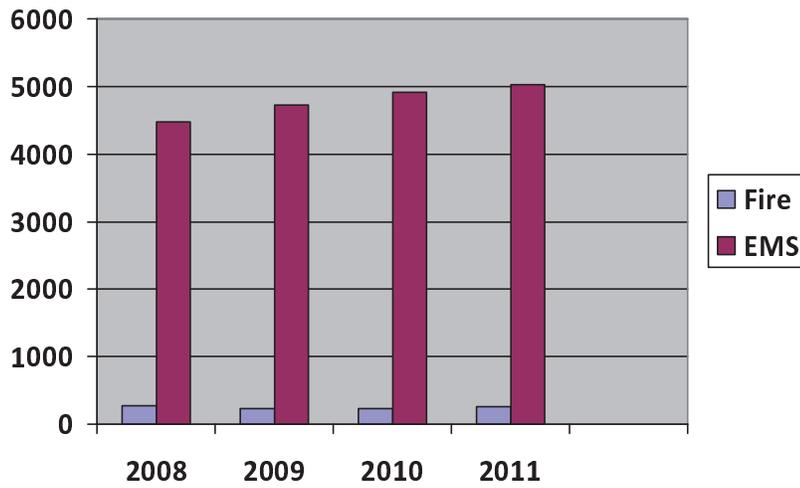
Table 3.14 – Five Year Call Volume for Springdale Fire Department

	Fire	EMS
2007	N/A	N/A
2008	270	4,480
2009	239	4,719
2010	238	4,913
2011	262	5,025

Figure 3.20 graphically reflects the five year run volume for fire and EMS for the Springdale Fire Department.



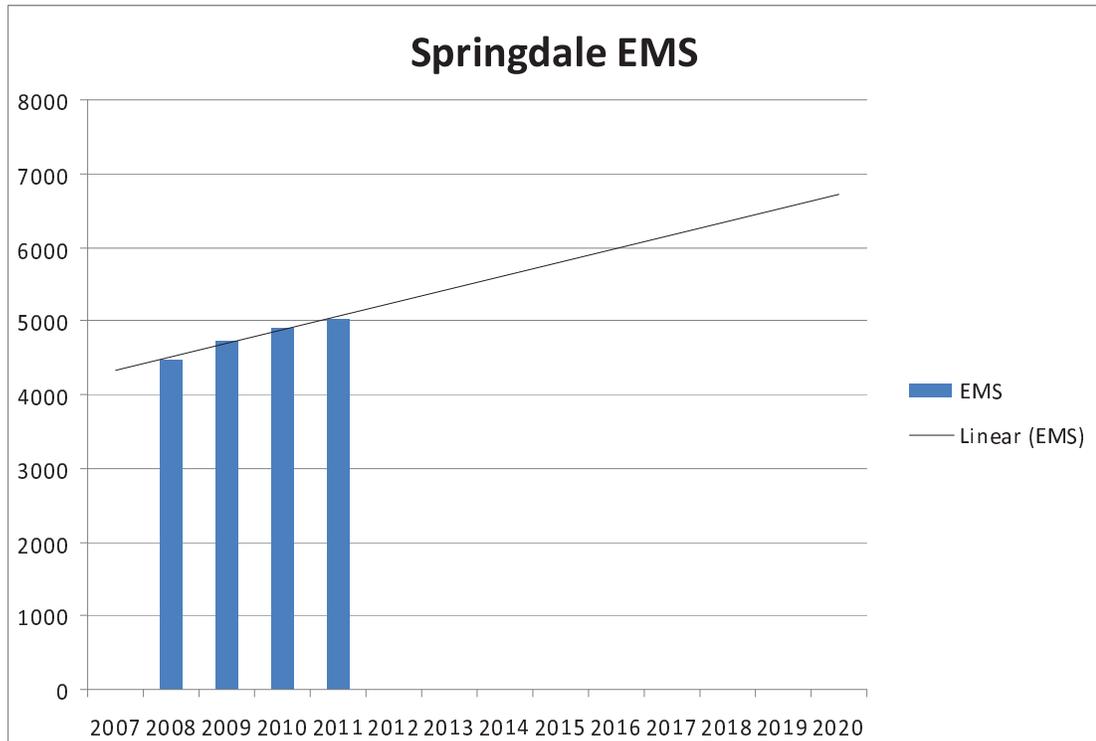
Figure 3.20



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Using linear regression modeling as shown in Figure 3.21, it is predicted based upon the last five years of EMS run volume, the Springdale Fire Department EMS run volume will rise to approximately 6,800 EMS runs annually by the year 2020 depending upon growth.

Figure 3.21



The EMS reimbursement collection rate was 58 percent in 2011.

Table 3.15 reflects the EMS charges for patients transported by the Springdale Fire Department.

Table 3.15

SFD EMS Charge Codes

Code #	Description	HCPCS	2010 SFD	2011 SFD	2012 SFD
01	BLS-1 Base Rate	A0429	\$344.18	\$371.89	\$384.49
02	ALS-1 Base Rate	A0427	\$408.70	\$441.63	\$432.82
03	ALS-2 Base Rate	A0433	\$591.55	\$639.19	\$626.46
04	BLS-1 (Benton County Rural)	A0429	\$744.18	\$721.89	\$764.49
05	ALS-1 (Benton County Rural)	A0427	\$808.70	\$791.63	\$832.82
06	ALS-2 (Benton County Rural)	A0433	\$991.55	\$989.19	\$1,026.46
07	BLS-1 (Treat No Transport)	A0998	\$172.09	\$185.95	\$182.25
08	ALS-1 (Treat No Transport)	A0998	\$204.35	\$220.82	\$216.41
09	ALS-2 (Treat No Transport)	A0998	\$295.78	\$319.60	\$313.23
10	Loaded Mileage Rate	A0425	\$7.76	\$7.89	\$8.09
11	Adenosine (6mg)	J0150	\$72.00	\$72.00	\$72.00
12	Airway, Bag \ Valve \ Mask	A0398	\$40.00	\$40.00	\$40.00
13	Airway King	A0396	\$85.00	\$85.00	\$85.00
14	Airway Suction	A0398	\$40.00	\$40.00	\$40.00
15	Albuterol (Proventil Updraft 2.5 mg)	J7620	\$35.00	\$35.00	\$35.00
16	Amiodarone	J0282	\$80.00	\$80.00	\$80.00
17	Atropine Sulfate (.01mg)	J0460	\$35.00/mg	\$0.35	\$0.35
18	Benadryl (50mg)	J1200	\$35.00	\$35.00	\$35.00
19	Cardiac Monitoring	93041	\$80.00	\$80.00	\$80.00
20	CPAP	A7030	\$90.00	\$90.00	\$90.00
21	Dextrose (D-50)	J7042	\$35.00	\$35.00	\$35.00
22	Disposable Supplies	A0398	\$10.00	\$10.00	\$10.00
23	Dopamine Premix (250mg)	J1265	\$24.00	\$24.00	\$24.00
24	Epinephrine (1110mg)	J0171	\$21.00	\$21.00	\$21.00
25	Fentanyl (100MCG)	J3010	\$20.00	\$20.00	\$20.00
26	Glucagon (1mg)	J1610	\$150.00	\$150.00	\$150.00
27	Insta-Glucose	A0394	\$7.50	\$7.50	\$7.50
28	IV Administration	A0394	\$30.00	\$30.00	\$30.00
29	IV Intraosseous	A0394	\$150.00	\$150.00	\$150.00
30	Lasix (Furosemide 40mg)	J1940	\$18.00	\$18.00	\$18.00
31	Lidocaine100 mg	J2001	\$24.00	\$24.00	\$24.00
32	Magnesium Sulfate	J3475	\$24.00	\$24.00	\$24.00
33	Morphine Sulfate (10mg)	J2270	\$24.00	\$24.00	\$24.00
34	Narcan (0.2-4mg)	J2310	\$35.00	\$35.00	\$35.00
35	Oxygen Therapy	A0422	\$35.00	\$35.00	\$35.00
36	Phenergan (25mg)	J2550	\$24.00	\$24.00	\$24.00
37	Romazicon (0.1mg/ml 5ml)	J3490	\$90.00	\$90.00	\$90.00
38	Sodium Bicarb (4.2g / 50cc)	A0398	\$24.00	\$24.00	\$24.00
39	Valium (Diazepam) (10mg)	J3360	\$20.00	\$24.00	\$24.00
40	Versed (1mg)	J2250	\$21.00	\$20.00	\$20.00
41	Zofran (1mg)	J2405	\$24.00	\$6.00	\$6.00

Chapter IV

EMS Systems

Emergency Medical Service (EMS) Systems

The modern model for delivery of emergency medical service (EMS) has been evolving since the mid-1960s. Throughout the country, during this 40+ year evolutionary process, systems have developed to the point that there are commonly accepted standards or benchmarks that can be used to describe EMS delivery systems and to evaluate them. These industry benchmarks originate in a variety of sources and serve as the conceptual framework for this system analysis. All of the benchmarks in this proposal can be found, in various forms, in the original *15 Essential Components of an EMS System* that were identified in the federal EMS legislation of 1973 and in the new *10 EMS System Standards* currently used by the *U.S. Department of Transportation* (1995) to evaluate state EMS systems. In addition, these benchmarks can also be found in the standards of the *Commission on Accreditation of Ambulance Services* (1994), in the EMS accreditation standards developed by the *International Association of Fire Chiefs* (1995), and in the contracting guidelines developed by the *American Ambulance Association*. More recently, the National Fire Protection Association ratified NFPA 450 – Guide for Emergency Medical Services and Systems. The NFPA is clear to identify that this document is a guide and not a standard.

As the national experience with EMS delivery has evolved, it has become clear that delivering quality emergency medical service involves much more than an ambulance service. Providing quality EMS involves the sophisticated integration of a variety of public safety resources into a **system**. Any one of the resources, used in isolation, will result in less than satisfactory results. It is only through the combination of resources that true system effectiveness can be achieved.

An EMS or medical transportation system is comprised of multiple components. Its functioning is based upon the coordination and cooperation of, sometimes, multiple agencies and individuals working together with a common plan to achieve the desired outcome.

This effort is both a system's greatest strength and, potentially, its most significant weakness. If cooperation and coordination break down, the system becomes fragmented and the participants are unable to perform at optimum levels.

EMS systems have, as their primary goal, the desire to deliver the most appropriate emergency care to someone in need, in a timely manner. There are two key components in this statement:

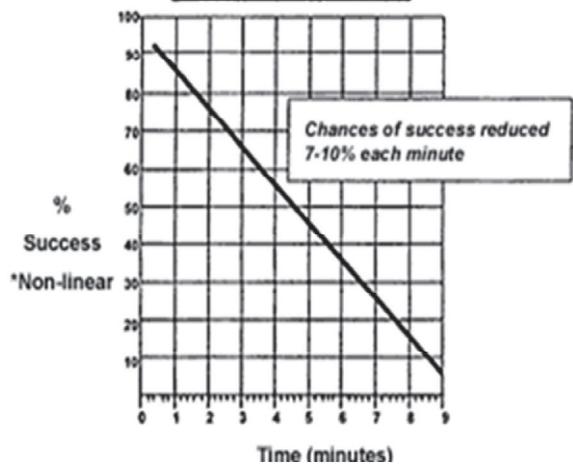
TIME: This issue most significantly affects survival for patients experiencing life-threatening emergencies. The most sophisticated, well-trained prehospital providers in the world do not do a patient any good if they do not arrive in time. In order to best serve the public, any EMS system must get help to people within clearly established time limits.

LEVEL OF CARE: Getting the right level of care to people is almost as important as the time issue.

The system recommendations for the Benton County EMS system contained in this document are intended to ensure that Benton County and municipalities within Benton

Figure 4.1

Resuscitation Success vs. Time*
For Each Minute Lost The Chance of Survival
Diminishes 7-10%

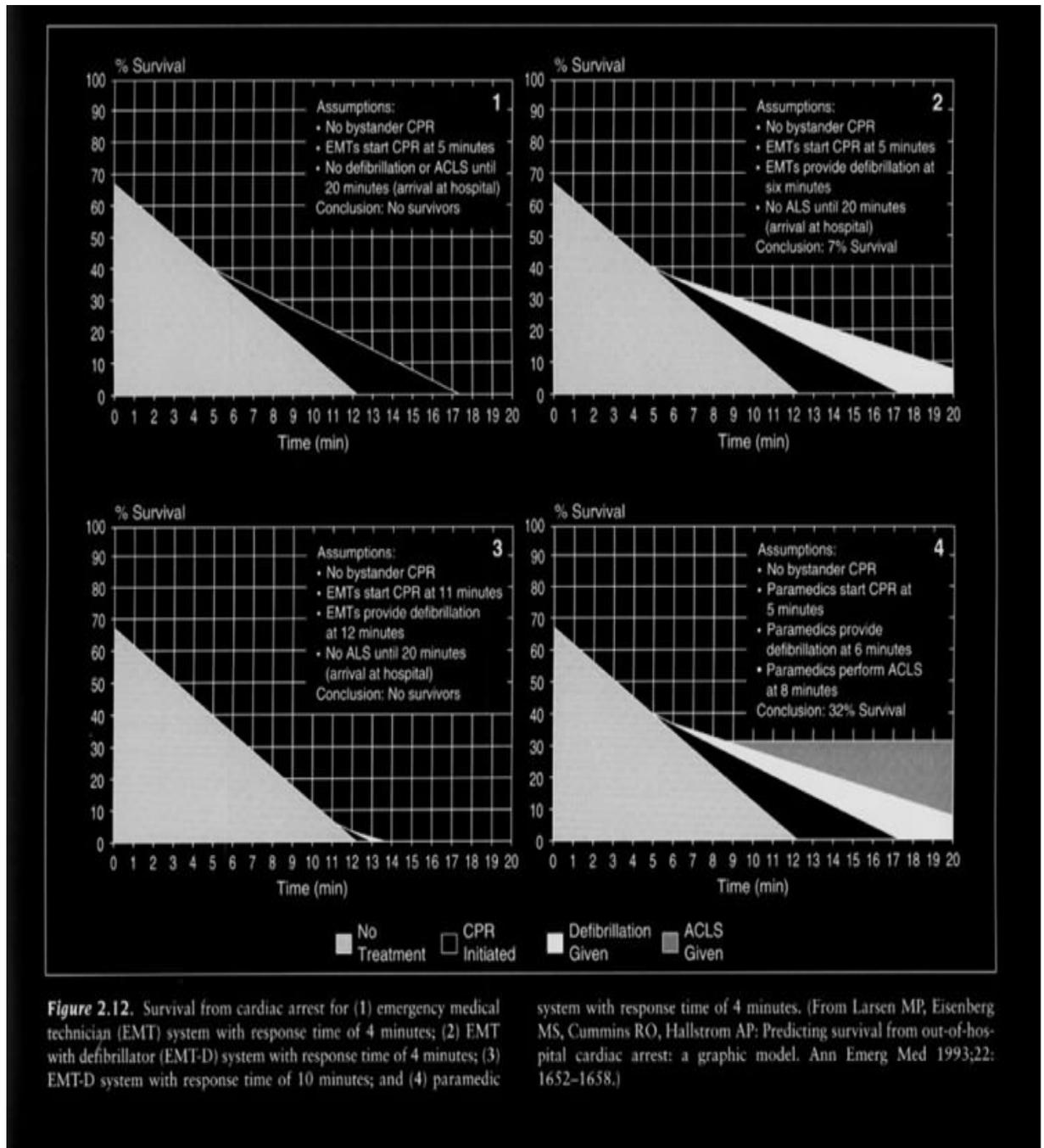


County that provide ambulance service deliver the right level of care in the right amount of time, and at the right cost. The principle national benchmarks used as the foundation for these recommendations are:

1. Bystanders can provide the most basic emergency medical care if they are given the proper verbal instructions on the telephone. Appropriately trained and equipped 911 dispatchers can provide this service, known as Emergency Medical Dispatch (EMD). EMD is the national standard in 911 dispatch centers across the country today.
2. Basic emergency medical providers, who can breathe for the patient, circulate blood using closed chest compression, use an automatic external defibrillator to shock the heart, or control life-threatening bleeding, and must arrive at the patient's side in four (4) minutes or less. The four (4) minute benchmark has been clearly established as the point beyond which the brain cannot survive without an adequate supply of oxygen. The national benchmark is that this basic-level response should occur in four minutes or less (<4:00) 90 percent of the time. It does not make any difference what type of vehicle these basic responders arrive in. Their job is to be the first to arrive and to begin basic life support. For this reason, these providers are called "first responders."

Optimally, the first responders should be advanced life support capable and able to deliver life-saving skills and treatments to the patient prior to the ambulance arriving. This treatment and care is traditionally rendered by paramedics. Studies reflect the survival rates for cardiac arrest under these conditions in Figure 4.2

Figure 4.2 – Survival Rates in Cardiac Arrest with Advanced Life Support Intervention



3. With EMDs providing immediate assistance, backed up by basic or advanced level response in four minutes or less, the next layer in an EMS system is advanced life support (ALS), most often provided by paramedics. The benchmark for the ALS time period varies from community to community and can range from six minutes up to sixteen minutes, with 90 percent reliability. However, studies done by the National Heart Association reflect that the shorter the wait to the delivery of advanced life support, the greater chance the patient has of survival.
4. The final system component is effective transportation to appropriate medical facilities for definitive care.

Application of Standards and Benchmarks

In most cases, compliance with standards and benchmarks is voluntary. However, in some cases, federal or state OSHA agencies have incorporated wording from standards into regulations. In these cases, the compliance with the standards is mandatory. Regardless of whether compliance with a standard is voluntary or mandatory, EMS, fire and rescue departments must consider the impact of "voluntary" standards on private litigation. In some states, a department may be liable for the negligent performance of its duties. Even in states that protect rescue workers under an immunity statute, most state laws do not protect EMS, fire or rescue departments for grossly negligent acts. Essentially, negligence involves the violation of a standard of care that results in injury or loss to some other individual or organization. In establishing the standard of care for EMS and rescue operations, the courts will frequently look to the "voluntary" standards issued by professional organizations. Although "voluntary" in name, these standards can become, in effect, the legally enforceable standard of care for fire or rescue departments. Accordingly, fire, rescue, and EMS departments should pay close attention to applicable standards.

Standards for EMS Systems

EMS systems and agencies that are responsible for interacting with a 911 system in their community should have standards in place to set efficiency values for their operations.

Some consensus standards that affect EMS agencies are:

The National Institute of Health (NIH) has recommended standards for first response units. According to the NIH, "Communities must have sufficient first responder units deployed at all times to ensure a rapid response to life threatening calls. As a rule of thumb, a first responder should arrive on the scene less than 5 minutes from the time of dispatch on 90 percent of all such calls. This will generally result in a median first responder response time of 2 to 3 minutes." This is difficult to accomplish in rural communities where volunteer fire departments exist.

The NIH has also recommended standards for ALS unit deployment. In its publication, the NIH states, "Regardless of the EMS system design, there must be sufficient ALS units deployed in populous communities to ensure a rapid response to all emergency, top priority calls at all times. As a rule, 90 percent of all top priority calls in all sectors of a city should receive an ALS response to the scene in less than 8 minutes from the time of dispatch. This generally results in a median response time of 4 to 5 minutes." Again, this difficult to obtain and would not be financially feasible in large expansive rural communities such as Benton County.

The American Heart Association (AHA) has recommended standards for early defibrillation. The recommendation from the AHA states, "To achieve the goal of early defibrillation ... all emergency personnel should be trained and permitted to operate an appropriately maintained defibrillator if their professional activities require they respond to persons experiencing cardiac arrest. This includes all first responding emergency

personnel, both hospital and non-hospital (e.g., EMTs, non EMT first responders, fire fighters, volunteer emergency personnel, physicians, nurses, and paramedics). To further facilitate early defibrillation, it is essential that a defibrillator be immediately available to emergency responding personnel to a cardiac arrest. Therefore, all emergency ambulances and other emergency vehicles that respond to or transport a cardiac patient should be equipped with a defibrillator.”

There are also several standards that are applicable to the staffing of EMS personnel for emergencies. The American Heart Association states, “In systems that have obtained survival rates higher than 20% for patients with ventricular fibrillation, the response teams have a minimum of two ACLS providers, plus a minimum of two BLS personnel at a scene. Most experts agree that four responders (at least two trained in ACLS and two trained in BLS) are the minimum required to provide ACLS to cardiac arrest victims.”

EMS Agenda for the Future

The recommendations in the preceding sections of this assessment may include all or part of these ten critical objectives as defined in the EMS Agenda for the Future.

In 1996, the National Highway Traffic & Safety Administration (NHTSA) gathered EMS community leaders to create a strategic plan for building the next millennium’s EMS system. The *EMS Agenda for the Future* is built on the principle that EMS serves as the community safety net, catching the sick and injured who fall between the cracks of social support systems. EMS of tomorrow will be the linchpin tying the community’s public health, public safety, and healthcare systems together. It will provide the vital link to community members and continue to bring rapid, reliable care to those most in need.

The Agenda envisions an EMS system that is integrated with the healthcare system, proactive in improving community health, funded by service to the community, and accessible through both conventional landline phones and wireless phones.

There are ten critical objectives found within the document *EMS Agenda for the Future*:

- EMS must collaborate with community partners to address local health and safety issues.
- Financial incentives must be aligned to ensure that EMS, other healthcare providers, and health maintenance organizations are working toward a common purpose.
- EMS must be an active participant in community-based injury prevention efforts.
- EMS must develop and pursue a consensus national research agenda.
- States and jurisdictions must enact legislation to support EMS development.
- EMS systems must allocate sufficient resources for medical direction.
- EMS systems must develop information links to EMS with other healthcare providers and public safety agencies.
- Research must be conducted to determine the costs and benefits of EMS to the community.
- 911 must be implemented nationwide as the emergency telephone number.
- All calls for emergency help must be automatically accompanied by information on the exact location of the caller.

Finally, this report compares Benton County to these national benchmarks, standards, and the EMS Agenda for the Future and makes the necessary recommendations and/or option to Benton County to enhance existing services.

Chapter V

System Finance & Management

The goal of any EMS system is to make maximum use of potential revenue streams while creating a careful balance between community quality care, response-time standards, and operational efficiency. While it would be wonderful to park a paramedic-staffed ambulance and first responder fire apparatus on every street corner, it would be extraordinarily expensive. Alternatively, it would be inappropriate to have unacceptable levels of mortality and morbidity in the system. A balance that is “right” for the community is what needs to be sought out and achieved.

Aggressive analysis and management of both system expense and system revenue will achieve this balance.

It is not only important for EMS systems to be operationally efficient, but also to be financially sound and prudent.

Of the eight fire departments that provide EMS transport to the eight EMS districts, most are self-supported and receive limited funding from Benton County. Last year, a subsidy from \$100,000 Benton County was distributed among seven fire departments with the exception of NEBCO. There has been debate within the community in that some of the fire departments feel they should receive a subsidy or financial support from the County for handling EMS calls outside their fire departments corporate boundaries. In some cases, the cities of Centerton, Lowell, and Bethel Heights reimbursed the City of Springdale \$400.00 for each patient transported from their respective cities.

Costing Out an EMS System

Much community discussion has occurred in Benton County with respect to, “What does it cost to operate an EMS system”?

Unfortunately, there is no national consensus of the true cost of running and operating an EMS system. Attempts have been made to determine how to cost an EMS system. An effort by the National Association of EMS State Officials and the Medical College of Wisconsin called EMS Cost Analysis Project (EMSCAP) is designed to create a framework that would determine the cost of providing EMS care from a societal perspective. The framework includes a 12-step tool in the form of a workbook for determining the cost of an EMS system. Some contend that the framework is not complete and still needs to be revised.

However, there are three generally accepted methodologies for costing out an EMS system.

The first deals with taking the total EMS budget and dividing it by the number of EMS calls. As an example, if the EMS budget is \$1,000,000 and there were 2,000 calls in the system, you will divide \$1,000,000 by 2,000 calls and the average cost to run a call would be \$500.

The second method is somewhat more complicated and provides a cost per hour to run an EMS system versus the first method which is the cost to run each EMS call.

In the second method, you determine the number of unit hours and divide into the overall EMS budget. As an example, if you have two ambulances on duty for 24 hours, the total unit hours available are 48. You would then multiple 48 by the number days in the year, which is 365. The product of 365 times 48 equals 17,520. If the EMS budget is

\$1,000,000, you will divide \$1,000,000 by 17,520 and the cost to operate each ambulance per hour in the system is \$57.06 per hour.

A third method is to take the amount of EMS revenue collected and divide it by the number of calls to determine the cost generated by call. As an example, if an EMS system collected \$500,000 on 2,000 EMS calls, the total amount of revenue generated per call would \$250.

Potential Ambulance Revenue

Patient charges for ambulance services are determined in a number of ways. Many of the decisions are not made through logical business rationale, but are determined, limited, or impacted by local political decisions. Many ambulance services base their charges on the amount that they expect to be reimbursed by Medicare, and others have simply followed their price structure of other services within the community.

However, while all of these factors may affect the ultimate charge structure, the first step in establishing a rate schedule is to clearly establish the cost of providing the service. Any business offering a product or service to consumers will base its prices on the cost of delivering those goods or services, and EMS should be no different. Only after the actual costs have been established should the positive impact of subsidization on charges be determined.

The fiscal stability of a medical transportation service is largely determined by the system structure in which it functions, its design and its characteristics. Certain key areas must be examined fully in order to evaluate the financial aspects of a system.

The unique characteristics of a system include its call volume, geography, population, demographics, and density. A large population generating a high volume of patient transports allows the fixed costs of providing the services to be distributed over a larger

patient base. Similarly, a given population in a small geographic area requires fewer medical transportation resources than an equal population dispersed over a large geographic area. In addition to impacting service usage, population demographics affect the ability of the service to recover revenue.

For example, revenue for a service with a high percentage of consumers more than 65 years of age will be significantly impacted by the local Medicare reimbursement policies. Additionally, lower income areas historically have a higher utilization rate for EMS than more affluent areas, while revenue from these lower income areas is significantly impaired. This directly affects utilization as well as revenue recovery potential.

Even though equitable comparison of one system to another is difficult, each system does have similar associated costs that can be determined. The costs of the EMS system are summarized as operating, capital, bad debt, and reserve costs.

The question of financial efficiency is directly related to the program's information gathering and analysis capability. If the conditions described in other parts of the report are met, whatever option is chosen, Benton County will have the tools and capability to operate a technically sophisticated and financially efficient emergency ambulance transport program.

It cannot be stressed enough - Proper documentation by field providers is essential to the financial stability of the transport program.

EMS administration should ensure that all paramedics who transport a patient to the hospital are being as detailed and accurate as possible when completing a patient report. Many reimbursement agencies, whether it is a Medicare agency, the State, or a private insurance company will refuse payment based upon "medical necessity." Many claims are rejected because of the lack of documentation supporting the "medical necessity" of the transport

Additionally, the EMS administration of the chosen system needs to develop a method in order to reconcile that all transports are actually being billed for reimbursement. Failure to bill a patient that has been transported will result in lost revenue.

Collection rates will vary from place-to-place based upon the expertise of the collection company and how the collection rate is measured. The base rate does NOT reflect what will be collected on each call.

Table 5.1 reflect the EMS rates of fire departments in Benton County

Table 5.1

Department	BLS	ALS	ALS2	Out of City Charge	Per Loaded Mileage Charge
Bella Vista Fire	\$550	\$550	\$550		\$10
Bentonville Fire	\$375	\$485	\$550	\$650	\$7.50
Gravette Fire	\$400	\$400	\$400		\$8.00
NEBCO Fire		\$550	\$700		\$10.00
Pea Ridge Fire	\$400				\$8.00
Rogers Fire		\$400	\$550	\$775	\$10
Siloam Springs	\$665	\$665	\$765	Extra \$100	\$10.50
Springdale	\$364.49	\$432.82	\$626.46	\$764.49 - \$1,026.46	\$8.09

Revenue that is generated from ambulance transport should be factored into the equation of running any future EMS system in Benton County.

Table 5.2 reflects that there were 2,618 patient transports in 2011 from unincorporated areas or municipalities with no ambulance service in Benton County.

Table 5.2

Department	2011 Total Patients Transported From Unincorporated Areas or Municipalities With No Ambulance Service
Bella Vista Fire	47
Bentonville Fire	590
Gravette Fire	455
NEBCO Fire	0
Pea Ridge Fire	58
Rogers Fire	378
Siloam Springs	624
Springdale	476
Total	2,618

Using a \$700 base rate, \$10.55 per loaded mile, and projected revenue found in Table 5.3, there is a potential of \$1,277,176 in revenue from the 2,618 transports throughout Benton County from the unincorporated areas and from those municipalities who do not currently provide ambulance service.

\$1,277,176 is reflective of the anticipated amount. However, while analyzing all eight fire departments, their collection rates varied from 42 percent up to 80 percent. The expertise of the billing collections can vary the anticipated collection amount.

Table 5.3

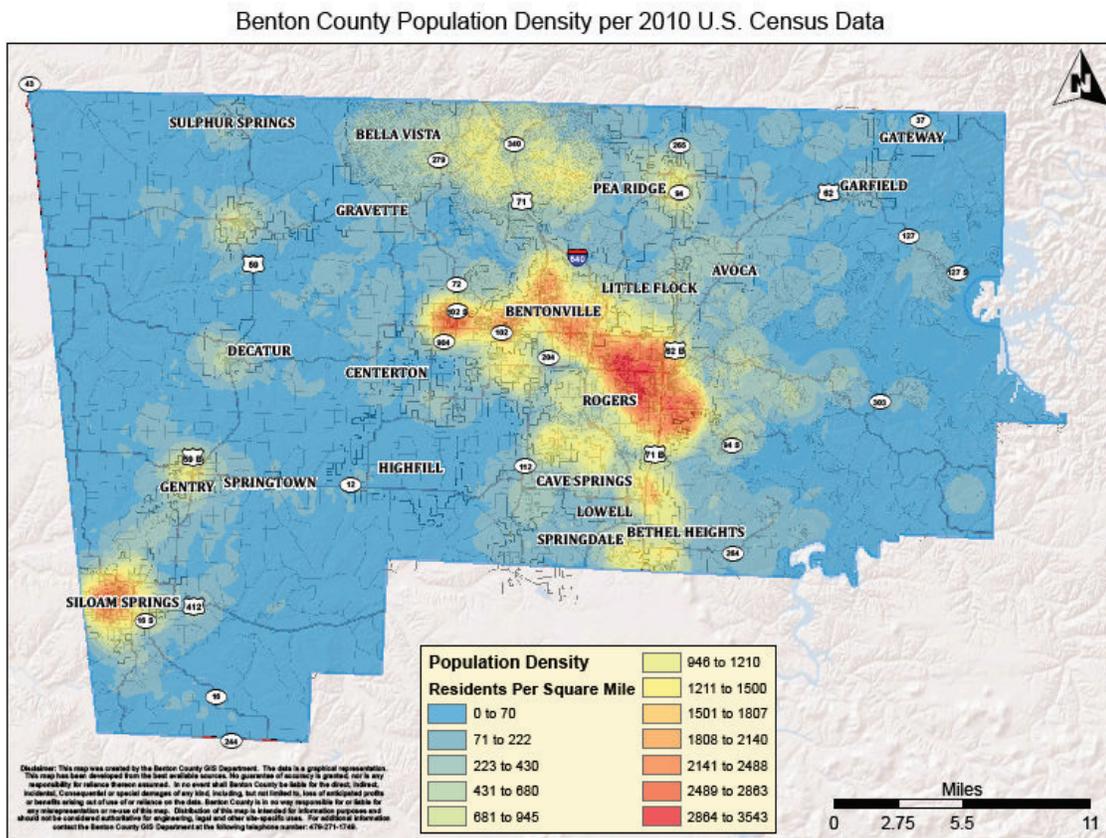
**Projection of Annual EMS Collections
Prepared for Benton County
7/14/2012**

	<u>Projected</u>
<u>Summary of Significant Assumptions</u>	
<u>Annual Transports</u>	
ALS Emergency (87%)	2,277
BLS Emergency (13%)	341
ALS2	-
	<u>2,618</u>
Treat No Transport	-
	<u>2,618</u>
<u>Private Rates</u>	
BLS Emergency	\$ 700.00
ALS Emergency	\$ 700.00
ALS 2	\$ -
Rate per loaded mile (assumes Medicare approved urban rate of \$7.03 times 150%)	\$ 10.55
Average miles per trip	20.00
Average supply charge	\$ -
Private ins. contr. allow	0%
Treat No Transport	\$ -
<u>Payer Mix</u>	
<i>(Primary payer gross charge % of total gross charge)</i>	
Medicare	30%
Medicaid	20%
Private Commercial Insurance	35%
Patient (Self Pay)	15%
	<u>100%</u>
<u>Effective Collection Rates</u>	
<i>(Cash collected % of net charge)</i>	
Medicare	99%
Medicaid	99%
Insurance	89%
Patient	5%
<u>Financial Results</u>	
<u>Gross Charges</u>	
Annual Dollars	\$ 2,384,736
Per Trip	\$ 911
<u>Net Charges</u>	
Annual Dollars	\$ 1,773,012
Per Trip	\$ 677
<u>Collections</u>	
Annual Collections	\$ 1,277,176
Per Trip	\$ 488

Most of the options found in Chapter VI will cost in excess of \$1 million to operate. The ambulance revenue from 2,618 transports would not be sufficient to operate any of the options.

The main reason why there are such little transports from the unincorporated sections of the county and from some of the municipalities is because of population density. The areas in question have very little population. Figure 5.1 displays population density in Benton County.

Figure 5.1



In order to meet national standards, centralize EMS delivery, and to adequately fund an EMS system within the unincorporated areas and municipalities of Benton County who do not have a dedicated ambulance service, it will be necessary to put a financial stream in place to support an EMS operation. Currently, the eight fire departments that provide EMS transport outside their corporate boundaries, with the exception of NEBCO Fire, do so without any funding source except for municipal sales tax and reimbursement from the transport itself. However, the County did contribute \$100,000 that was divided among some fire departments last year.

Recommendation 5.1: Benton County needs to create a separate funding source in the unincorporated and incorporated areas without a dedicated ambulance service to create a more unified, sustained, and centralized EMS delivery model.

This funding source should provide for adequate ambulance service to these geographic areas that fall outside the eight corporate boundaries of fire departments that currently provide ambulance transport service. Additionally, this funding source should provide for other components of the an EMS system including such things as a county EMS manager and outreach program for teaching CPR, or placement of automatic external defibrillators in public places.

In order to create a separate funding source, a millage will need to be created in order to generate sufficient revenue to operate the chosen option. Table 5.3 reflects the anticipated revenue from millage that would be generated from county areas at large and from municipalities that do not have ambulance service.



Table 5.3

Millage	Anticipated Revenue
1 mil	\$988,203.03
2 mil	\$1,976,406.06
3 mil	\$3,008,915.16
4 mil	\$4,011,886.88
5 mil	\$5,014,858.60

Each mil will cost the taxpayer \$20 per 100,000 of the fair market value of their property. As an example, a \$100,000 house would cost the taxpayer \$20 for one mil and \$40 for two mils. A \$250,000 house would cost \$50 per mil.

Management

Regardless of what option is chosen by the Quorum Court in Chapter VI, Benton County needs to create a position of EMS Director.

Recommendation 5.2: Benton County needs to create a position of EMS Director.

Depending upon which option is chosen, the position would serve a focal point for EMS issues and patient advocacy for EMS in the community.

If the option is chosen for the County to operate its own EMS system, the position would serve as the head of the agency and should report to the Administrator of Public Safety.

If the option is chosen for the County to operate a Public Utility Model, the position should report to the Administrator of Public Safety and serve as the functional head of the agency overseeing contract compliance, purchase and maintenance of equipment, and billing reimbursement.

If any other option is chosen, the position should report to the Administrator of Public Safety and serve as the functional position responsible for contract compliance; coordination for county-wide events and/or multi-casualty training and incidents; and outreach programs dealing with preservation of life such as CPR training and placement of automatic external defibrillators.

Table 5.4 reflects the cost associated with the position with Director of EMS.

Table 5.4

Position Title	Positions	Annual Base Amount	FICA	Workers Comp	Retirement	Medical and Group Life	Total Compensation
Director of EMS	1	\$40,622.40	\$3,107.61	\$677.97	\$5,628.23	\$5,580.00	\$55,616.22

Chapter VI

Options

This chapter provides viable options for consideration by the decision makers in Benton County. System redesign evaluations will be conducted based upon optimal system designs reflective of cost-benefit analysis of specific design elements and after careful consideration of applicable legal, financial implications and industry trends.

The recommended options will include any changes in methods of service delivery, personnel issues, changes in staffing configurations or levels in units or on apparatus/vehicles, fire station locations and response times, changes in job descriptions, regionalization of selected services, plus others.

Any options will be established with specific goals in mind. These goals are:

1. Maintain and enhance the quality of patient care.
2. Provide consistency with patient care and performance.
3. Increase efficiency and effectiveness of the system.
4. Improve financial stability of the system by maximizing the use of resources while improving efficiency and economy.

EMS Models

There is estimated to be over 80 different models for configuring an EMS system by today's standards and deployment schemes. Contrary to popular belief, an EMS system is not strictly limited to an ambulance showing up at a scene and transporting a patient to a hospital. Today's sophisticated EMS system encompasses three main components; communications, first response, and EMS transport. By combining various components from the X and Y axis in Figure 6.1, various EMS models can be developed which serve the needs of a community. Key to the success of any system not shown in Table 6.1 is the 911 communications center and the fiscal health of the system.

Table 6.1

First Responder Agencies						
		No First Response	Police ALS First Response	Fire BLS First Response	Fire ALS First Response	Police BLS First Response
Transport Agencies	Fire; Cross- Trained ALS Transport					
	Fire; Cross- Trained BLS Transport					
	Fire; Single Role ALS Transport					
	Fire; Single Role BLS Transport					
	Police; BLS Transport					
	Police; ALS Transport					
	Private; For Profit Transport					
	Private; Not- for- profit Transport					
	Military Transport					
	Hospital- Based Transport					
	Third Service Transport					
	Volunteer BLS Transport					
	Volunteer ALS Transport					
	Public consortium Transport					
	Ambulance District Transport					
Helicopter Transport						

In developing this proposal, various models were examined and judged as to the practicality of deployment in Benton County.

Consideration of Various Models

The Ludwig Group's experience with the evaluation, design, implementation and operation of emergency services identified is that there is no clear consensus on the definition structure of a single emergency services "model." Experts, when asked to define various models around the country, use different terminology, features, and attributes to describe their particular model. Terms used to describe models often include: paid/volunteer, fire based, public utility, county-operated ambulance service, hospital based, private, primary service area, tiered response, open competition, subscription, mixed/combination, as well as many other regionally specific terms. None of these descriptors or "definitions" share the same underpinnings and clearly mean different things to different people. There is no national agreement on what the ideal model should be. Local system configurations often evolve and are generally based on a historical progression of service delivery. Because of this unique system evolution process, some models that work in one part of the country or state may not work in another. Additionally, a cost recovery and revenue generation attribute is common for all models.

The Ludwig Group reviewed several common models that would have potential consideration in Benton County. A brief is warranted to understand these various models.

Option #1 – Maintain Status Quo

One option the decision-makers in Benton County have is to keep the present system as it is. This would not include obtaining a dedicated funding source for the EMS system. The option of not doing anything will undoubtedly bring about challenges in the future.

First, there is some angst within some of the fire departments, their leaders, and their elected officials regarding supplying a service outside their corporate boundaries with little or no reimbursement from the County. In essence, citizens within the corporate boundaries of those fire departments are paying taxes for a service, if needed, and the resource may be committed to a call outside the corporate boundaries, for citizens who pay no taxes for such services. If nothing is done, it is expected that the concern expressed by the some fire departments, their leaders, and elected officials will grow and they may possibly terminate the service to the unincorporated areas of the County and municipalities without ambulance service. If this occurs, it would be necessary for other fire departments to pick up those areas left vacated or the County would have to enter into an emergency contract with an outsider provider. Additionally, under this option, some citizens in some parts of Benton County will continue to pay an additional surcharge for ambulance transport if they do not fall within the boundaries of some of the fire departments.

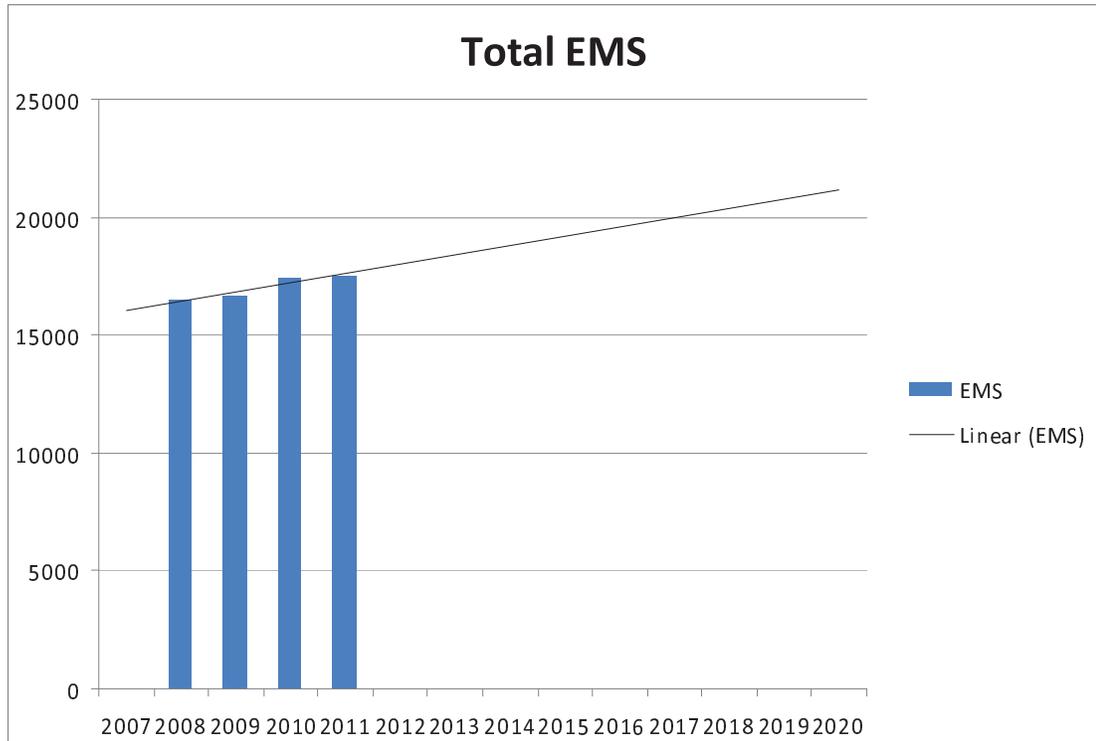
The other challenge is that as the County grows and develops, the call volume is anticipated to increase. Table 6.2 reflects the aggregate EMS call volume for the previous four years in Benton County. This increase EMS call volume will challenge the existing resources in the years to come.

Table 6.2

Department	2008	2009	2010	2011
Bella Vista	2,088	2,217	2,190	2,125
Bentonville	2,892	2,964	3,381	3,379
Gravette	577	547	561	661
NEBCO	501	503	461	469
Pea Ridge	270	227	398	356
Rogers	3,553	3,466	3,238	3,423
Siloam Springs	2,156	1,986	2,307	2,122
Springdale	4,480	4,719	4,913	5,025
Totals	16,517	16,629	17,449	17,560

Figure 6.1 reflects the anticipated EMS call volume growth over the next eight years.

Figure 6.1



Using linear regression modeling, the anticipated EMS call volume is anticipated to reach 22,000 EMS calls county-wide by the year 2020 or approximately 4,500 (20.2% increase) more than the current level. Therefore, maintaining the status quo will only exacerbate the existing condition and it should be expected that there will be increased demand from those in the community to find a solution.

Option #2 – County-Operated Government Ambulance Service with NEBCO Retaining Their Existing Area

In this model, the delivery of EMS is a department within county government. This ambulance service would be an extension of county government and would be an entirely new department under the Division of Public Safety. The facilities and equipment would be county-owned, and the personnel would be county employees.

Advantages of this model include that the Quorum Court can determine and ensure the level of services offered: a) they can be responsive to the concerns and wishes of the citizens, b) they can maintain fiscal oversight to ensure efficiency in spending county funds, and c) they can ensure integration with other county services and they can ensure services will always be available where and when they are needed.

Disadvantages of this model include having the Quorum Court bearing the brunt of any dissatisfaction with or within the service as well as having to deal with multiple demands from various county departments for resources. Other disadvantages include responsibility for any unanticipated expenses such as the loss of an ambulance.

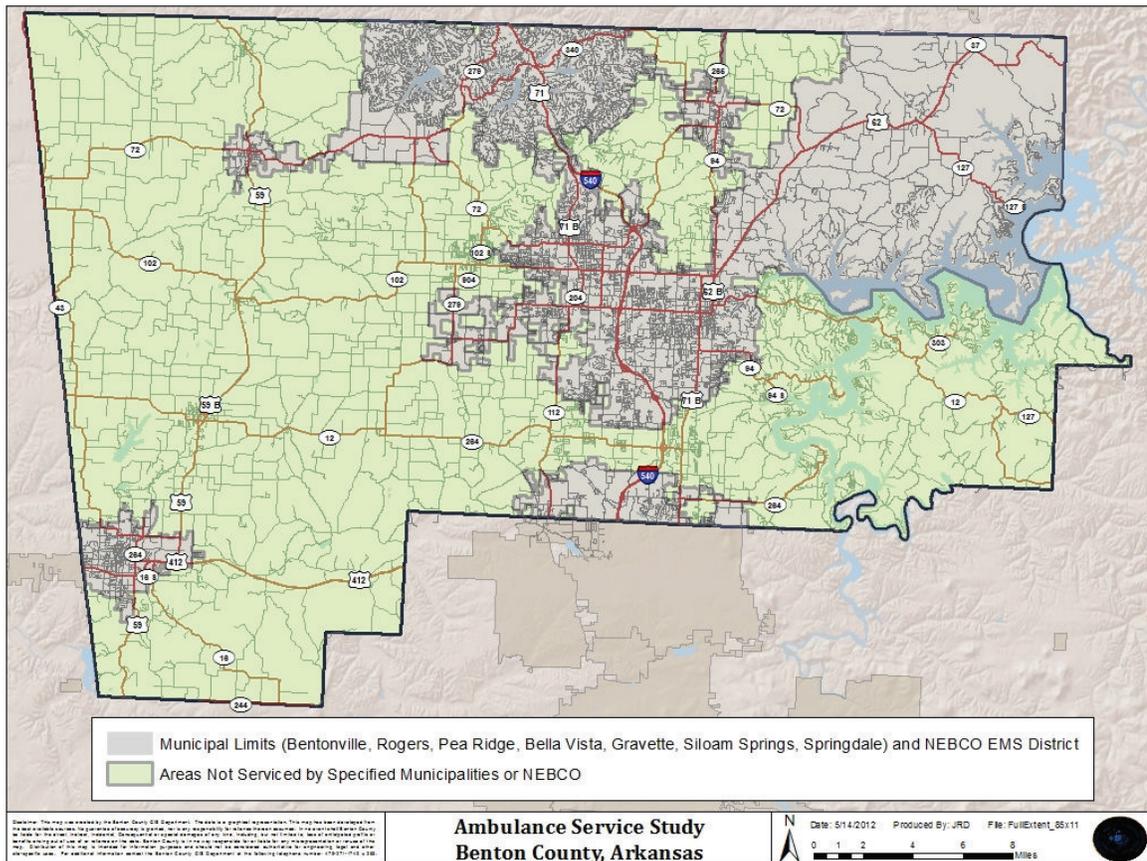
This service would provide service to the unincorporated areas of Benton County and the municipalities without ambulance services. Those municipalities without ambulance services are also free to contract for ambulance service with the County or one of the fire departments who already provide ambulance service. However, if those municipalities without ambulance service choose to contract with existing fire departments that transport, it will dilute the entire system financially and put the concept of a county-operated ambulance service in question. Commitments must be obtained from those municipalities without ambulance service to join the County-operated system prior to initiating the operation.

The area that the County will need to cover with ambulances will fluctuate as areas within the County are annexed by existing municipalities.

In response to the draft report, officials from NEBCO feel a millage rate of 3 to 3.5 is needed to order to operate their EMS district. Further, they are not optimistic that a millage at that rate would be passed by the taxpayers of the County.

Figure 6.2 reflects the potential coverage area that would be required. The area in green is all the unincorporated areas of Benton County and those municipalities who do not provide ambulance service. This assumes NEBCO would retain their existing EMS provider area. This option also assumes the subscription fee currently charged by NEBCO would be eliminated and the funding would come from the millage.

Figure 6.2





The revenue that would be generated in these areas with NEBCO still retaining their EMS district and the revenue from that is found in Table 6.3.

Table 6.3

Millage	Anticipated Revenue
1 mil	\$906,842.78
2 mil	\$1,813,685.56
3 mil	\$2,764,834.41
4 mil	\$3,686,445.88
5 mil	\$4,608,057.35

Table 6.4 reflects how much revenue would be generated for NEBCO Fire under this option.

Table 6.4

Millage	Anticipated Revenue
1 mil	\$81,360.25
2 mil	\$162,720.50
3 mil	\$244,080.75
4 mil	\$325,441.00
5 mil	\$406,801.25

Based upon geographic areas needing to be covered to provide adequate response times, a total of four ambulances will be needed 24 hours a day, seven days a week. This would equate to a total of one EMS director, four EMS supervisors, and 36 paramedics. If the County so desires, half of the paramedics can be replaced with EMTs but under rural county EMS operations, two paramedics on the scene and during transport of a critical patient is advised.

Table 6.4 reflects a hypothetical budget for a county-operated ambulance service agency operated by the County for the first year of operation.

Table 6.4

Personnel Services		ORIG BUDGET	EMS Director	4 EMS Supervisors	36 Paramedics
<u>ACCTNO</u>	ACCT_TITLE				
010-47-5010	REGULAR SALARIES		\$40,622.40		
010-47-5060	FICA TAXES - COUNTY SHARE		\$3,107.61		
010-47-5070	PENSION PLAN CONTRIB-CO		\$5,628.23		
010-47-5090	INS PREMIUMS - CO SHARE		\$5,580.00		
010-47-5100	WORKERS COMPENSATION		\$677.97		
Group Totals:		\$1,843,119.13	\$55,616.21	\$194,131.40	\$1,593,371.52
Supplies					
<u>ACCTNO</u>	ACCT_TITLE	ORIG. BUDGET			
010-47-5160	PRINTING AND PRINTING	\$2,000.00			
010-47-5171	GENERAL OFFICE SUPPLIES	\$2,000.00			
010-47-5172	SOFTWARE & DATA PROC.	\$1,500.00			
010-47-5180	SMALL EQUIPMENT	\$1,500.00			
010-47-5240	CLOTHING AND UNIFORMS	\$30,000.00			
010-47-5250	FUEL,OIL, AND LUBRICANTS	\$30,000.00			
010-47-5270	OTHER MISC OPERATING	\$10,000.00			
010-47-5331	SERVICE CONTRACTS	\$20,000.00			
Group Totals:		\$97,000.00			
Other Services					
<u>ACCTNO</u>	ACCT_TITLE	ORIG			
010-47-5471	MEDICAL/DENTAL & HOSP SVCS	\$0.00			
010-47-5490	TELEPHONE	\$20,000.00			
010-47-5500	POSTAGE	\$1,500.00			
010-47-5520	TRAVEL,AIRFARE,CAR	\$3,000.00			
010-47-5550	ADVERTISING & PUBLICATIONS	\$0.00			
010-47-5580	PROPERTY, FIRE, EXTND COVERAGE	\$400.00			
010-47-5590	FLEET LIABILITY	\$3,200.00			
010-47-5604	INSURANCE - SUPPLEMENTAL	\$16,500.00			
010-47-5610	ELECTRICITY - UTILITY	\$15,000.00			
010-47-5660	MACHINERY & EQUIP REPAIR/MAINT	\$10,000.00			
010-47-5682	COMMUNICATION EQUIP	\$15,000.00			
010-47-5730	MEETING EXPENSE	\$1,000.00			
	TRAINING	\$15,000.00			
010-47-5731	DUES, MEMBERSHIPS/SUBSCRIPTION	\$15,000.00			
Group Totals:		\$115,600.00			
Total		\$2,055,719.13			

Table 6.4 does not account for start-up costs of the new service and the following is the projected additional costs that may be required for the county-operated ambulance service county operation.

5 Ambulances @ \$150,000	\$750,000
5 Monitor/Defibrillators	\$120,000
Durable Medical Equipment	\$20,000
Disposable Medical Equipment	\$20,000
2 Administrative Vehicles	\$80,000
Office Equipment	\$15,000
Electronic Patient Care Computers/Software	<u>\$20,000</u>
Total	\$1,005,000

The total estimated first year of operation would be approximately \$3,060,719.13

This proposal also assumes that fire districts would allow the ambulances to be housed at various fire stations located throughout the unincorporated sections of the county or municipalities without ambulance service. If this is not permissible, there will be additional cost to the operation including any possible construction, furniture, utilities, telephones, etc.

In order to fund this operation for the first year, an assumption of a 50 percent ambulance transport collection rate totaling \$638,588 and a three mils assessment totaling \$2,764,834.41 for an aggregate total of \$3,403,422.41 would be required.

After the initial start-up costs, the assessment can be retracted back to two mils which would generate an estimated \$2,614,994.06 with the ambulance collection fees for the second year of operation.

Based on earlier equations on the cost to operate the system, the cost per hour in the first year would be \$97.12 per hour per ambulance and \$74.62 per hour per ambulance in the second year of operation. The total cost per transport would equate to \$1,300.00 the first year and \$998.85 for the second year.

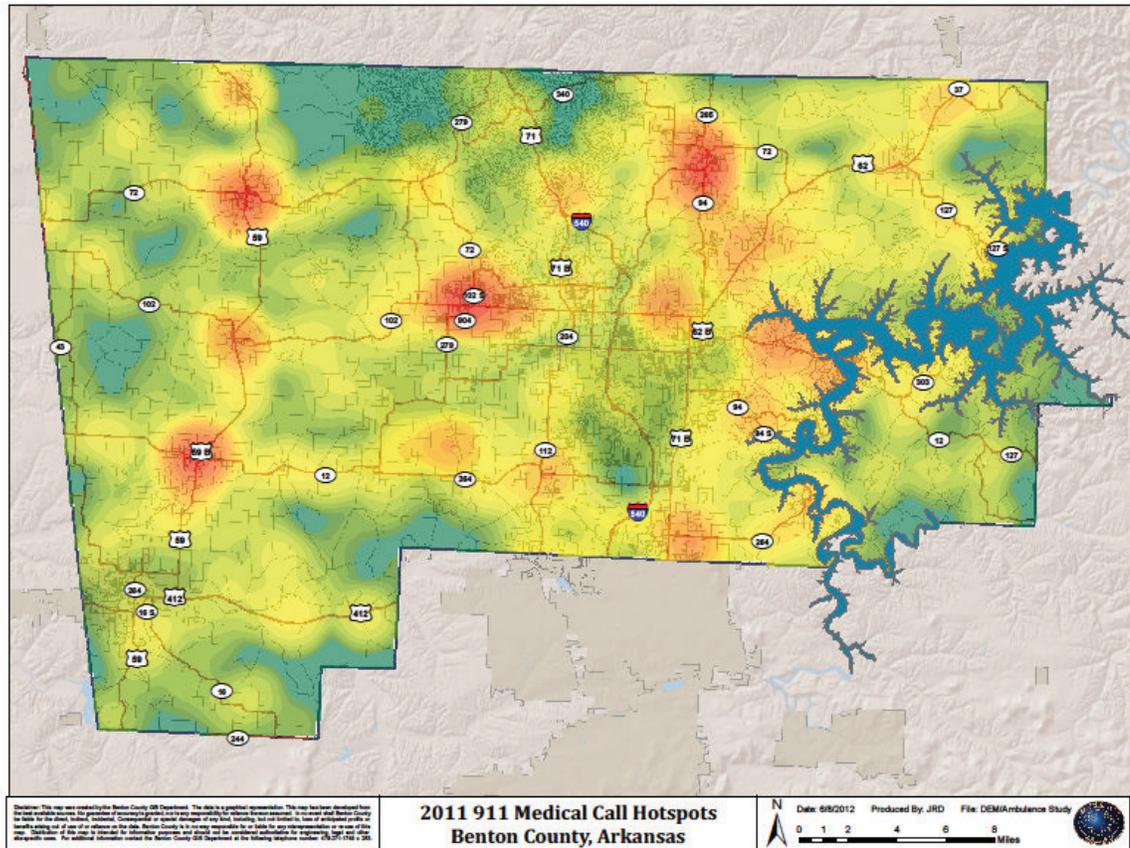
Figure 6.3 on the following page shows the estimated ambulance coverage with four ambulances under a third service run operation. The six-mile radius is shown not as a benchmark but as a landmark to show distances from the center point.

This configuration assumes an ambulance would be based at the following fire stations:

Highfill	14348 4 th Street, Gentry Arkansas
Decatur	310 Maple Ave, Decatur, Arkansas
Little Flock	1414 Little Flock Drive, Rogers, Arkansas
Beaver Lake	16035 County Road 1440, Rogers, Arkansas

Figure 6.4 represents the frequency of medical 911 calls received by the Benton County Communications Center. The placement of ambulances in Figure 6.3 would correspond with the high frequency of calls.

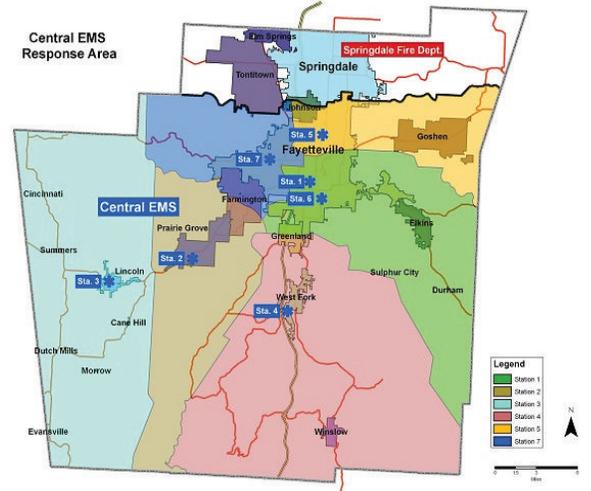
Figure 6.4



Option #3 – Form Partnership with Central EMS

One option is to form a partnership with Central EMS based in Washington County, just to the south of Benton County. Central EMS is the exclusive provider of 9-1-1 ambulance services in Washington County. Central EMS operates nine ambulances, of which two are inter-facility transport vehicles during peak hours and a total of seven ambulances, of which one is an inter-facility transport ambulance after 7 p.m. Central EMS also operates four wheelchair vans.

On January 1, 2009 Central EMS transitioned from a 501(c)3 non-profit to a quasi-governmental organization forming the Washington County Regional Ambulance Authority. Central EMS is now owned and operated by the communities they serve through an inter-local agreement for ambulance service. Central EMS is governed as a Board of Directors by the mayors of Fayetteville and nine other cities in the County. There is an Executive Committee consisting of stakeholders from the County. The Washington County Regional Ambulance Authority Executive Committee is responsible for overseeing the day-to-day operations of the ambulance system. The Committee is made up of representatives from the municipalities served as well as specific stakeholder groups. The Executive Committee meets monthly to discuss performance, efficiency, financial and service related matters.



Central EMS is funded through funded by taxes equaling \$4 per capita in the cities and \$15.50 per capita for those in the county-at-large. Central EMS also obtains reimbursement from insurance companies, Medicare, and Medicaid.

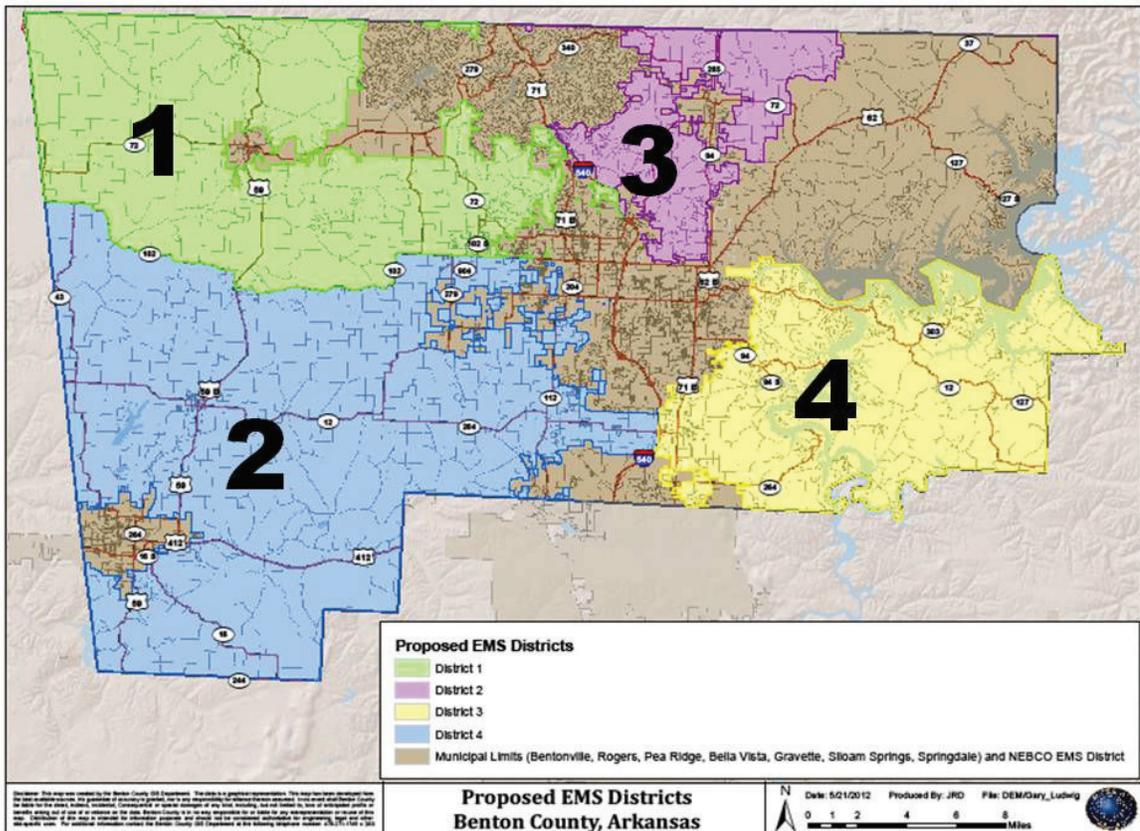
In interviews with the Chief of Central EMS, she indicated that any expansion into Benton County would need to be approved by the Board of Directors and the Executive Committee. She did also indicate that Central EMS' 5 – 10 year strategic plan does include expansion but she did not indicate where that expansion would occur. She further indicated any expansion into Benton County would have to be financially feasible, which may include exclusivity of inter-facility transports.

The cost associated with this option would be speculative and would be subject to negotiation with Central EMS.

Option #4 – Contract Out All Services Areas To a Single Private Ambulance Provider

In this model, Benton County would send out an RFP for the purposes of contracting for four separate service areas where no ambulance service exists. NEBCO would retain their existing EMS service area with the current subscription program they have in place. Figure 6.5 represents the four services areas with NEBCO retaining their existing EMS service area.

Figure 6.5



Two private ambulance service providers have expressed interest in this option. One service is Mercy Emergency Medical Service, which is a part of the Mercy Healthcare System and formerly St. John's Healthcare System. Mercy hospital system and EMS operates in 14 counties throughout Missouri and Arkansas and the healthcare system has a hospital based in Rogers, Arkansas. Mercy EMS operates ground ambulances and helicopters.

Another service that has expressed interest is Arkansas Paramed Transfer (APT). APT operates in Benton County and has an office in Rogers, Arkansas. APT mainly does inter-facility transfers but they also handle low acuity or low priority calls for the Rogers Fire Department. During the day they have six ambulances during peak periods and after 10 p.m. they staff one ambulance.

In order to exercise this option, the County would release an RFP and review the bids received to determine which ambulance provider can best meet the performance requirements contained in the RFP at the lowest costs. Generally, the contract is a multi-year contract and there would be performance requirements in the contract including such items as response time standards, insurance, licensed personnel, etc. Once the contract is awarded, the private ambulance provider assumes the responsibility of supplying the equipment, personnel, etc. and providing the service.

Advantages include that the County does not have to worry about personnel, capital equipment, or day-to-day operational issues of the service. The County can “contract away” the management and personnel problems inherent in organizations.

Disadvantages include the inability of the Quorum Court to respond quickly to citizen complaints about the quality or acceptability of service. If the private provider does not make enough money, they may simply cease operations usually with a 90-day notice and go elsewhere leaving the county in a void on how to fill the gap and provide the service. While tight contracts could minimize this possibility, they would not eliminate it, and such a void would likely result in higher costs.

Under this option, the private ambulance provider would seek reimbursement from Medicare, Medicaid, private insurance, or the patient for any patient transports and the revenue would be theirs to keep.

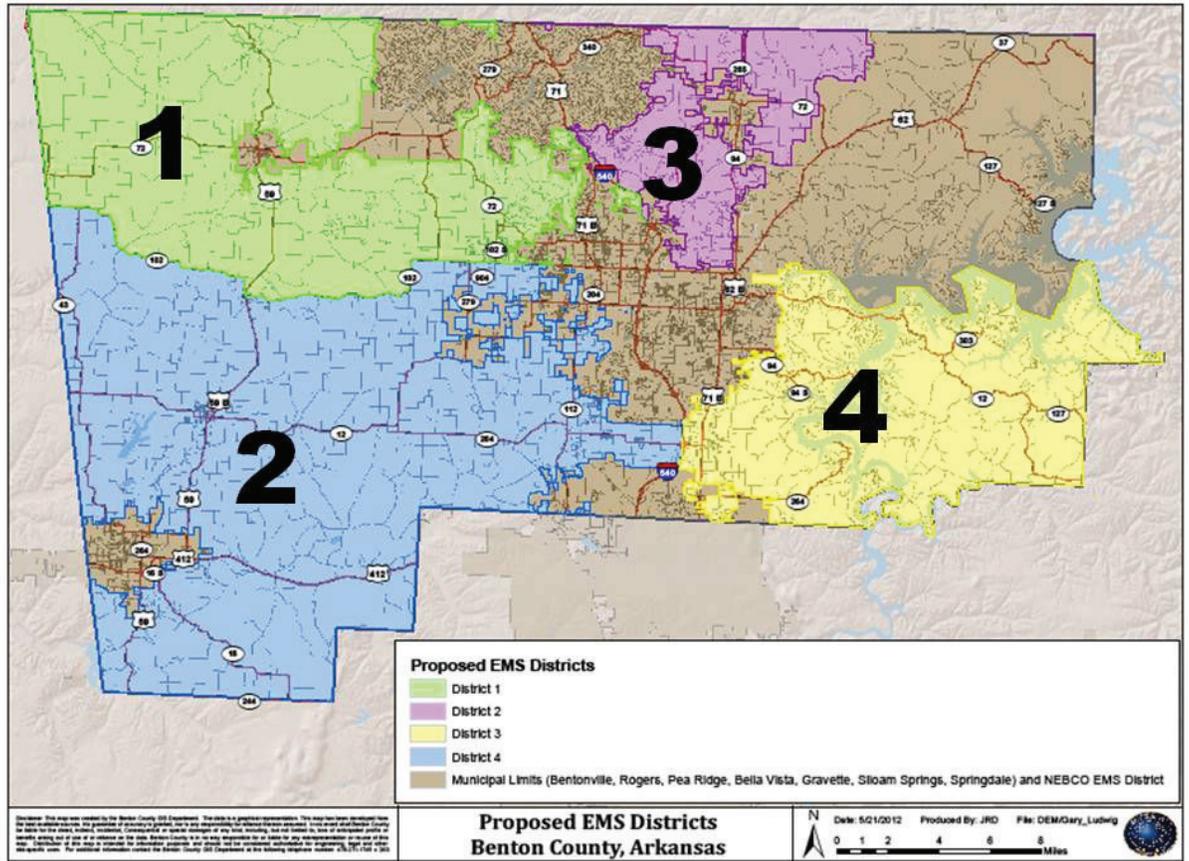
Since there is an insufficient amount of transports to finance this operation (2,618) in 2011, the County would have to seek a millage to supplement the cost of the private ambulance provider. The amount of the millage would be dependent upon the contracted price that is negotiated with the private ambulance provider. However, it is the consultant's estimate that it would be between one and two mils.

The cost associated with this option would be speculative and would be subject to price bid by vendors wishing to contract with the County.

Option #5 - Contract Out Service Areas to Fire Departments Already Providing Transport Service.

Under this option, the four service areas would individually be handled by fire departments that are adjacent to the service area. As an example, Rogers Fire Department, Springdale Fire Department, or NEBCO would handle Zone 4 in Figure 6.6.

Figure 6.6



However, for this to be financially feasible for the fire departments, sufficient revenue would have to be generated from these particular zones. Table 6.5 reflects the approximate revenue that would be generated from each zone at a certain millage rate.



Table 6.5

Zone	1 mil	2 mil	3 mil
Zone 1* Sulphur Springs, Maysville, Gravette, Decatur, Centerton, Bella Vista, Bentonville	\$243,364.84	\$496,692.33	\$774,400.59
Zone 2** Gentry, Siloam Springs, Gallatin, Highfill, XNA, Cave Springs	\$202,561.00	\$393,633.20	\$590,449.80
Zone 3*** Pea Ridge, Little Flock,	\$101,533.81	\$203,067.62	\$304,601.43
Zone 4**** Rogers, Beaver Lake, Rocky Branch, Piney Point, 94 East, Hickory Creek, Lowell, Pleasure Heights, Bethel Heights,	\$338,813.04	\$730,255.06	\$1,095,382.59

*Gravette Fire, Bella Vista and Bentonville Fire unincorporated areas only

**Siloam Springs Fire unincorporated areas only

***Pea Ridge Fire unincorporated areas only

****Rogers Fire unincorporated areas only

If this option is exercised, it would be incumbent that the fire department selected to provide service to the various zones put additional resources in service to handle the selected areas. Contractually, the County should specify in the contract between the County and the fire department that an ambulance should be placed in the zone and minimum performance standards should be met, including response times, insurance, level of license assigned to the ambulance, etc. It should also be specified in the contract that the fire department cannot transfer the call to another ambulance provider unless the fire department has no ambulances left and the fire department is dependent upon mutual aid. This would prevent sub-letting of the contract.

Additionally, under this option, the additional funding may allow Pea Ridge Fire Department and Gravette Fire Department to increase their service level from BLS to ALS, while still providing service to the surrounding zones if they became the contracted fire department provider.

The cost of this option would be speculative and would be subject to the negotiated price with various fire departments or the bid price for zones if Benton County chose this option through a bidding process. However, decision-makers in Benton County should be aware that there is no guarantee that fire departments will bid on a zone to provide ambulance service to unincorporated parts of the County and municipalities without ambulance service.

Option #6 - Form Public Utility Model

Under this model, the County would form a Public Utility Model ("PUM"). In a Public Utility Model system, the government is a "purchaser" of EMTs and Paramedic providers from an EMS provider (contractor). In most cases, this is a private (for-profit) ambulance company. In the ownership of a Public Utility Model, the community retains control of the EMS system's capital assets and accounts receivable through daily oversight. The EMS provider (contractor) manages the day-to-day operations of the service and provides the system with properly trained providers.

The system is designed whereas the government not only regulates and oversees system performance, but the ambulance service contractor is held accountable to meet or exceed performance requirements. These requirements include, but are not limited to, time constraints. Such limits are set to ensure an ambulance arrives to life-threatening emergencies without delay. The contractor's failure in fulfilling the contractual obligations can result in fines being imposed, up to and including termination of contract. The agreement and contract between government and contractor are done through a

competitive bidding process. This insures that the most cost-effective provision of EMS services is guaranteed.

Under the this option, the Board of Directors of the Public Utility Model would come from elected officials and stakeholders from the county, including the unincorporated areas and those municipalities without ambulance service.

The financing for the system would come from the assessed millage and reimbursement from ambulance transport. The PUM would be the one billing for reimbursement and receiving that funding.

This type of model is typically created through a contractual relationship between the government entity and a provider, fire, and/or EMS, often using a request for proposal (RFP) procurement process. Typically, a government entity establishes an authority that is accountable for overall performance of the system. The authority often owns the equipment, facilities, and vehicles and performs cost recovery. The authority selects a provider to staff the operations and meet the performance standards as set forth. In addition, this contractual relationship is created as a sole source provider, in which the provider is responsible for all fire and EMS emergency and non-emergency requirements.

One of the advantages of the public-utility model is that a county is responsible for setting operational standards and owning the physical assets; the responsibility for operations and employees remain with the contractor. Public-utility models are generally held to high performance standards that are measurable and have an established predictable cost structure. High performance standards allow a county to ensure that public-utility models meet the needs of the community. In case of contractor failure, the county already has the capital equipment and facilities to continue to provide services.

Disadvantages of this type of system include high cost and the limited ability to use volunteers. It can leave a county vulnerable in the event of a contractor failure in having

sufficient management and field personnel to carry on the demands of the system.

The cost of this item is variable and is dependent upon the contract price bid by various private ambulance providers providing the human resource and the costs associated with the fixed assets to operate the EMS system.

Option #7 – A Combination of Contracting Zones to Private Ambulance Providers and Fire Departments

The final option is to contract out all four zones between private ambulance providers and fire departments willing to participate in the EMS system. This would require negotiations and/or a bidding process.

The cost associated with this option would be speculative and subject to negotiations or bidding by various private ambulance providers and/or fire departments. However, the decision-makers in Benton County should be aware that there is no guarantee fire departments will bid on zones if an RFP is released.

Chapter VII

Conclusion

This county-wide EMS assessment has addressed a large number of issues and made four recommendations and provided seven options to improve and enhance the EMS system in Benton County, an organization with enormous responsibilities to the citizens and visitors of Benton County. The intent of the EMS assessment is to improve Benton County's EMS system so that the quality of services to the citizens may be improved while remaining viable and cost-effective.

Having worked with officials from Benton County, the various fire departments throughout Benton County, as well as others, the principal consultant is confident that the desire to take the tough steps needed to improve the EMS system and the workplace environment is present. The challenge will fall on County officials to help improve the EMS system and continue to provide its critical services to the citizens of Benton County.

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Appendix B: Glossary

Advanced Cardiac Life Support (ACLS) – A course that is taught by the American Heart Association. The course uses algorithms to educate and enhance provider skills in treating victims of cardiac arrest or other cardiopulmonary emergencies.

Advanced Life Support (ALS) – All basic life support measures, plus invasive medical procedures including intravenous therapy, cardiac defibrillation, administration of medications and solutions, use of ventilation devices, and other procedures by state law and permitted by the medical director.

ALS2 – A term used for EMS billing purposes. Advanced life support, level 2 (ALS2) is the 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 (excluding crystalloid fluids) or (2) ground ambulance transport, medically necessary supplies and services, and the provision of at least one of the ALS2 procedures listed below:

- a. Manual defibrillation/cardioversion;
- b. Endotracheal intubation;
- c. Central venous line;
- d. Cardiac pacing;
- e. Chest decompression;
- f. Surgical airway; or
- g. Intraosseous line.

Ambulance – A vehicle designed and operated for transportation of ill and injured persons, equipped and staffed to provide for first aid or life support measures to be applied during transportation.

Automatic External Defibrillator (AED) – A device that administers an electric shock through the chest wall to the heart using built-in computers to assess the patient's heart rhythm and defibrillate as needed. Audible and/or visual prompts guide the user through the process.

Basic Life Support (BLS) – Generally limited to airway maintenance, ventilation (breathing) support, CPR, AED use, hemorrhage control, splinting of fractures, and management of spinal injury, protection and transportation of the patient with accepted procedures.

Benchmarking – The process of comparing one's business processes and performance metrics to industry bests and/or best practices from other industries. Dimensions that are typically measured include quality, time, and cost.

Deployment – The procedures by which ambulances are distributed throughout the service area. Deployment includes the locations and number of ambulances that are in service for a particular time-period.

Emergency Medical Responder (EMR) – Formally called First Responder, is the first individual to provide emergency care at an emergency scene. This term also refers to a prehospital provider who has completed training and is certified to perform only BLS procedures.

Emergency Medical Dispatcher (EMD) – A call taker/dispatcher at a public safety answering point that is specifically trained to obtain medical information from the caller over the phone and assure the dispatch of appropriate EMS resources to a given call.

Emergency Medical Services (EMS) – The provision of services to patients with medical emergencies. The purpose of emergency medical services is to reduce the incidence of preventable injuries and illnesses, and to minimize the physical and emotional impact of injuries and illnesses. The EMS field derives its origins and body of scientific knowledge from the related fields of medicine, public health, health care system administration, and public safety.

Emergency Medical Services Act of 1973 – This act defined EMS as “a agency which provides for the arrangement of personnel, facilities, and equipment for the effective and coordinated delivery in an appropriate geographical area of health care services under emergency conditions (occurring either as a result of the patient’s condition or of natural disasters or similar situations) and which is administered by a public or nonprofit entity which has the authority and the resources to provide effective administration of the agency.” This Act further defined components of an EMS agency as manpower, training, communications, transportation, emergency facilities, critical care units, public safety agencies, consumer participation, access to care, patient transfer, standardized record keeping, public information and education, agency review and evaluation, disaster planning, and mutual aid.

Emergency Medical Services (EMS) Agency – A comprehensive, coordinated arrangement of resources and functions that are organized and prepared to respond in a timely, staged manner to targeted medical emergencies, regardless of cause, in an effort to minimize the physical and emotional impact of an emergency.

Emergency Medical Technician (EMT) – A generic term that refers to any prehospital provider who is trained basic emergency response and procedures.

Infrastructure – The basic facilities, equipment, services, and installations needed for functioning.

ISO Rating – Generated by the Insurance Service Organization. The *Fire Suppression Rating Schedule (FSRS)* is the manual ISO uses in reviewing the fire-fighting capabilities of individual communities. The schedule measures the major elements of a community's fire-suppression system and develops a numerical grading called a Public Protection Classification (PPC™). The scale goes from 1 to 10 and the lower the rating, the better the classification.

Local Government – A designation that is given to all units of government in the United States below the state level.

National Fire Protection Association (NFPA) – The mission of the international nonprofit NFPA, established in 1896, is to reduce the worldwide burden of fire and other hazards on the quality of life by providing and advocating consensus codes and standards, research, training, and education. The world's leading advocate of fire prevention and an authoritative source on public safety, NFPA develops, publishes, and disseminates more than 300 consensus codes and standards intended to minimize the possibility and effects of fire and other risks.

National Highway Traffic Safety Administration (NHTSA) – The agency under the Department of Transportation responsible for preventing motor vehicle injuries. NHTSA's Office of EMS conducts research and demonstration projects, distributes state-of-the-art information, provides on-site technical assistance to states and national organizations, conducts national meetings and workshops on EMS issues, supports the development of national consensus EMS standards, and serves as liaison to national EMS/trauma organizations.

Paramedic – A prehospital provider level designated by the U.S. DOT National Standard Curriculum; a provider who has completed advanced training in all ALS procedures.

Protocol – A set of written rules that are to be followed by EMS providers. Protocols define the total prehospital care plan for management of specific patient problems. Prehospital personnel may be authorized in advance, and in writing, to perform portions of a protocol without specific on-line instruction from a physician. These pre-authorized treatments within a protocol are referred to as standing orders.

Provider – An individual who is certified to provide prehospital care.

Public Education – Imparts knowledge or training in specific skills. For example, teaching CPR, how to call for help properly, bicycle safety, or briefing public officials about the importance of your service to the community are all public education activities.

Public Information – The facts about an issue of public concern or a major incident in the community, or routine communications about upcoming events or presentations on annual budgets and projected needs, would all be considered public information.

Public Relations – The process of shaping public opinion through informational and educational activities.

Public Safety Answering Point (PSAP) – A call center responsible for answering calls to an emergency telephone number for police, firefighting, and ambulance services.

Public Utility Model (PUM) – A regulated-monopoly ambulance agency that selects the exclusive provider based on a competitive procurement process. These systems are usually tiered, providing emergency and non-emergency service with an all-ALS fleet. Commonly, a quasi-government entity supervises the contract and performs billing and collection services.

Quality Improvement (QI) – The sum of all activities undertaken to continuously examine and improve the products and services. Quality improvement activities are described as being prospective, concurrent, or retrospective, depending on when they are conducted relative to an event (e.g., a call for prehospital medical care).

Request for Proposal (RFP) – A concise document outlining the requirements of the local government entity and allowing respondents to propose systems that would meet these requirements with cost being one factor among many. In some situations, the RFP may allow for certain post-bid modifications during a final negotiated process.

Standard of Care – The basis for evaluating a claim of negligence. The standard of care is determined by what a reasonable, prudent EMS provider of similar training, skills, and experience would do in like circumstances.

Standing Orders – See Protocol.

Appendix C

Ambulance Service Ordinance

An Ordinance to provide for Licensure and regulation of ambulance services:

Be it Ordained, by the Board of Commissioners of Toombs County that all licensed ambulances transporting ambulance patients from origins within Toombs County shall be staffed and equipped to provide advanced life support as defined by the Rules of the Department of Human Resources Public Health.

(1) General compliance. All ambulance services, its vehicles and personnel shall at all times be operated in compliance with laws, rules, regulations, orders and decrees of the State of Georgia and Toombs County.

(2) Base station. All ambulance services offering services to residents of Toombs County must have a permanent base of operations located within the county.

(3) Hours of operations. All ambulance services offering services to residents of Toombs County must provide said services 24 hours a day, seven days a week.

(4) Certification. All ambulances and emergency medical vehicles which operate within Toombs County shall be certified for advance life support by the state department of human resources. All ambulances and vehicles operating within Toombs County shall be equipped to provide advance life support at all times.

(5) Staffing. All ambulance services offering services to residents of Toombs County or within the boundaries of Toombs County shall have at least two qualified and certified personnel on duty and available to answer calls for assistance at all times. At least one of these individuals must be certified as a Paramedic. Toombs County does not recognize equivalences in satisfaction of this requirement.

(6) Dispatch by E-911. Any ambulance service offering service to residents of the county by receiving calls or dispatches through the Toombs E-911 system will share in the cost of operating the Toombs E-911 emergency system. The County has determined that ten percent of the cost of operating the E-911 emergency system is attributable to ambulance service. Therefore any operating the aforesaid services shall share equally with all other ambulance services ten percent of the cost of operating the E-911 system.

(7) Compliance and Penalties

(a) All issues of compliance of this ordinance shall fall under the jurisdiction of the Magistrate Court of Toombs County. Any person, firm, corporation, or other entity which does any act prohibited by this article or fails to discharge any duty imposed hereby shall be subject to the imposition of a fine of \$500 per violation. Each day of non-compliance with this Ordinance shall be considered a separate violation. Applicable court costs will be payable in addition to imposed fines.

(b) Violators of this ordinance shall also be subject to the injunctive powers of any court having jurisdiction in the matter.

Repealer

All ordinances or parts thereof in conflict herewith are hereby repealed.

Severability

If any section, sub-section, paragraph, sentence or part thereof of this ordinance shall be held to be invalid or unconstitutional, such invalidity or unconstitutionality shall not affect or impair other parts of this ordinance unless it clearly appears that such other parts are wholly and necessarily dependent upon the part or parts held to be invalid or unconstitutional, it being the intent in enacting this resolution that each section, sub-section, paragraph, sentence or part thereof be enacted separately and independently of each other.

Effective Date

This ordinance shall take effect upon January 13, 2009

Adopted this 9th day of December 2008

Amended this 9th_ day of February, 2010.

Toombs County Board of Commissioners
Toombs County, Georgia

Ordinance #09 Emergency Medical Services

FOR HENNEPIN COUNTY

Adopted by the

Hennepin County Board of Commissioners

of Hennepin County, Minnesota

on January 17, 1984

Amended September 17, 1985

Amended June 1, 1999

TABLE OF CONTENTS

ORDINANCE NUMBER 9

EMERGENCY MEDICAL SERVICES ORDINANCE

FOR HENNEPIN COUNTY

The County Board of Hennepin County ordains:

SECTION I: PURPOSE

The purpose of this ordinance is to establish standards to protect the health, safety, and general welfare of the people of Hennepin County pursuant to Minn. Stat. 375.51-375.55. This ordinance incorporates herein Minn. Stat. Chapter 144E and Minn.R. Chapter 4690 relating to ambulance services which have been filed for use and examination by the public in the office of the County Auditor.

This ordinance is enacted to

(1) Ensure that emergency medical services are available to provide rapid and appropriate medical treatment to persons experiencing a potential or known medical emergency situation at the scene of the emergency and enroute to a medical treatment center.

(2) Ensure that an appropriately equipped and staffed ambulance is dispatched to the scene of a suspected medical emergency that requires immediate response.

(3) Meet reasonable public expectations for the quality and safety of emergency medical services provided throughout the County.

SECTION II: SCOPE

This ordinance shall be applicable to all ambulance services operated in Hennepin County and subject to licensure and regulation pursuant to Minn. Stat. 144E.001-144E.52, and Minn.R. Chapter 4690 relating to ambulance services.

SECTION III: DEFINITIONS

Subsection 1: "Advanced Ambulance Provider" shall mean an ambulance provider that utilizes ambulances, paramedics, equipment, and procedures subject to Minn. Stat. Chapter 144E and Minn.R. Chapter 4690 relating to advanced ambulance services and this ordinance.

Subsection 2: "Ambulance Services" shall mean the transportation and treatment rendered preliminary to or during transportation to, from, or between health care facilities to ill or injured persons or expectant mothers, including any transportation by stretcher, unless the person to be transported is not likely to require medical treatment during the course of transport.

Subsection 3: "Ambulance Provider" shall mean any individual, firm, partnership, corporation, trustee, association, or unit of government, licensed pursuant to Minnesota Statutes to provide ambulance services and, with respect to acts prohibited or required herein, shall include an ambulance provider's employees.

Subsection 4: "Approved" shall mean acceptable to the Health Authority as determined by conformance to appropriate standards, good public health practice, or good medical practice.

Subsection 5: "Basic Ambulance Provider" shall mean an ambulance provider who utilizes ambulances, emergency medical technicians, equipment and procedures subject to Minn. Stat. Chapter 144E and Minn.R., Chapter 4690 relating to basic ambulance services and this ordinance.

Subsection 6: "Code 2 Response" shall mean an ambulance response that does not utilize red lights and siren.

Subsection 7: "Code 3 Response" shall mean an ambulance response that utilizes red lights and siren.

Subsection 8: "Communication System" shall mean the coordinated radio and telephone communications, personnel, equipment, and procedures and protocols used to direct ambulance services and ambulance service providers in the County as recommended by the EMS Council for purposes of:

- A. Dispatch of ambulance services;
- B. Coordination of patient information; and
- C. Medical control communications between paramedics and physicians.

Subsection 9: "County" shall mean Hennepin County.

Subsection 10: "County Board" shall mean the Hennepin County Board of Commissioners.

Subsection 11: "Emergency" shall mean any sudden, generally unexpected occurrence, event, or set of circumstances which may require immediate medical attention.

Subsection 12: "Emergency Medical Services System" (EMS System) shall mean the Hennepin County system of coordinated communications to dispatch the closest appropriate ambulance within a designated primary service area, medical control of medical emergencies; training and continuing education for public safety personnel, paramedics, emergency medical technicians and physicians working within the EMS System; public information and education; regulation of ambulance services and ambulance providers; and the evaluation and monitoring of the EMS System's operation through quality improvement activities.

Subsection 13: "Emergency Medical Services Council" (EMS Council) shall mean the advisory body appointed by the County Board to develop and recommend acceptable practice and protocols for the operation of the EMS System and to establish acceptable medical practice standards for emergency medical services relating to the County EMS system.

Subsection 14: "Health Authority" shall mean the Hennepin County Community Health Department.

Subsection 15: "Law" shall include federal and state statutes, regulations and this ordinance.

Subsection 16: "Medical Resource Control Center (MRCC)" shall mean the facility, communications equipment and functions approved by the EMS Council and Health Authority to coordinate medical communications between ambulance service providers in the field and medical facilities, to arrange for medical control, and to allow for two-way radio communication between or among medical facilities, medical control physicians, emergency medical technicians, and paramedics.

Subsection 17: "on-Emergency" shall mean an occurrence or set of circumstances not requiring immediate attention.

Subsection 18: "re-Arranged Transfer" shall mean non-emergency transportation which is scheduled to be provided at a later time and for which immediate attention or transportation is not being requested.

Subsection 19: "Pre-arrival Instructions" shall mean the procedures and practices for the provision of basic first aid information over the telephone by specially trained and certified emergency medical dispatchers, using protocols approved by the EMS Council, to persons requesting an emergency or immediate ambulance response.

Subsection 20: "Primary Service Area" shall mean the geographic area designated to an ambulance service provider licensed pursuant to statute and rule by the Minnesota EMS Regulatory Board.

Subsection 21: "Priority Dispatch" shall mean the process and practices by which specially trained and certified emergency medical dispatchers identify the nature, severity and urgency of the request for emergency medical response, based upon protocols reviewed and approved by the EMS Council, to determine whether basic or advanced ambulance services shall be required and whether or not the response shall be Code 3 or Code 2.

Subsection 22: "Routine Transportation" shall mean unscheduled ambulance requests for which the dispatcher has determined that an ambulance is needed for an immediate but non-emergency situation. Routine Transportation does not include special transportation services as defined in Minnesota Statutes 174.30 (1984).

Subsection 23: "Unscheduled Requests" shall mean all ambulance requests which are not Pre-Arranged Transfers.

SECTION IV: ADMINISTRATION, DOCUMENTATION, AND INSPECTIONS

Subsection 1: Information Required: An ambulance provider, upon receipt of a license or license renewal, shall within 30 days submit to the Health Authority a complete copy of the license application as submitted to the EMS Regulatory Board and all other additional information required by the Health Authority including, but not limited to, an affidavit of compliance with the requirements of this ordinance, financial information for cost analysis of service provision, and other information the Health Authority deems necessary to determine an ambulance provider's compliance with this ordinance.

Subsection 2: Inspection: The Health Authority may inspect or designate and delegate to other authorized officials of the County the inspection of every ambulance provider facility or ambulance as frequently as deemed necessary to ensure compliance with this ordinance. Following an inspection, the Health Authority shall leave the inspection report with any responsible person immediately available or person representing the ambulance provider. Alternatively, the Health Authority may deliver the inspection report to the licensee or authorized agent for the ambulance provider in person or by United States mail. A copy of the inspection report shall be kept in the files of the Health Authority. A copy of the report shall be sent to the Minnesota EMS Regulatory Board.

Subsection 3: Access to Premises and Records: An ambulance provider shall, upon request of the Health Authority and after proper identification, permit access to all parts of the facility or vehicle at any reasonable time for the purpose of inspection and shall exhibit and allow copying of any records, including patient run reports, necessary to ascertain compliance with this ordinance. No persons shall interfere with or hinder the Health Authority in the performance of duties or refuse to permit the Health Authority to make such inspections.

Subsection 4: Removal and Correction of Violations: An ambulance provider upon receipt of a notification of one or more violations of this ordinance shall correct or remove each violation in a reasonable length of time as determined by the Health Authority. The length of time for the correction or removal of each such violation shall be noted on the inspection report. The failure to remove or correct each specific violation within the time period noted on the inspection report shall constitute a separate violation of this ordinance. All actions taken by the Health Authority pursuant to this section regarding the removal and correction of violations shall be in accordance with the due process provisions of Hennepin County Ordinance Number 1: Administrative Procedure.

Subsection 5: Records Required: All ambulance providers subject to this ordinance shall:

A. Maintain all records relating to paramedics and emergency medical technicians including, but not limited to, the name of each paramedic or emergency medical technician; the paramedic or emergency medical technician program attended, the location, and date completed; the documentation of any corrective, disciplinary, or probationary action by the provider's medical director regarding a paramedic or emergency medical technician, including the disposition of that action; and documentation of attendance and successful completion of all continuing education requirements.

B. Collect and report all information required by the EMS Council or the Health Authority regarding all ambulance service requests and patient care data on forms or by data processing techniques designated by the Health Authority.

C. Record all voice communications between the ambulance dispatcher and all vehicles and all requests for ambulance response whether by land line, telephone, or radio communication utilizing electromagnetic, digital or equivalent techniques. All recorders shall be capable of indicating the date and time of voice communications. All such recordings shall be maintained for not less than six months.

D. Report and record all patient care provided on run report forms approved by the EMS Council. The EMS Council, or the Health Authority may obtain a specific run report at any time to investigate an incident or to ensure compliance with this ordinance and community medical standards.

SECTION V: PERSONNEL AND OPERATING STANDARDS

Subsection 1: General: All ambulance providers shall maintain equipment, staff, facilities, policies and protocols necessary to permit full compliance with this ordinance.

Subsection 2: Practice Requirements: All paramedics and emergency medical technicians providing emergency medical services subject to this ordinance shall:

A. Successfully complete an approved probationary period in accord with the standards established by the EMS Council and supervised by the employing ambulance provider's medical director.

B. Attend training courses designated as mandatory by the EMS Council.

C. Maintain approved County authorization and EMS System identification number as a paramedic or emergency medical technician with the Health Authority.

Subsection 3: Staffing Requirements: All advanced ambulance providers shall provide and maintain not less than two approved paramedics on each ambulance at any time the ambulance is on duty for service. Two paramedics shall ride or drive as attendants on all runs with the exception of unusual or extraordinary circumstances which require the advanced ambulance to be staffed without two paramedics. In a situation when advanced life support transportation service response is required pursuant to this ordinance and two paramedics are not available as attendants, the advanced ambulance provider in whose primary service area the response is required shall send two attendants, one of whom shall be a non-probationary paramedic. If no approved paramedics are available, an attempt shall be made to transfer the request to another advanced ambulance provider. Documentation shall be submitted to the Health Authority on approved forms on all ambulance runs staffed with less than two paramedics.

Subsection 4: Equipment Standards: All advanced or basic ambulances subject to this ordinance shall carry all drugs and equipment as required by the EMS Council.

Subsection 5: Medical and Operational Standards: All ambulance providers and persons subject to this ordinance, shall comply with all medical, operational and communication policies and protocols developed by the EMS Council.

SECTION VI: AMBULANCE RESPONSE STANDARDS

Subsection 1: Advanced Ambulance Response: Advanced ambulance response as defined in Minnesota Statutes and Minn.R. Chapter 4690 shall be the standard for the County for all emergency response and shall be initiated for any of the following situations and conditions except as provided in Subsection 2:

- A. All requests for ambulance response initiated through the 911 emergency telephone system.
- B. All "Unscheduled Requests" for ambulance response from the public or public safety agencies.
- C. Anytime there is any reasonable question regarding the nature, scope, or severity of the emergency or medical situation.

Subsection 2: Advanced or Basic Ambulance Priority Dispatch: An advanced ambulance provider within whose primary service area a request for immediate ambulance response under subsection 1 of this section is received may respond with advanced or basic ambulance service or transfer the request to a basic ambulance provider if the advanced ambulance provider:

- A. Maintains capability for on-line two way voice communication with the caller requesting emergency or immediate ambulance response;

B. Utilizes protocols approved by the EMS Council for determining the appropriateness of advanced or basic ambulance response by Code 2 Response or Code 3 Response;

C. Maintains continuous quality assurance systems approved by the EMS Council to monitor and report on the appropriateness of emergency medical dispatch response decisions to the EMS Council and the Health Authority; and

D. Meets all applicable basic ambulance service response provisions of this Ordinance and requirements established by the EMS Council.

Subsection 3: Routine Transportation Response:

A. The dispatcher may dispatch routine transportation or transfer the request for routine transportation to another ambulance provider for routine transportation in the following situations:

1. A physician in the immediate presence of the patient has determined that Routine Transportation is medically appropriate for the patient.

2. A nursing home has requested Routine Transportation and the dispatcher has excluded cardiac arrest, acute seizure, shock or hypotension, decreasing or loss of consciousness, breathing difficulty, severe pain, significantly abnormal vital signs, or conditions that may indicate an acute myocardial infarction including chest pain, tightness, or pressure or shortness of breath.

B. All other requests for ambulance services shall be considered an emergency and referred to the appropriate advanced ambulance provider.

Subsection 4: Ambulance Response Transfer:

A. When an advanced ambulance service response is required pursuant to this ordinance but is not available, the advanced ambulance provider in whose primary service area the response is required shall attempt to transfer the request for service to an approved advanced ambulance provider for backup. Documentation of attempted transfer shall be submitted to the Health Authority on approved forms for all ambulance responses requiring advanced ambulance service but responded to by basic ambulance service.

B. When a medical emergency occurs outside the geographical boundaries of the primary service area of the requested ambulance provider, the call and request for ambulance response shall be transferred to the appropriate advanced ambulance provider in whose primary service area the emergency is located.

C. If the dispatcher for an ambulance provider determines the response time standard to an emergency requiring advanced ambulance services cannot be met with the available advanced ambulance provider for that area, the dispatcher shall request the closest advanced ambulance provider available to respond. If no advanced ambulance provider is available, a basic ambulance provider may be dispatched.

D. If a basic ambulance provider responds, under any circumstances, to an emergency other than as provided for in Section VI, subsection 2, the basic ambulance provider shall inform the dispatcher. The dispatcher shall attempt to dispatch an advanced ambulance provider in whose primary service area the emergency has occurred unless that advanced ambulance provider has already responded. If it is determined by the dispatcher of the advanced ambulance provider in whose primary service area the emergency has occurred that the basic ambulance provider can transport the patient to the nearest appropriate hospital before an advanced ambulance provider can reasonably be dispatched and respond to the emergency, then a basic ambulance provider may transport the patient. The basic ambulance provider shall file a report with the Health Authority within twenty days on an approved form describing the incident.

E. An ambulance provider, while responding to or transporting a Pre-Arranged Transfer or Routine Transportation Request, shall not use flashing red lights or siren and shall transfer a request which may require a Code 3 Response to the appropriate advanced ambulance provider within whose primary service area the request occurs. Documentation shall be submitted to the Health Authority on approved forms describing any Pre-Arranged Transfer or Routine Transportation Request which utilizes a Code 3 Response. The use of a Code 3 Response to reduce response time for a Pre-Arranged Transfer or Routine Transportation Request is also prohibited. These provisions shall not apply to any ambulance response to a hospital or transport between hospitals.

SECTION VII: RESPONSE TIME STANDARDS

Subsection 1: EMS Council: The County Board shall establish standards for all ambulance providers' response time. The standards shall be based upon recommendations of the EMS Council which shall be forwarded to the County Board for review and approval as often as the Council determines it is necessary, but at least once every two years. In developing recommended response standards within the County, the EMS Council shall take into consideration the following factors:

A. The level and type of response established in Section VI;

B. Current information regarding population density and geographic accessibility, historical number of ambulance requests and resource utilization;

C. The availability of specific, reliable, accurate and verifiable performance measures such as time standard and percentage of compliance; and

D. The maintenance and improvement of response times within a municipality, contiguous municipalities or primary service areas.

Subsection 2: Compliance Review: The Health Authority shall collect and aggregate information derived from reported records summarizing the performance of the designated ambulance provider in each municipality and in the EMS System. The Health Authority shall review response times with the EMS Council and the approved ambulance provider for a primary service area. The EMS Council may establish review criteria for determining acceptable compliance with the approved response standard and may make a recommendation to the Health Authority on the appropriate action to be taken to assure compliance with the established response standard when the standard and criteria are not met by the designated ambulance provider. The Health Authority shall act to ensure appropriate compliance with response standard established pursuant to this Section including, but not limited to, the submission of a recommendation to the EMS Regulatory Board for redesignation of all or a portion of a primary service area to another ambulance provider.

SECTION VIII: WAIVERS AND VARIANCES

Subsection 1: Waivers: An ambulance service provider may apply to the Health Authority for a waiver of the requirements of this ordinance. The ambulance provider requesting a waiver shall meet the same criteria established for permitting a waiver as provided in Minn.R., Chapter 4690. Application for a waiver shall be made on forms approved by the Health Authority.

Subsection 2: Variances: An ambulance provider may apply to the Health Authority for a variance from requirements of this ordinance. The ambulance provider requesting a variance shall meet the same criteria established for permitting a variance as provided in Minn.R., Chapter 4690. Application for a variance shall be made on forms approved by the Health Authority.

SECTION IX: SEPARABILITY

If any provision or application of any provision of this ordinance is held invalid, that invalidity shall not affect other provisions or applications of this ordinance.

SECTION X: PENALTY

Any person violating any provision of this ordinance shall be guilty of a misdemeanor and upon conviction thereof shall be punished pursuant to Hennepin County Ordinance No. 1.
