Bertie County, North Carolina

EMS & Rescue Services Operations Assessment

December 2010

Solutions for Local Government, Inc.

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SECTION 1. INTRODUCTION

1.1 Overview & Plan Objectives

Bertie County is a rural county of approximately 20,000 residents located in northeastern North Carolina. Its land area encompasses 700 square miles. Emergency Medical Services are currently provided by four (4) independently operated, non-profit agencies located in various communities within the County.

As requested by the County during the initial pre-study conference, the consultant's Work Plan was organized to address the County's expressed objectives and purpose for the development of this study which were to:

- Provide an objective assessment of the status of current EMS operations, including recent response and performance history.
- Identify the issues of concern facing the County's emergency medical service providers.
- Provide recommendations to address the issues identified.
- Identify the resources (probable costs) associated with the recommendations.

1.2 Report Organization

This study document is organized by the six (6) major sections that include:

1. Introduction
2. EMS-Historical & Statutory References
3. Existing Conditions & Performance
4. Issues & Observations
5. Recommendations
6. Probable Costs

Following Section 6, a Report Summary (Section 7) and an Appendix (Section 8) are also included.

1.3 Methodology

A kick-off meeting was held in late July at the County Office Building in Windsor with the heads of the four agencies currently providing EMS services, the County's Emergency Management Coordinator, and the consultant.

The information gathered for this report came from many sources. These included numerous personal interviews, site visits to each of the four (4) established EMS provider agencies as well as numerous informal conversations with citizens encountered along the way. Additional interviews, conversations and meetings were held with the Emergency Management Coordinator, the County Medical Director, The County Manager and the Regional Coordinator of the NC Office of Emergency Medical Services (NCOEMS).

In addition to the EMS providers themselves, numerous County offices provided assistance in developing the information included in this report concerning budget, personnel, billing, GIS mapping, emergency operations, and emergency communications issues relevant to EMS. Information was also solicited from various regulatory and state agencies including the Office of Emergency Medical Services (OEMS) the University of North Carolina, School of Government.

The County's Emergency Management Coordinator served as the County's Project Manager and provided valuable agency contact information, EMS system information, and very importantly local access to the States Credentialing Information System (CIS) and the Pre-Hospital Medical Information System (PreMIS) data bases.

A presentation of study findings and recommendations was made to the EMS Advisory Council on November 4th, and then to the Board of County Commissioners on December 6, 2010. This document was finalized following those presentations.

SECTION 2. EMS – HISTORICAL & STATUTORY REFERENCES

As a means of introduction to the information and issues discussed in this report, the references that follow are provided for context and background. They are excerpted from several sources; including primarily the North Carolina General Statutes

In 1971 the General Assembly directed the Legislative Research Commission to study emergency medical care in North Carolina. The Commission's study resulted in the Emergency Medical Services Act of 1973 (G.S. 143, Article 56). The Act established the State's Emergency Medical Services (EMS) Program within the State Department of Human Resources (now the Department of Health and Human Services). The Office of Emergency Medical Services administers the State's EMS program, which is placed in the Division of Facility Services of the Department of Health and Human Services (G.S. 143-508). Two state agencies regulate the program. The North Carolina Medical Care Commission adopts the rules and standards that govern ambulance licensure and basic life support services, and the North Carolina Medical Board adopts rules and standards governing advanced life support services.[1]

The Office of Emergency Medical Services (OEMS) is responsible for ensuring that emergency treatment centers are available throughout the state, inspecting and permitting ambulances, licensing ambulance service providers, certifying ambulance personnel, designating trauma centers and a state poison-control center, and assisting in the development of a statewide EMS communications system. Neither the State nor the regional EMS offices are engaged in the actual delivery of emergency medical services in North Carolina. That responsibility is taken on by agencies and organizations at the local level, the principal being County government.

G.S. 153A-250 identifies County responsibilities and authority in this regard. Counties may franchise ambulance services via adopted ordinance(s), or operate its ambulance services directly.

The following North Carolina Administrative Code subsections provide the most current definition and explanation of EMS *System* Requirements.

.2510 EMS System-"A coordinated arrangement of resources, including personnel, equipment, and facilities, organized to respond to medical emergencies and integrated with other health care providers"

.2601 EMS Requirements; (a) *County Government shall establish EMS Systems. Each EMS System shall have: A defined geographic service area or areas; . . . the highest level of care offered within any EMS provider service area must be available to (all) the citizens within the service area 24 hours per day.*

[1] A. Fleming Bell and Warren Jake Wicker; County Government in North Carolina; Inst. of Government, UNC at Chapel Hill; 1998.

The actual operation of local services is financed entirely at the local level. If the County operates an ambulance service as a line department, it may establish rates, fees, and charges to be collected by the service and it may appropriate County funds to the service (G.S. 153A-250).

By statute, all ambulance service providers in North Carolina must be licensed by the State (G.S. 131E-151.1), each vehicle that is operated as an ambulance must be permitted by the State (G.S. 131E-156), and ambulance personnel must be certified by the State (G.S. 151E-158).

1.6.4 Medical Direction

Subchapter 32H of the North Carolina Administrative Code defines *Medical Control* as "...the management and accountability for the medical care aspects of an ALS (advanced life support) program. It entails physician direction and oversight of the initial education and continuing education of the ALS professional; developing and monitoring of both operational and treatment protocols; evaluation of the medical care rendered by ALS professionals; participation in system evaluation(s);and directing by radio or telephone, the medical care rendered by ALS professionals."

Further, Section .0102(8) defines *Medical Director* as "...the physician responsible for the medical aspects of the management of an ALS program."

Subsequently, the Medical Director in Bertie County is a licensed, practicing physician whose responsibilities with regards to the County's EMS operation ultimately include certification, medical control, and the continuing education of its employees.

2.5 Level of Care

"Level of Care" refers to the level of training and legal certification held by the caregiver or responder. Individuals are certified based on their highest completed level of training. North Carolina Statutes 10 NCAC 3D and 21 NCAC 32H are quite specific with regards to the type of care, procedures, medications, etc. that can be administered by individuals at each level of certification.

In North Carolina there are four (4) levels of certification assigned to EMS providers. The brief descriptions provided below are those defined by the North Carolina Office of Emergency Medical services (NCOEMS). *The Medical Responder (MR) and Emergency Medical Technician-Basic (EMT-B) levels are referred to as "Basic Life Support", or BLS. The remaining levels of care; EMT-I, and EMT-P, are referred to as "Advanced Life Support", or ALS.*

Medical Responder (MR): Assists pre-hospital technicians in providing basic life support (BLS) care; follows training guidelines of first responders per USDOT.

Emergency Medical Technician-Basic (EMT-B): Second level of BLS; individuals trained in advanced first aid, measuring vital signs, CPR, oxygen therapy, etc. intended to take advantage of automatic and semi-automatic external cardiac defibrillators for on-scene defibrillation of patients risking sudden death from ventricular defibrillation; additional training includes advanced airway and administration of epinephrine.

Emergency Medical Technician-Intermediate (EMT-I): Allowed to use advanced airway devices, provide intravenous fluid replacement, administer various medications used to correct diabetic, narcotic overdose, respiratory emergency allergic reactions, and use of automatic and semi-automatic defibrillators.

Emergency Medical Technician-Paramedic (EMT-P): In addition to all previous skills, trained in techniques of cricothyrotomy, needle chest decompression, urinary catheter insertion and nasal intubations; in addition to administration of a broad range of medications.

SECTION 3. EXISTING OPERATIONS & PERFORMANCE

This section addresses the conditions found to exist within the EMS delivery system during the time frame of this study. Information regarding certified vehicle inventories, and membership rosters were obtained from the North Carolina Office of Emergency Medical Services (NCOEMS). EMS emergency call data was primarily obtained from the Sheriff's Office Communications/Dispatch Center's call data base and CAD files.

Information regarding individual agency operations was provided by representatives of those agencies who were interviewed and/or attended the several meetings held during the study with the consultant.

All of the information obtained was reviewed, analyzed, and formatted for the referenced years by the consultant.

3.1 Bertie County Emergency Medical Services (EMS)

Emergency medical services in Bertie County are provided by four (4) independently operated non-profit organizations. These include:

- Askewville EMS
- Bertie County rescue Squad
- Colerain Emergency Medical Services, Inc.
- Lewiston-Woodville EMS

Bertie County is currently designated by the State as a single EMS "system", which provides the required emergency medical services to its residents via four (4) individual "agencies".

Currently, the highest concentration of residences and businesses, and subsequently the highest percentage of EMS calls occur within the response area of the Bertie County Rescue Squad which encompasses the Town of Windsor and its immediate surrounding areas.

3.2 Personnel & Vehicles

Current agency rosters reflect a combined total of 91 members. Many of these members are volunteers. At the outset of the study (July 2010) all four agencies were responding 24 hours per day to emergency medical calls to which they were dispatched. At that time Askewville and Colerain were all volunteer, Lewiston-Woodville utilized paid daytime personnel and volunteers the remainder if the day and weekends, and Bertie Rescue utilized paid personnel 24 /7.

Regardless of a member's status; i.e. "volunteer" or "paid employee"; statutes require that anyone providing emergency medical care be credentialed.

131E-158. Credentialed personnel required.

(a) Every ambulance when transporting a patient shall be occupied at a minimum by all of the following:

(1) At least one emergency medical technician who shall be responsible for the medical aspects of the mission prior to arrival at the medical facility, assuming no other individual with higher credentials is available.

(2) One medical responder who is responsible for the operation of the vehicle and rendering assistance to the emergency medical technician.

At the time this report went to press (December), Colerain had implemented an 8 hour-5 day per week schedule that included paid personnel as well as an additional Intermediate level EMT during evening hours, and were supplementing the evening EMT and the remaining hours of the week with volunteers. As well, by December, lack of available volunteer personnel during weekday-daytime hours prompted Askewville EMS to withdraw from providing service during those times; in which case Bertie Rescue, Colerain EMS and Lewiston-Woodville EMS are now called to respond to Askewville area calls during those hours.

Currently, Bertie Rescue and Colerain EMS are certified as EMT-Intermediate agencies while Askewville and Lewiston Woodville are certified as EMT-Basic agencies.

The agency "Certification Level" column in Figure 1 (See also Level of Care, Section 2.5 above) refers to the level of care each is permitted to provide as defined by State regulations. In the case of Bertie Rescue and Colerain EMS, each is certified as "Intermediate". To be so, each must guarantee that at least one of the two responders in any emergency transport vehicle (ambulance) is and will be an EMT who, individually, is certified at the Intermediate level. The second responder, whether volunteer or paid, may be certified at a lower level; i.e. Medical Responder (MR) or EMT-Basic.

Likewise, the certification of emergency vehicles will correspond to the level of care to be provided. Appendix A identifies the differences in the equipment that must be carried. In other words; the higher the level of care certification, the more sophisticated the emergency treatment capabilities and, the more equipment is required per regulations.

The NCOEMS credentialing information system (CIS) maintains status information with regards to agency, personnel and vehicle certifications on all licensed EMS providers within the state. As of November 1, 2010 the following information is listed for each of the individual EMS agency providers.

Figure 1
EMS Agency, Membership, and Vehicle Certifications

Agency	Certification Level	Agency Roster				Certified Vehicles In-Service	
		Pmdc.	Int.	Basic	MR	Number	Certification
Askewville EMS	EMT-Basic	0	9	3	0	1	EMT
Bertie County Rescue Squad	EMT-Intermediate	4	10	4	0	2	EMT-I
Colerain Emergency Medical Services, Inc.	EMT-Intermediate	1	9	18	0	2	EMT-I/EMT
Lewiston-Woodville EMS	EMT-Basic	2	11	19	1	4	EMT

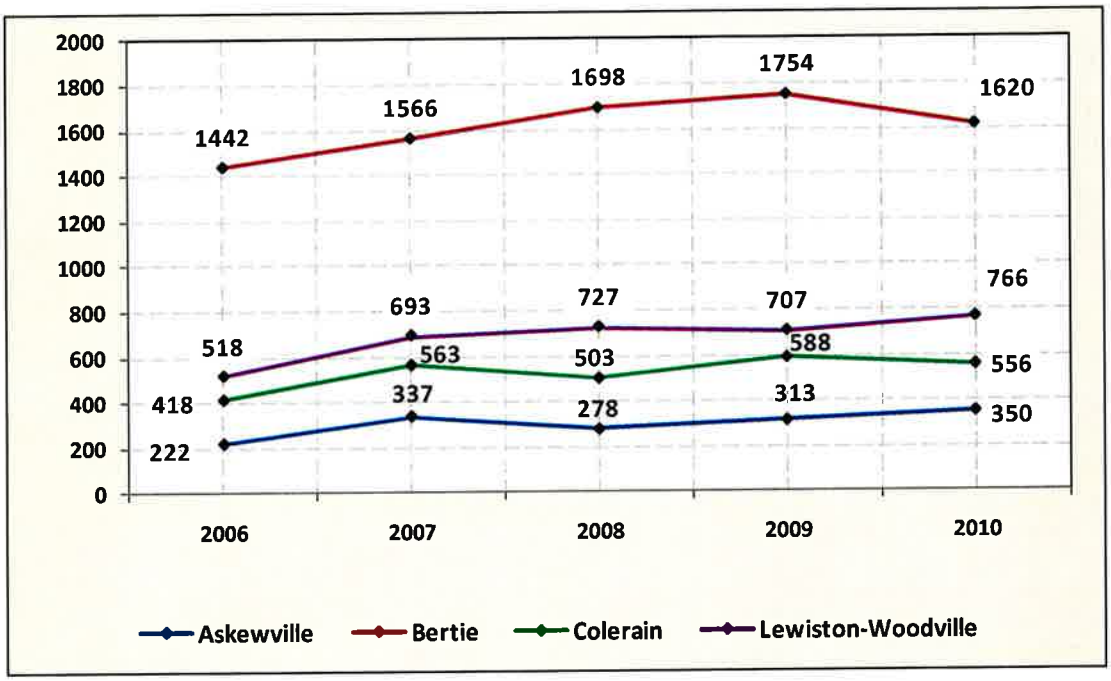
3.3 Call Volume

Figure 2 identifies the number of emergency calls to which each of the EMS provider agencies were dispatched for each of the calendar years 2006-2010. The asterisk (*) in the 2010 column refers to the fact that the 2010 annual call volume total was estimated by the consultant based on the actual number of calls dispatched through October 31, 2010.

Figure 2
Emergency Calls Dispatched
2006-2010

EMS/Rescue Squad	2006	2007	2008	2009	2010*
Askewville	222	337	278	313	350
Bertie	1442	1566	1698	1754	1620
Colerain	418	563	503	588	556
Lewiston-Woodville	518	693	727	707	766
Total Calls/Year	2600	3159	3206	3362	3292

Figure 3
EMS Call Volume Trends
2006-2010



As noted, over the past five years Bertie Rescue has responded to as many calls as the other three agencies combined. Two factors are prominent in that regard. Windsor is the county seat and largest town in the County and, it is where the County's hospital is located.

All agencies indicate upward (increasing) trends in call volume. And, although Bertie shows a decrease of approximately 130 calls in 2010 over 2009, keep in mind that the 2010 numbers were estimated based on January-October 2010 actual call numbers. All agency 2010 numbers are likely to change once the year end call volumes are calculated.

3.4 Type of Call

While the Communications Center's CAD performance modules did not provide a means to batch, sum, or calculate frequency and distribution of calls by "complaint type"; a sampling of 1,293 calls were individually reviewed and counted to provide an indication of calls by type.

Figure4
Type of Call

The total calls evaluated represented approximately 50% of all calls dispatched through the month of September 2010 and were randomly but proportionally selected from individual agency records on the basis of the proportion of all calls dispatched.

Of the 27 call categories used for reporting purposes, the 11 categories identified in Figure 4 represented 85 percent of the total number of records counted; 1,094 of 1,293 calls. Of the 16 remaining call categories not included in Figure 4, all accounted for 1.5% or less of the total sample.

Type of Call	# Calls	% Total
Sick Person/Condition Unknown	329	25.4%
Traumatic Injury	167	12.9%
Altered level of Consciousness	129	10.0%
Abdominal pain	115	8.9%
Repiratory Distress	127	9.8%
chest pain	69	5.3%
Diabetic Symptoms	50	3.9%
Fainting	38	2.9%
Behavioral/Psychiatric	25	1.9%
Seizure	24	1.9%
Cardiac Arrest	21	1.6%
Sample Totals:	1,094	84.61%

3.5 Calls Dispatched per Hour

Among the significant concerns presented to the consultant as an impetus for this study, and echoed particularly by the respective EMS providers unable to pay or to pay for full time employees, was the *availability of personnel*. In this case of course, "personnel" referred to volunteers.

By virtue of their status as volunteers, many of the individuals that make up the rosters of the County's EMS providers are employed full-time at their "regular" jobs. The majority of these "regular jobs" occur during traditional daytime business hours; i.e. 8:00 AM-5:00 PM give or take an hour.

Subsequently a look at the times that calls occur during a typical 24 hour period becomes very important in identifying when EMS personnel are most likely to be needed.

The first illustration that follows (Figure 5) identifies, by hour of day, when the EMS calls dispatched during 2009 were received. The peaks and trend in call volumes indicated have mirrored 2010 partial scans taken to date.

Based on the illustration, the busiest hour of the day is 10:00 am-11:00 am, during which time period there were approximately 200 calls. The least busy hour of the day was 4:00 am-5:00 am during which there were approximately 55 calls received.

Subsequently, the second illustration (Figure 6) identifies "Prime Time" as that between 7:00 am and 7:00 pm, which coincides with the bulk of the 24 hour call volume ***and*** the time period during which most volunteers are working.

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Figure 5
EMS Calls Dispatched by Hour of Day

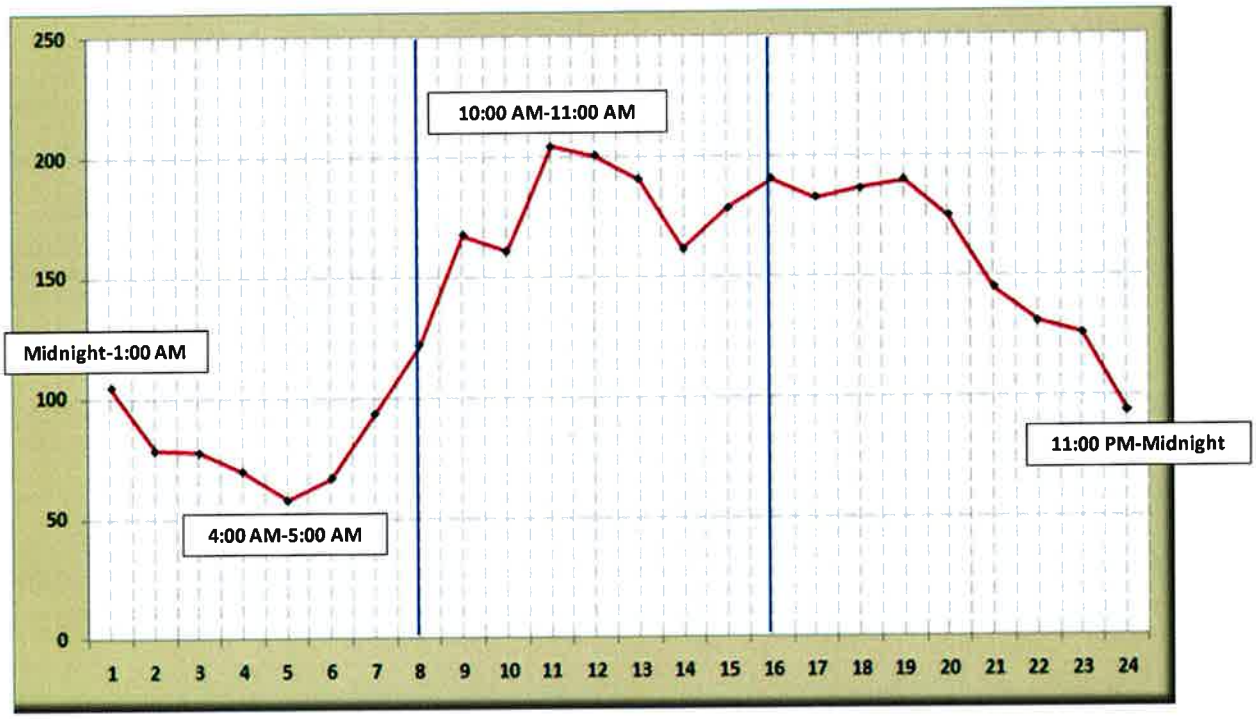
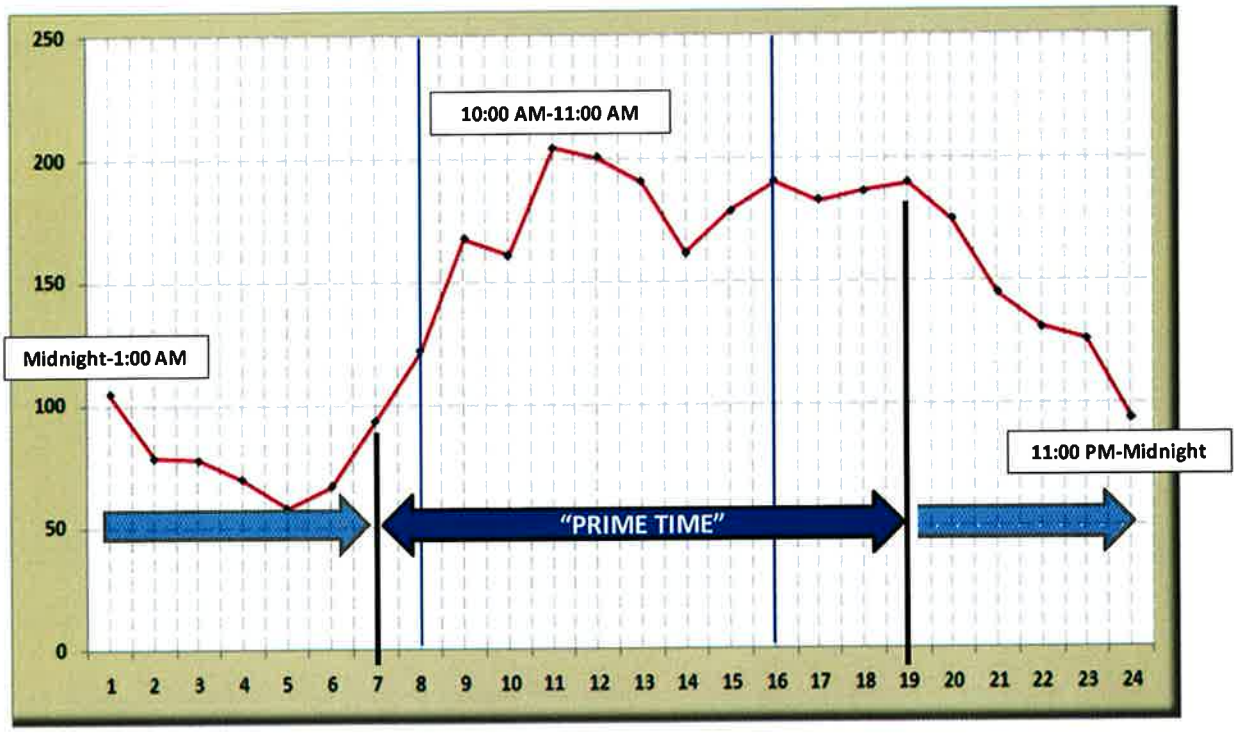


Figure 6
Peak EMS Call Volume

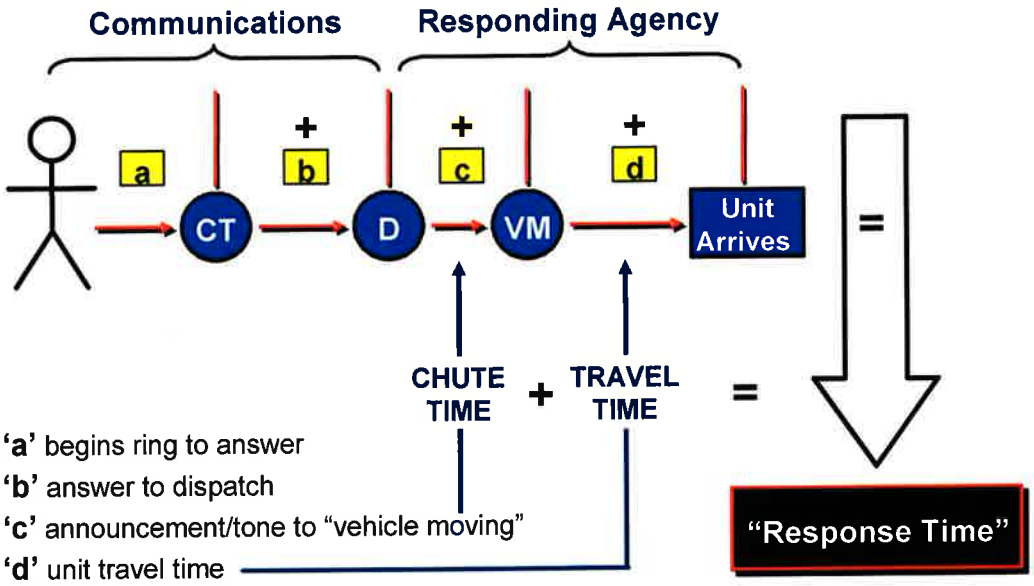


3.6 The 911/EMS Call Process

In order to assess an individual EMS agency or an EMS *system's* response time the individual events and the corresponding duration of each of the events that comprise "response time" must be understood.

The events illustrated in the diagram that follows are those that the Sheriff's Office Communications Center Dispatchers and EMS teams deal with on a daily basis. The series of events that occur, from the initiation of a 911 call until the EMS response vehicle arrives on the scene of the emergency, are provided as a timeline-like process chart. The individual events and corresponding segments of time identified are each important.

While the process chart identifies the events that occur from the time the phone starts to ring in the Communications Center until the EMS Unit (team) is "on scene", the focus of the discussion that follows will be on the principal response time event intervals for which EMS providers are responsible.



The "total" Response Time of concern to an EMS agency will be the combination of the Chute Time (c) and the Travel Time (d). And, while Chute Time is the direct result of how quickly EMS personnel are able to respond from where they are when they receive the call to the time they are in an ambulance and able to radio back to Communications that they are "enroute", Travel Time will ultimately be the result of the physical distance to the scene.

3.7 Response Times

While numerous factors, not the least of which will include physical road conditions and the natural geography of an area, will ultimately contribute to response time, within the emergency services arena, the *availability of personnel* is paramount. In the case of a Department with *paid* personnel that would normally be viewed as "not a problem". ***Unless*** the Department happens to be short staffed on a given day or shift due to allocation of personnel, illness, vacation, or training of its employees, ***or*** the assigned personnel are already out of the station on another call.

Volunteers by virtue of their status typically will not be "on duty" or physically at the EMS base location when an alarm is dispatched. Subsequently getting from where they *are*, to the station to get and then move an ambulance is going to take time.

Response time call data was collected from the Sheriff's Office Communications Center CAD system for each EMS agency, for the years 2006 through October of 2010 and is noted in Figure 7.

Figure 7
5-Year Average Response Times

Department	2006			2007			2008			2009			2010		
	Chute	Travel	Total	Chute	Travel	Total	Chute	Travel	Total	Chute	Travel	Total	Chute	Travel	Total
Askewville	5:13	4:55	**10:08**	5:08	4:07	**9:15**	5:46	5:02	**10:48**	5:57	5:02	**10:59**	5:06	4:55	**10:01**
Bertie	3:22	4:50	**8:12**	4:08	4:31	**8:39**	4:08	5:03	**9:11**	3:15	4:40	**7:55**	2:22	5:24	**7:46**
Colrain	7:40	6:19	**13:59**	7:34	7:08	**14:42**	8:08	6:47	**14:55**	6:36	7:17	**13:53**	5:34	6:55	**12:29**
Lewiston-Woodville	7:39	4:14	**11:53**	8:21	4:19	**12:40**	7:11	5:20	**12:31**	6:58	6:37	**13:35**	5:45	6:54	**12:39**

More concisely, the combined annual average Chute, Travel and Total Response Time for all County EMS calls dispatched by year are as follows:

Figure 8
Combined Annual EMS Response Times

Year	Number of Calls	Chute	Travel	Response Time
2006	**2600**	**5:58**	**5:04**	**11:03**
2007	**3159**	**6:17**	**5:01**	**11:19**
2008	**3206**	**6:18**	**5:33**	**11:51**
2009	**3362**	**5:41**	**5:54**	**11:35**
2010	***3292***	**4:41**	**6:02**	**10:43**

3.8 EMS Agency Revenue by Source

Bertie County currently contributes funds to each of the four EMS agencies providing service within the County. As illustrated, for fiscal year 2009-2010, the County contributed $135,000 directly to the four providers as well as $10,000 in matching grant stipends.

Each EMS agency also contracts with a private billing company to bill and collect from Medicare, Medicaid, private insurers, and individuals for the emergency medical treatment and services provided.

Mileage is billed at varying rates depending on the miles driven and emergency calls are also billed for treatment provided where no transport is required. However, the major bulk of the amounts billed during fiscal year 2009-2010 were for the transport of emergency victims to health care facilities. Currently, the flat rate per BLS transports is $400 and for ALS transports, $475.

Figure 9
Fiscal Year 2009-2010 EMS Agency Revenue by Source

Squad	Total Transports	Gross Charges	Payments Received	Percent Collected	County Contribution	Rescue Grant	Total Income Per Squad
Askewville	**131**	$ 71,663	**$ 32,550**	45.4%	**$ 15,000**	**$ 2,500**	**$ 50,050**
Bertie	**1,301**	$ 594,397	**$ 362,426**	61.0%	**$ 12,000**	**$ 2,500**	**$ 376,926**
Colerain	**266**	$ 148,311	**$ 63,270**	42.7%	**$ 54,000**	**$ 2,500**	**$ 119,770**
Lewiston-Woodville	**552**	$ 305,101	**$ 127,981**	41.9%	**$ 54,000**	**$ 2,500**	**$ 184,481**
	2,250	$ 1,119,472	**$ 586,227**	47.8%	**$ 135,000**	**$ 10,000**	**$ 731,227**

3.9 EMS Reporting

The state-wide reporting/record keeping system for EMS providers in North Carolina is "PreMIS", the *Pre-Hospital Medical Information System.*

Under the North Carolina EMS Rules and Regulations, every EMS System is required to collect and submit (electronically) EMS data based on the North Carolina College of Emergency Physician's Standards for Medical Oversight and Data Collection.[2]

According to the EMS Performance Improvement Center's website, www.emspic.org, PreMIS was designed to be a critical link to the future of EMS. The project began with a grant from the Department of Transportation to the North Carolina Office of Emergency Medical Services. The project was subcontracted to the Department of Emergency Medicine at the University of North Carolina-Chapel Hill.[3]

3.10 Performance Assessment & Benchmarking

The EMS "Toolkit Project" is a program that utilizes "Toolkits" to describe the detailed analyses that are conducted based upon an EMS system's data that has been entered into the PreMIS system. Then, not only is the data formatted for the submitting agency or system to utilize, but it is simultaneously compared with statewide and other "Area" group agencies.

For example, in December 2009 a *System Response Toolkit* was run utilizing 947 Bertie County emergency medical calls which occurred during the previous 6 months. The Toolkits purpose in this instance was to assess *EMS Total Response Time*. The results were as follows:

Figure 10
EMS System Response Toolkit Results
Total Response Time

System	Events	Avg. Value	90% Fractile
EMS System (Bertie County)	947	0:15:26	0:24:00
State	203,249	0:09:56	0:16:12
Urban Group	132,314	0:09:50	0:16:00
Suburban Group	46,354	0:09:38	0:16:00
Rural Group	17,217	0:11:09	0:20:00
Wilderness Group	7,365	0:10:45	0:20:00

Note that the various "Area" Groups; i.e. Urban, Suburban, Rural, and Wilderness are designations for comparison purposes and are based on a County's population. Bertie County's EMS "system" belongs to the "Wilderness Group" because the County's population is less than 25,000. The significant comparisons from these numbers would be Bertie County's total response time to that of other, similarly populated Counties; i.e. the "wilderness group".

Note: The "90% Fractile Response Time" refers to the time frame within which 90% of all calls were responded to as opposed to simply the collective *average* response time of all calls.

Unfortunately, a detailed search of CIS and PreMIS found only this single Bertie County toolkit from one year ago.

[2] Pratt, Drexdal; "Required EMS Patient Care Reporting"; NCOEMS Memorandum; 2004
[3] North Carolina EMS Performance Improvement Center website; 2007

SECTION 4. ISSUES & OBSERVATIONS

This section discusses the significant issues of concern identified during the analyses of the various data collected, the visual study of conditions found to exist, and numerous conversations and formal interviews conducted over the course of the study.

The determination of whether or not an "issue" was identified as such was based on the assessment of current EMS operations; *Section 2-Existing Operations & Performance.* Of course current operations and performance were assessed against prevailing standards, State statutes, and research findings gathered and studied.

Therefore, the issues identified as being of significant concern were either related to or had to do directly with the following topics.

4.1 Issue: EMS System Organization

As stated in Section 1, State statutes define an EMS system as *"A coordinated arrangement of resources, including personnel, equipment, and facilities, organized to respond to medical emergencies and integrated with other health care providers".* (See also 10A NCAC 13P .0201 EMS System Requirements at Appendix B). Further, that the *County shall establish an EMS system and that it be available to all citizens 24 hours per day.*

Based on operations and activities observed, assessments of available (and unavailable) data and feedback from all parties to this study suggest that in fact; ***there is no EMS "system" in Bertie County.***

Although for the state's purposes, by virtue of the statutory responsibility that all North Carolina Counties provide EMS, Bertie County is classified as an EMS "system". In reality, EMS in Bertie County is a function of four (4) independently incorporated, and separate non-profit organizations; some paid, some volunteer, some providing "Intermediate" level of care, others providing only "Basic", some providing service 24 hour-7 day a week coverage while another does not.

The County's Emergency Management Coordinator has been charged with numerous duties in addition to Emergency Management, among them, also serving as the EMS Coordinator.

While a County does not need to "own" EMS as a functioning department of county government, it does need dedicated management to be effective. As presented to the EMS Advisory Council and to the Board of Commissioners; in an EMS *system*:

- The component "parts" are coordinated.
- Performance standards are documented and consistent.
- Operational protocols are documented and consistent.

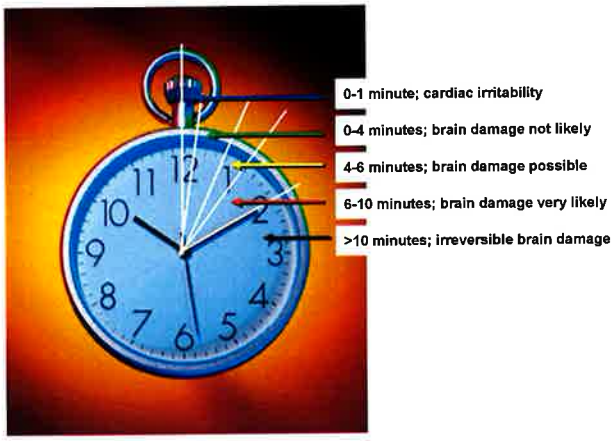
- Substantive reports describing significant events, workload, and performance response data are generated and provided on a regular basis.
- Quality assurance and on-going training must be an integral function & priority of supervision.

Documentation, operations, reporting and quality assurance are vital functions in the emergency services arena, most significantly in the emergency medical services arena. It cannot simply be "coordinated". It requires full-time, on-going, management attention.

4.2 Issue: Response Time

For the purposes of this report and as referenced in Section 2, EMS (ambulance/unit) response time is: *The time from the initial alert or announcement by the Dispatch Center (also called "tone", "page", or "dispatch")of the reported emergency, to the time that the service vehicle and appropriate personnel arrive on the scene.* Consequently, the basis upon which pre-hospital emergency medical response criteria has been established is medical case history data regarding the body's need for oxygen. Simply, the human body needs oxygen to survive. While some cells may tolerate short periods without oxygen, most require a constant supply of oxygen to survive. Figure 11 illustrates the significance of time in this equation.

Figure 11



Concerns and subsequent standards regarding emergency medical response times are based on the findings of various significant medical organizations and professional associations. Among these, the American College of Emergency Physicians (ACEP) and the American Heart Association has each similarly stated:

"The most important factor in successfully resuscitating a patient in cardiac arrest is the speed of response. The survival rate from untreated ventricular fibrillation decreases up to 10% for every minute that passes and definitive care is not provided.

The American Heart Association, AECP, and other respected organizations recommend that EMS vehicles should respond to deliver BLS (basic life support) skills within 3 to 4 minutes, with ALS (advanced life support) skills available within 6 to 8 minutes. The ALS-within-8-minute concept was developed from research that showed the survival rate of cardiac arrest victims decreases significantly with each passing minute, and that optimal probabilities for survival increase when BLS has been provided within 4 minutes followed by ALS within 8 minutes." [4]

In addition,

- The American Association of Orthopedic Surgeons (source of Figure 11) suggests that "in an incident involving lack of oxygen, brain damage is very likely at 6 to 8 minutes; irreversible after 10 minutes."
- The National Fire Protection Association states in NFPA 1710 that AED (BLS) capabilities must arrive within a 4-minute response time to 90% of the incidents; and that ALS capabilities shall be deployed to arrive within an 8-minute response time to 90% of the incidents.

[4] American College of Emergency Physicians; "Principles of EMS Systems"; 2006

In essence *someone* with *at least* basic life-saving skills needs to be on the scene of the emergency *within 4 minutes;* and, someone with *advanced* life-saving skills; i.e. Henderson County EMS; within 8 minutes. And, according to NFPA, those response times are to be achieved in at least 90% of all calls dispatched.

The *concern* in this regard is that both the PreMIS EMS Total Response Time Toolkit analysis and the 5 years of data gathered and analyzed for this report, showed that the total average, as well as individual agency average response times of Bertie County EMS providers exceeded the total times recommended.

4.2.1 Caveat

It must be kept in mind that, since its inception, pre-hospital emergency care has centered on rapid response, treatment, and rapid transport to an emergency care facility. Public awareness of EMS has driven public demand for timely responses by EMS providers. And, while the above referenced time standards are frequently adopted via code or ordinance by jurisdictions having paid, full-time, 24/7 employees, they are not, as yet, required time standards for EMS system providers in North Carolina. The basis for these time standards is, however, based on considerable and extensive case studies and research conducted by medical professionals and cannot be taken lightly.

The reality of course, is that a given jurisdiction's financial capabilities may limit the number of ambulances, personnel, equipment, and resources available their individual EMS system.

Many systems are setting response interval time standards as a way of measuring EMS performance and quality. This is a complex undertaking that must include consideration of medical and patient care issues, financial, political, and social factors, and the public's perceived needs.

Subsequently, the discussion accompanying the recommendations in this Section regarding EMS response time addresses decisions that must be considered and actions that need be taken by both EMS providers and, more importantly, by the County and its elected officials.

4.3 Issue: Dispatch & Communications

Availability of Data. A County's primary public service answering point or PSAP, familiarly known as 911 or the communications center, must be able to record all emergency communications data and in turn retrieve it on a regular basis in a format that serves emergency services providers as well as the authority having jurisdiction of the communications center and for EMS; i.e. the Sheriff and the Board of County Commissioners.

This was not the case, however, as the computer aided dispatch (CAD) software in use had apparently not been formatted in a manner that would readily provide essential response time interval information critical to, in this case, EMS. Regular monthly, quarterly or even annual reports were not in evidence nor could they be retrieved as requested at the outset of this study.

In working directly with the software vendor, various fields of information were reconfigured to enable access to and batching of the essential response interval times identified in this report.

Telecommunicator Position(s). In a small County such as Bertie it is not unusual to have but a single dispatcher on duty to handle ongoing law enforcement queries, phone answering and reception duties, etc., as well, in many cases, the dispatch of emergency services; i.e. fire and EMS. However, considering that EMS call volume is the busiest between 7:00 am and 7:00 pm (see Figure 6, page 10), and that law

enforcement and fire services will generally reflect the same trend, additional "prime time" help is going to be necessary.

Law enforcement queries, e.g. warrant status, license checks, service of process, are certainly important and certainly deserve *prompt attention*. Medical emergencies, hazardous material alarms or a structure fire are emergencies that require *undivided attention*. During peak call hours it will be very important to maintain the flow of communications on both levels without interruption. Subsequently an additional position should be considered.

Security. During several visits to the Communications Center seeking information, it was noted that the room was not secure. Visitors would stop in to talk or pick up messages, others would come in to use an open desk, etc. ; all of which is fine were it a normal office setting.

911/Communications Centers need to be secured from casual access and "visitors" because:

- Of the attention that must be given the emergency calls received
- The sensitivity of the information often discussed
- Strict state requirements that the crime information network (DCI) monitor cannot be viewed or accessed by non-certified personnel.

4.4 Issue: Closest Unit Response

For the most part, EMS in Bertie County operates as a "static" system. Ambulances are staged at the base location of the provider, are dispatched and driven to the scene of an emergency by an EMT, who treats the victim and then ether returns with the ambulance to the base, or transports the victim to the hospital and then returns with the ambulance to the base.

Alternatively, some systems are "mobile" wherein ambulances are continuously moving to locations to which they are directed by dispatchers based upon anticipated call volume location(s) and/or to maintain coverage of a specific geographic area where otherwise assigned units are busy elsewhere.

In September, the Board of County Commissioners approved a new *"EMS Closest Unit Response Dispatch Policy"*. As stated in the document, the policy was proposed as an effort:

- To reduce response times to EMS incidents,
- To prevent erroneous and unsafe EMS responses from occurring when other available units are closer, and
- To keep as many EMS units possible available to respond to 911 emergencies.

The Closest Unit Response concept is an excellent one for a County the size of Bertie; and also, as one means of addressing the response time issue previously discussed.

However, as passed, the policy itself does not address practice accountability of those ambulances and personnel that "*may* volunteer their assistance" and respond to an emergency call. These "volunteers" are employees of (at the time of this study) five (5) private companies that provide *convalescent/non-emergency* transportation of patients between healthcare facilities within and outside the County.

Conceivably, these companies could have a dozen to as many as perhaps 20 vehicles on the roads of Bertie County during the day. Are they all likely to volunteer or only a few from time to time? In most

instances the employees of these companies must be certified by the state at least at the EMT-Basic level and their ambulances licensed and certified accordingly as well. However, who will actually be responding? What are their levels of certification? Is the ambulance equipped to provide the level of care that the four designated EMS providers do now? What experience have these individuals had in responding to and treating emergencies on the scene of an accident? Or, have they driven patients between facilities for several years while simply monitoring their condition versus treating them?

In a service such as EMS, which the County is statutorily required to provide and is ultimately responsible for, these questions need to be addressed in a definitive manner. The written EMS System Plan submitted on behalf of Bertie County to NCOEMS lists the referenced private, non-emergency transport companies by name. Allowing them to now to respond to emergency call will change their status. Subsequently, the County needs documented assurances that:

- The names of company individuals who wish to volunteer and expect to run emergency calls, provide proof of their state certification and that the level is consistent with existing County EMS providers.
- The vehicles that will used to voluntarily respond to emergency calls are OEMS certified at the Level of Care consistent with existing County EMS providers.
- Radios compatible with current EMS providers and the Sheriff's Office Communications Center's established frequencies are available within the designated volunteer company vehicles and/or on the persons designated to respond.

The principle concepts of the policy that these companies be permitted to offer volunteer assistance if they are available remains intact. The County is now assured, however, that the method of communications, the individuals responding, and the vehicles to be used in those responses are compatible with the *emergency* medical service standards it is charged with overseeing.

Dispatch & Communications. With regards to the dispatch of and communications with the "closest available" unit, whether a current EMS provider of a volunteer provider, the policy described manner of essentially "self-dispatch" by calling into the Communications Center and saying "we're closer" when, by radio or telephone contact this cannot be verified, the process becomes very cumbersome, very difficult to supervise, and offers no assurance that the response will be faster than it would have if the originally assigned unit were dispatched.

In jurisdictions where the closest unit response concept is most effective, the Telecommunicator receiving and/or dispatching the call will have real time visual access of EMS vehicle locations and status; i.e. in-service/unavailable, location-hospital, unit in-service/available, etc., and is able to dispatch accordingly and directly to the closest unit without unnecessary radio chatter or discussion between field units as to who is closer.

4.5 Issue: Availability of Personnel

The level of emergency medical services available in Bertie County today would not exist were it not for the volunteers who have given countless hours of their time over the years. There is little that could ever be said or done that would adequately thank or compensate so many for so much.

That having been said, the issue here ***is*** the volunteer. The truth of the matter is that neither individual communities nor incorporated municipalities, much less entire counties, can rely any longer solely on volunteers to provide necessary emergency services on a regular basis. And, at the same time, remain up to date with currently accepted yet ever changing medical procedures, reporting and administrative

requirements, technology, certification criteria, operational standards, and legal issues surrounding their service area of interest.

Today, the reasons for the rapidly decreasing involvement of citizen volunteers vary but seem to essentially consist of the following:

Employment Conditions
The circumstances of employment and the requirements placed on potential volunteers by employers today make it much more difficult to respond to emergencies when they arise. The competitive business environments of today offer very few employment opportunities that will permit an employee to "drop everything" in order to respond to an emergency that may take him or her out of the workplace for two or three hours or more. Further, in those instances where individuals may be able to respond, many find that they are working further and further away from the area or community in which they volunteer and would not be able to respond in a manner that is in any way timely.

Training Requirements
Certification as a basic level emergency medical technician (EMT-B) in the State of North Carolina requires a minimum 169 hours of training. Certification as an EMT-Intermediate requires an additional 256 hours; and as an EMT-Paramedic, an additional 1,096 hours.

When one considers the commitment a volunteer must make, one must also consider that these *basic* requirements ***do not*** include:

- In-service hours spent responding to calls
- Attendance at required monthly meetings
- Time spent completing paperwork and fundraising
- Time in continuing education classes required to maintain level of certification

Administrative Requirements
While most often thought of simply as paperwork, administrative requirements include much more. Personnel and training records, vehicle and equipment maintenance, bookkeeping (generally), purchasing, inventory maintenance, budgeting, fundraising, correspondence and grant writing, and the general organization of related agency functions are but a few of the activities involved.

Of even greater concern in volunteer departments, is the limited amount of time available to conduct planning activities. Regardless of whether it is considered an administrative (planning) task or a training requirement, it is a vital and serious responsibility. The conduct and continuous updating of community, area, and specific incident assessments are very important. While these activities are considered SOP by career/paid departments, particularly those in "built-upon" areas, the volunteer assumes a greater risk when they must initiate their emergency response without knowing what they can expect.

Societal Change
Societal change, as it has impacted volunteerism in the emergency service environment, can be summarized by the phrases;

"Pace of Life", and "Evolving Standards"

The pace at which change is occurring in our everyday lives, impacted particularly by technology, population migration, and dual working households leaves much less time to devote "free" to the community; particularly if, in order to provide that service you must also complete "several" to "several hundred" hours of training first . . . on your own time.

Citizen expectations, ever evolving legal requirements surrounding performance issues, and continuously changing standards mean that volunteering in any emergency service field today has become at minimum, a very demanding hobby; and very likely, one that is destined to become even more complex and demanding in the years to come.

4.6 Issue: Collections Revenue

As stated in Section 3 each of the four EMS provider agencies utilize a private billing company to process, collect and return to them payments received. Each agency is able to use the payments they receive towards employment of personnel and/or operations costs.

Figure 9, from Section 3 and included in part here identifies the payments received by each squad during the 2009-2010 fiscal year.

Squad	Total Transports	Gross Charges	Payments Received	Percent Collected
Askewville	**131**	$ 71,663	**$ 32,550**	45.4%
Bertie	**1,301**	$ 594,397	**$ 362,426**	61.0%
Colerain	**266**	$ 148,311	**$ 63,270**	42.7%
Lewiston-Woodville	**552**	$ 305,101	**$ 127,981**	41.9%
	2,250	$ 1,119,472	**$ 586,227**	47.8%

What becomes immediately apparent is that the ratio of collections received to charges billed for Askewville, Colerain, and Lewiston-Woodville are *15-20 percent lower* than that for Bertie. This is a significant difference. Also significant is that Askewville, Colerain, and Lewiston-Woodville use the same billing company, and Bertie uses another.

Subsequently, had the collection percentages of the other three providers been consistent with that of Bertie, as much as an additional $105,000 in revenue could have been realized by Askewville, Colerain, and Lewiston-Woodville during the 2009-2010 fiscal year.

The billing company used by Askewville, Colerain, and Lewiston-Woodville should be made aware of these differences and asked to explain their methodology as well as what options may exist that could increase the rate of collections.

4.7 Issue: Post Response Facilities

The previous concerns expressed (4.1) regarding the County's EMS "system" are significant and require urgent attention; nonetheless for reporting purposes the State considers Bertie County to be an EMS "system". During 2009 the State required that no later than December 31, 2009 all North Carolina EMS Systems have in place and implemented a Triage and Destination Plan for Trauma, Burns, Pediatrics, STEMI (heart attack), and Stroke. [5]

The goal of each of the Triage and Destination Plans, which represent the most serious of circumstances/injury confronted by EMS providers, is to optimize the care of each patient by matching their symptom/injury timing and treatment needs to the capability of the health care facilities available. In Bertie County's case, these health care facilities-based on the State's Trauma and Destination Plan protocols-would include Pitt Memorial Hospital in Greenville, which is the only certified Trauma Center in the region that could provide the advanced treatment needed in these referenced incidents/injuries, and the Community Hospital located in Windsor, which has a 24/7 emergency room but no advanced treatment capabilities of the type noted in the required Plans.

From most locations in Bertie County, according to the current EMS providers, with lights and sirens (warranted in each of these cases), travel time to Pitt Memorial Hospital would be 45-60 minutes.

[5] NCOEMS

Why this drive time becomes significant is that three of the four referenced Triage and Destination Plans ***require*** that the subject patient be transported to a hospital with the advanced treatment capabilities necessary if that hospital is *"within 50 minutes EMS transport time".*

The basis for this being a serious issue of concern includes:

- First, should the triage protocols determine that the patient's condition is serious enough to warrant transport to Pitt Memorial Hospital, and the transport objective can be achieved, the Bertie County EMS provider responding will likely experience a turn-around time, until back in service in Bertie County, of 2 ½ -3 hours. Considerable when it is realized that EMS resources are already spread very thin.

- Second, the patient who cannot be transported to Pitt Memorial Hospital within the time objective allotted, or whose condition the triage protocols indicate may not need to be taken to Pitt Memorial Hospital (yet whose condition is still serious) will need the best possible care, as quickly as possible, both at the scene as well as enroute to the County Hospital. This further substantiates previous concerns that County EMS providers be certified at no less than EMT-Intermediate (ALS) and that all necessary steps are taken to reduce response times, particularly chute times.

- Third, to date Bertie County has *neither developed nor implemented these Trauma and Destination Plans.*

Note: To assist with the development of these plans, templates were created for use by each EMS system to reflect the time parameters and hospital capabilities within their service area. Copies of these templates are included at Appendix C.

SECTION 5. RECOMMENDATIONS

This Section identifies a total of **30** recommendations regarding Emergency Medical Services in Bertie County. It is intended that these be looked upon for the most part as ***system*** requirements. The County's responsibility is clear with regards to EMS. As well as it is that the level of service it decides to provide be available within the County 24 hours per day.

In some instances, recommendations are duplicated. This is intentional. It occurs in order to either emphasize the importance of a specific recommendation or to illustrate the application or benefits of implementing the recommendation to address more than a single issue.

Issue: EMS System Organization
Recommendation:

5.1 Hire a full-time EMS Coordinator

Candidate should have a minimum North Carolina certification of EMT-Paramedic and five (5) years field experience with an ALS system; preferably with crew/shift supervisory experience as well as FTO or agency training officer experience as well.

The most urgent responsibilities of this individual, at least initially should include and emphasize:

- System organization
- Agency coordination
- Standard operating guidelines
- Data & reporting
- Quality review
- Agency, personnel, vehicle inspections
- PreMIS/CIS performance toolkits
- Monitoring non-emergency transport vendors
- Planning!

Issue: Response Time
Recommendations:

5.2 The County must assure at least EMS County-wide, daytime coverage of no less than 8 hours/day, Monday through Friday with paid personnel; certification to be at least at EMT-Basic level now with no less than EMT-Intermediate within two (2) years.

5.3 Current EMS provider agency budgets, whose income from collections will not allow them to hire paid personnel, should have budgets supplemented as necessary by the County to assure minimum daytime coverage.

5.4 Provide an additional ambulance in Windsor (Bertie Rescue) to adequately address area call volume; including personnel.

5.5 County to fund adequate certified personnel and a Quick Response Vehicle (QRV) for deployment in the County @ minimum 12 hours/day-7 days/week to support and supplement volunteers.

As discussed in Section 4, a large body of medical research from numerous prominent medical organizations suggests and recommends that Advanced Life Support level EMS responders arrive on the scene of a serious medical emergency within 8 minutes; and Basic Life Support level EMS responders within 4 minutes.

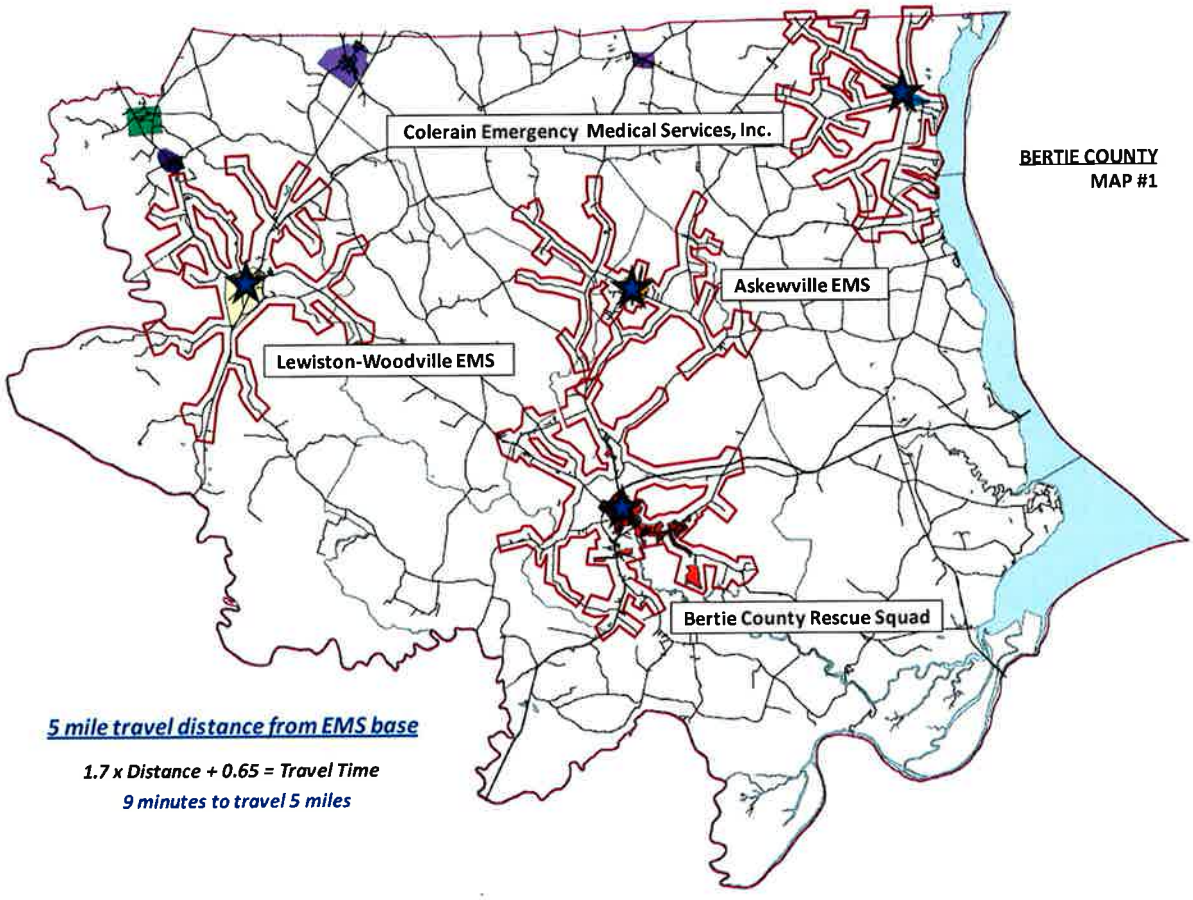
Further that, the responding EMS agency should achieve an interval chute time response of 60-90 seconds from alarm notification.

Granted, the County is not required to comply with these recommended standards, although paid agencies will be and frequently are required to.

However, the County's EMS providers total average response time for the years 2006-2009 was between 11 and 12 minutes. Which indicates that conceivably half of all annual calls dispatched +/-1600 calls/year) registered total response times of greater than 12 minutes, perhaps considerably greater.

Principal concerns, as discussed, include the size of the County itself. The map below (Bertie County Map #1) outlines in red the 5-mile travel distance along available roadways from each EMS providers base location.. Based on the distance-travel formula, it will take an average of nine (9) minutes to ravel

five (5) miles with lights and siren; and this does not include chute time. This leaves a considerable area of the County uncovered (see Bertie County Map #2) were compliance with the time standards required.



BERTIE COUNTY
MAP #1

Thus, the recommendation that a non-transport capable quick response vehicle (QRV) be deployed; with personnel (one EMT versus standard ambulance two) be funded to serve a mobile, continuous moving rapid response unit to support volunteer and paid personnel....

Windsor and the surrounding area is serviced by Bertie Rescue Squad and has consistently seen as many calls dispatched per year as the other three provider agencies combined. And, while the chute time average for a 24/7 paid agency, as Bertie Rescue is, should easily fall within the 60-90 second range recommended, it has not. Principally because Bertie Rescue currently is only able to staff one (1) ambulance; and, calls frequently overlap. When a call comes in while the ambulance is still in service (at the scene, on the way to Hospital, etc.) even with the mutual aid offered by the other providers, the "time enroute" call time that gets recorded is going to be longer than were the ambulance and crew stationed at the base ready to go when the call came in. An additional two-person, Intermediate/ALS ambulance is needed now. Initially "prime time" coverage (7:00 am-7:00 pm) should be provided 7days/week.

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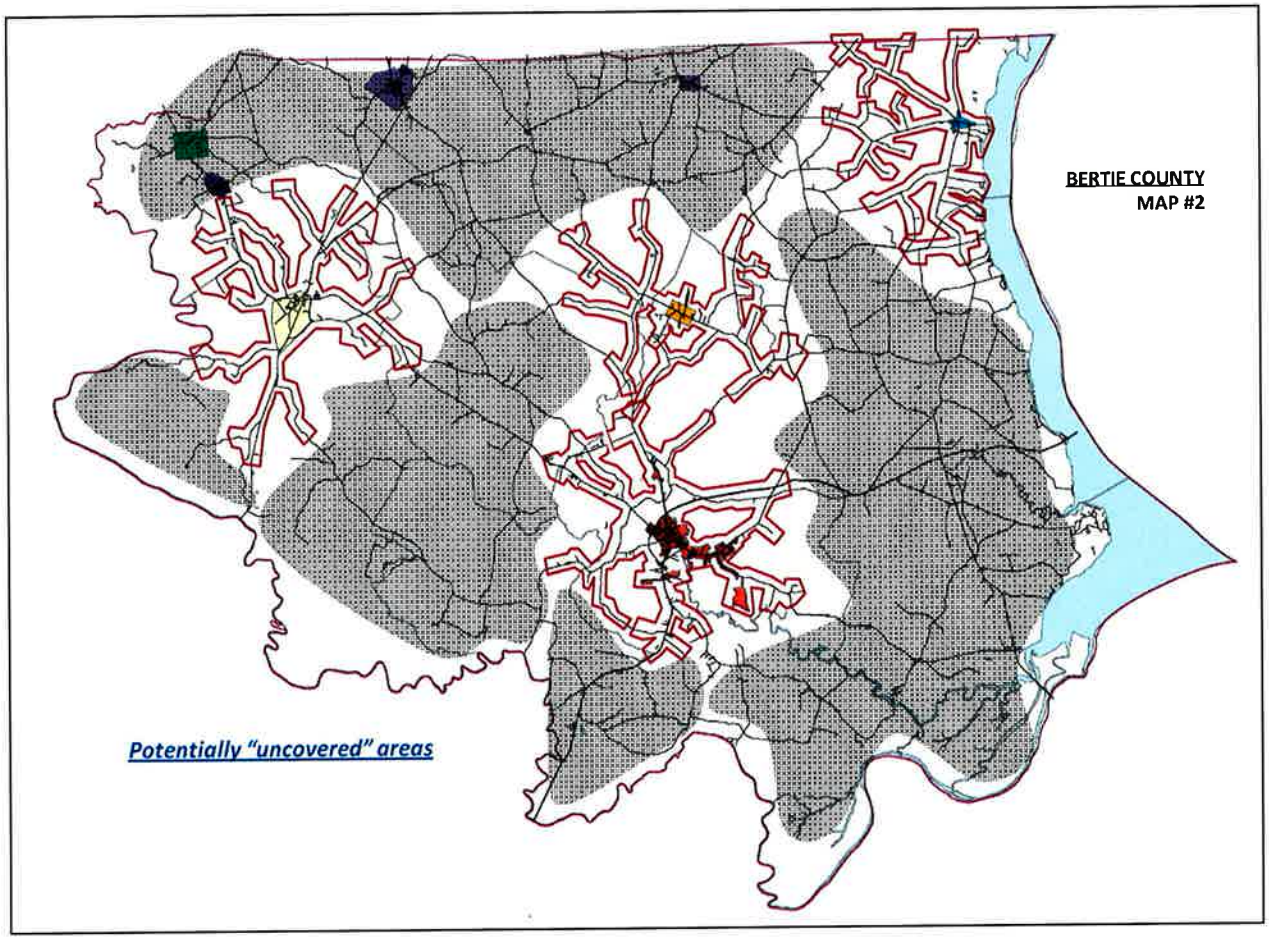

Issue: Dispatch & Communications

Recommendations:

5.6 Purchase GPS/AVL system software and vehicle hardware.

Global positioning and automatic vehicle locater systems are being used by more and more EMS and emergency service providers and have become very affordable. Being able to observe the location and status of EMS ambulances throughout the County, while simultaneously being able to communicate with them will offer several benefits, among them:

- Provide immediate verification of "closest unit response" communications
- Improve response times to incidents dispatched
- Enhance the real-time communications capabilities of the Communications Center and the EMS Unit responding
- Enable effective remote staging and deployment of QRV when "gaps" in coverage are observed

5.7 Require successful completion of Telecommunicator training program; i.e. NAED or equivalent.

The 911/Communications Center is currently under the jurisdiction of the County Sheriff. Likewise over any defined period of time the largest percentage of calls by category will be "law enforcement". It is understandable then that the principal orientation and classroom training that a new dispatcher receives is going to be via the North Carolina Sheriff's Standards program.

The complexity of 911 communications today requires that perspective telecommunicators who will be required to answer, question, respond, and dispatch a variety of emergency services, receive training beyond that reserved for law enforcement alone. One very important example is "Emergency Medical Dispatch" discussed in 5.9 below. Numerous North Carolina Community College Continuing Education public safety programs include curricula such as that developed and sponsored by the National Association of Emergency Dispatch (NASD) as well as others.

5.8 Fund additional Telecommunicator @ minimum 16/7

Handling routine law enforcement calls can be handled by a single dispatcher/Telecommunicator. However, when the person answering the routine call must respond to an emergency call; albeit law enforcement, fire, rescue, or EMS; things can get hectic, particularly if multiple services and/or multiple vehicles are to be dispatched.

A second Telecommunicator Is need now, initially 16 hours/day-7 days/week to enable efficient handling of multiple and overlapping call types. This will be particularly important if the County, per 5.9 below, chooses to obtain EMD certification for its Telecommunicators.

5.9 Provide training/certification as EMD's

"Emergency Medical Dispatch(er)" (EMD) is a certification that can be obtained that enables Telecommunicators that answer 911 medical emergency calls to, while simultaneously dispatching an ambulance, can offer the caller instructions in first aid; e.g. CPR, compression of serious bleeding, making the victim comfortable; while also obtaining information from the caller as to circumstances and medical indications that then can be communicated to the EMS responders on their way.

These procedures require medical protocols that are approved by the County's medical director and must be reviewed per State requirements for quality assurance on a regular basis. In a County the size of Bertie with EMS response times as they are, these capabilities could prove valuable in at least initiating patient care.

5.10 Evaluate CAD system software

Extracting, useable, easily understandable information from the Communication Center's CAD system needs to be much easier than was experienced and include numerous additional data.

The minimum EMS performance data needed, ***by provider agency***, should include *at least:*

- A listing of ***all*** calls dispatched
- The time the call came into the Communications Center
- The time it was "dispatched" to the EMS provider
- The time the EMS provider acknowledged the call and reported "enroute"
- The time the EMS vehicle arrived on the scene
- The time the EMS vehicle left the scene
- The time the EMS vehicle reported "back in service"
- The address of the incident reported
- The type of call reported/help requested

5.11 Provide renovations to secure area.
911/Communications Centers need to be secured from casual access and "visitors" because:

- Of the attention that must be given the emergency calls received
- The sensitivity of the information often discussed
- Strict state requirements that the crime information network (DCI) monitor cannot be viewed or accessed by non-certified personnel.

Issue: Closest Unit Response
Recommendations:

The recommendations that follow summarize and correspond with the discussion of this issue (4.4), beginning on page __.

5.12 Non-emergency transport agencies to identify vehicle(s) to be used.

5.13 Document and inspect vehicle for OEMS compliance.

5.14 Provide/require radios in identified vehicles.

5.14 Provide/require GPS/AVL vehicle hardware.

5.16 Identify performance criteria.

5.17 Distribute operations & medical protocols.

5.18 Present *formal* contract/agreement for signature.

Issue: Availability of Personnel
Recommendation:

5.19 If volunteers are no longer available to respond to emergency EMS calls received, the County must provide additional funding (assumedly) to existing County EMS agencies, to the extent necessary to assure continued response at a consistent level of care.

Issue: Collections Revenue
Recommendations:

5.20 Assess billing procedures of existing vendors.
As discussed in Section 4, the billing company used by Askewville, Colerain, and Lewiston-Woodville should be made aware of these differences and asked to explain their methodology as well as what options may exist that could increase the rate of collections. Should this response not be acceptable to the County and the current EMS agency providers; then:

5.21 Develop an RFP & and advertise publically for a billing services vendor.

5.22 Select & contract with a single vendor for all four EMS agencies.

Issue: Post Response Facilities
Recommendations:

Extensive discussion of this issue is provided at 4.7 beginning on page 19. Ultimately, Bertie County's EMS providers are required to comply with the Triage and Destination Plan protocols identified. And, as stated, the basis for this being a serious issue of concern includes:

- First, should the triage protocols determine that the patient's condition is serious enough to warrant transport to Pitt Memorial Hospital, and the transport objective can be achieved, the Bertie County EMS provider responding will likely experience a turn-around time, until back in service in Bertie County, of 2 ½ -3 hours. Considerable when it is realized that EMS resources are already spread very thin.

- Second, the patient who cannot be transported to Pitt Memorial Hospital within the time objective allotted, or whose condition the triage protocols indicate may not need to be taken to Pitt Memorial Hospital (yet whose condition is still serious) will need the best possible care, as quickly as possible, both at the scene as well as enroute to the County Hospital. This further substantiates previous concerns that County EMS providers be certified at no less than EMT-Intermediate (ALS) and that all necessary steps are taken to reduce response times, particularly chute times.

- Third, to date Bertie County has *neither developed nor implemented these Trauma and Destination Plans.*

Therefore, the following recommendations, several of which duplicate previous recommendations, intentionally, are provided as a means to address the aforementioned concerns.

5.23 Fund full-time County EMS Coordinator Position @ EMT-P level.

5.24 Implement recommendations 5.2-5.5 with regards to "Response Time".

5.25 Establish the objective that all EMS squads be certified @ EMT-I level within 2 years.

5.26 Establish the objective that all Squads be certified @ EMT-P level within 5 years.

5.27 Identify response time performance criteria and include in agency contract agreements; i.e. chute time, vehicle availability, level of certification, procedures for addressing, completing and implementing Triage and Destination plans.

Issue: County initiatives that are needed
Recommendations:

5.28 Establish & formally document EMS response time standards.
The existing County ordinance regulating emergency medical services (see Appendix D) states in Section III F that: *"The average response time cannot be over 15 minutes."*

While the State (OEMS) has not yet adopted response time standards there is considerable discussion with regards to the response time rates that are established at the local level be for 90 percent of all calls dispatched versus simply the average for all calls.

In fact, NFPA and other national (and international) medical and life safety organizations including those cited in this report have stated that "average" is no longer an acceptable response time measurement.[6]

The considerable consensus among those medical professionals that have studied survival rates of those critically ill or injured is consistent; that the highest level of survival will occur when BLS personnel arrive and initiate treatment within 4 minutes and ALS personnel arrive and begin advanced treatment within 8 minutes.

Is it reasonable to expect Bertie County's EMS providers to go from an expectation of an average response time of 15 minutes to a response time of 8 minutes or less to 90 percent of all calls dispatched? No; at least not anytime soon.

Is it reasonable to expect the County to look seriously at the recommendations contained in this report and seek to improve the level of service its citizens rely upon and improving their chances the of surviving serious incident or injury should it befall them?. Certainly it is, and the sooner the better.

5.29 Identify & formally document EMS objectives with regards to the level of care to be provided.
This is intended as applicable to individual personnel, regardless of whether paid or volunteer, and to the certification of the EMS provider agency itself.

5.30 Upgrade GIS software to enable EMS call location mapping.
This is available GIS software that would enable the transfer of all addresses to which EMS was dispatched for any defined period, from the Communications Center's CAD data base to a spreadsheet format readable within GIS; i.e. a GIS scaled map of Bertie County. Once the addresses are plotted trends and high volume call areas can be identified and deployments planned or modified accordingly.

The resulting data would be particularly beneficial in deploying the previously recommended QRV.

SECTION 6. PROBABLE COSTS

The probable costs discussed in this section refer to the expenditures necessary to address the previous recommendations.

- Personnel costs for EMT-Basic and EMT-Intermediate responders are based on the prevailing estimated average rates currently paid to agency EMS employees.
- The estimated cost for the EMS coordinator position was based on a survey of the salaries paid to similar positions in the north eastern region of the State.
- Equipment and vehicle costs were based on average prices provided by several equipment and vehicle vendors and, in the case of GPS monitoring, software and internet fees.

6.1 Staffing Requirements & Current Equivalent Costs

While Bertie County has the responsibility for providing EMS services, it has not had the burden thus far of the actual cost to do so. A considerable portion of that cost has been provided by the many individuals from each of the four agencies who have volunteered their time to organize their respective squads, get themselves and other volunteers certified, and run calls when they were dispatched, and manage their respective operations.

[6] NFPA 1710

Figure 12 identifies the estimated probable costs of personnel to operate one 24/7 ambulance each out of Askewville, Colerain, and Lewiston Woodville; and two ambulances 24/7 out of Windsor (Bertie Rescue). In this instance, the County's net savings amounts to $1,490,920 or 91 percent of the total annual cost for personnel alone.

Figure 12
Estimated County Costs if EMS Were a Paid System

Agency	Certification Level	Basis of Costs					
		# Pers. 24/7	Rate/Hour	Base Salary	Benif. & Costs	Salary/EMT	Total/Squad
Askewville EMS	EMT-Basic	10	$ 10.75	$ 22,360.00	30%	$ 29,068.00	$ 290,680.00
Bertie County Rescue Squad	EMT-Intermediate	20	$ 13.00	$ 27,040.00	30%	$ 35,152.00	$ 703,040.00
Colerain Emergency Medical Services, Inc.	EMT-Intermediate	10	$ 13.00	$ 27,040.00	30%	$ 35,152.00	$ 351,520.00
Lewiston-Woodville EMS	EMT-Basic	10	$ 10.75	$ 22,360.00	30%	$ 29,068.00	$ 290,680.00
Equivilent EMS System Cost-Personnel Only							$ 1,635,920.00
						Current County Contribution:	$ (145,000.00)
						Net Personnel Costs/Savings:	$ 1,490,920.00

6.2 Cost Options

Relative the recommendations 5.2-5.5 above, Figure 13 provides cost options for staffing a 24/7 ALS ambulance and a 12/ 7 QRV utilizing, alternately, full-time versus part-time personnel.

Figure 13
EMS Vehicle Staffing Cost Options

Required Personnel	Full-Time Pers./Base	ALS-FTE Salary +	Total Personnel
2-Pers. ALS Ambulance FT (24/7)	10	$ 35,152	$ 351,520
2-Pers. ALS Ambulance PT (24/7)	20	$ 15,548	$ 310,960
1-Pers. ALS QRV FT (12/7)	2.5	$ 35,152	$ 87,880
1-Pers. ALS QRV PT (12/7)	5	$ 15,548	$ 77,740

Note that the cost savings identified when employing part-time versus full-time personnel comes from not having to pay part-time personnel the same level of matching/benefit costs; estimated at 15 percent.

Figure 14 identifies the probable cost of staffing five (5) ALS ambulances with full-time personnel at the minimum 8-hours/5-days per week.

Of course the same principle would apply as above were the full-time positions filled with part-time instead. In this case, 30 part-time employees, who would receive approximately 15 percent less in matching/benefits would cost approximately $405,600/year; a savings of $121,680.

Figure 14
EMS Vehicle Staffing Costs@ 8/5

Squad	Number FTE's	Salary + per FT-EMT-I	Annual Pers. Cost
Askewville	**3**	$ 35,152	**$105,456**
Bertie	**6**	$ 35,152	**$210,912**
Colerain	**3**	$ 35,152	**$105,456**
Lewiston-Woodville	**3**	$ 35,152	**$105,456**
	15		**$527,280**

6.3 Summary of Probable Costs by Category

The critical recommendations that carry with them moderate to significant costs are identified in Figures 15 and 16 below; (versus critical recommendations that carry minimum to no cost but call for action by the County).

Figure 15
Critical Recommendations-Personnel Costs

Personnel	Shift	FTE's	Total
Five (5) Ambulances @ 2 EMT's each	8/5	15	$ 527,280
One (1) QRV-EMT	12/7	2.5	$ 87,880
One (1) EMS Coordinator @ EMT-P		1	$ 54,600
			$ 669,760

Figure 16
Critical Recommendations-Vehicle & Equipment Costs

Vehicles/Equipment	Unit Cost	Qty.	Total
Ambulance	$ 165,000	1	$ 165,000
QRV	$ 60,000	1	$ 60,000
GPS/AVL Equipment	$ 300	6	$ 1,800
			$ 226,800

In addition to vehicles, major equipment and personnel, all four EMS providers have numerous types of operations and materials costs for which they are responsible as well. These will include computer, print, and duplication equipment, medicine, uniforms, training, fuel, maintenance, insurance, vehicle inspections, first aid supplies, office supplies, janitorial supplies and equipment, facility costs and utilities, and training materials.

Review of recent year agency budgets suggested that annual costs will vary, however, generally average between $25-$40,000/year. For purposes here, the annual average annual operating costs for the four agencies combined (2010 dollars) is: **$ 130,000***

*** Does NOT include major capital or vehicle expenditures**

In the presentation to the Board of Commissioners above numbers were summarized as follows:

Personnel	$669,760
Vehicles/Equipment	$226,800
Operations	$130,000
Total Current Year Cost:	$1,026,560

However, assuming the total annual revenue identified in Figure 9, page 11 of $731,227 is achieved and/or provided this year, the County's net *additional* current year costs would be reduced by that amount; $1,026,560 - $731,227 or **$295,333**. And, should the rate of collections improve (Recommendation 5.20), the total could be reduced further yet.

6.4 The Dilemma of Distribution

The initial dilemma the County faces now is how should these additional funds be distributed? Consider the following:

Askewville-currently a BLS level provider, cannot respond now to daytime calls due to the lack of available volunteers. However, it does respond evenings and weekends with volunteers. And, considering its revenue, will not be able to afford to hire even day time people as the other three agencies are, anytime soon without help.

Bertie-an ALS provider, by virtue of its location and subsequent annual call volume has generated ample revenue to have paid personnel on duty 24/7. While they do have a second ambulance available to deploy, the question remains as to whether they will be able to fund the personnel required to staff it.

Colerain-is now certified as an ALS provider, with paid personnel during the day Monday-Friday only, and with one paid EMT-Intermediate position during the evenings. Volunteers provide coverage on weekends and to fill the additional required position in the ambulance evenings. Based on fiscal year 2009-2010 total revenue, the question remains to be seen as to whether or not it can continue to fund the positions in place in the year(s) ahead.

Lewiston-Woodville-currently a BLS provider, it has also generated revenue that has enabled it to hire daytime personnel during the week. It too responds evenings and weekends with volunteers.

As will also be the case with Askewville, the costs, if any, necessary to take Lewiston-Woodville from an EMT-Basic (BLS) level of certification to EMT-Intermediate remain to be determined.

The County's responsibility is to provide emergency medical services 24 hours per day. As of this past fiscal year the County contributed less than 10 percent of the total equivalent cost of EMS (Figure 9).

The manner in which the funds provided by the County were distributed by the squads was not explained. What the County and each individual provider agency must be willing to accept, is that once the County establishes the specific performance, response time, and level of care they wish to provide to the citizens of the County, "equal" with regards to funding priorities *will not* apply, the EMS system's "needs" will.

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SECTION 7. REPORT SUMMARY

The County's responsibilities are clear with regards to EMS:

.2601 EMS Requirements; (a) County Government shall establish EMS Systems. Each EMS System shall have: A defined geographic service area or areas; . . . the highest level of care offered within any EMS provider service area must be available to (all) the citizens within the service area 24 hours per day.

In its current condition, the EMS "system" in Bertie County is hurting; in that it currently lacks, overall system coordination, consistency in the level of care it provides, and the financial resources devoted to it, to enable the improvements that are needed.

The major issues have been identified. Numerous recommendations have been offered that, if implemented in a timely manner can, within two (2) years, provide an emergency medical services ***system*** that is no longer "hurting" but rather, a model for the region and a program the County can be proud of.

Yes, the effort ***will*** require that more money be spent on EMS. However, considering the probable costs of personnel, equipment, vehicles and operations identified, the County government's share will be but *a fraction* of the total and far less than many of its County neighbors in the region.

The big advantage Bertie County has is its four (4) independent EMS provider agencies that collectively have built the system, accumulated inventory and still contribute countless hours of service voluntarily to the cause.

7.1 Priorities

The County's first order of business should be to hire a full-time, EMS Coordinator and put him/her to work prioritizing the recommendations contained in this report; to serve as the County's day-to-day advisor in all matters EMS; as well as serve as the County's day-to-day liaison with the existing EMS provider agencies.

Following that, attention to the response time recommendations, daytime/weekday paid staffing, purchasing a QRV and providing appropriate staffing, an operational GPS/AVL system for all responding vehicles and monitoring capabilities for the Communications Center, development and implementation of Triage and Destination Plan protocols, improving collection rates for fees billed and, of course, funding.

SECTION 8. APPENDIX

A. North Carolina College of Emergency Physicians (NCCEP) Standards for EMS Equipment

B. 10 NCAC 13P .0201 EMS System Requirements

C. NCOEMS Triage and Destination Plan Templates

D. Ordinance Regulating Emergency Medical Services

APPENDIX A

North Carolina College of Emergency Physicians (NCCEP) Standards for EMS Equipment

NCCEP Standards for EMS Equipment

Standards for EMS Equipment

B. The baseline equipment required in all systems (including Specialty Care Transport Programs) with EMS personnel credentialed at the specified level.

S. The equipment required in all Specialty Care Transport Programs (in addition to the baseline equipment required in all EMS Systems). All Air Medical Specialty Care Transport Programs and dedicated Neonatal Transport Programs are required to carry and maintain equipment and medications specific to each mission, as defined by medical control and OEMS approved protocols.

O. The equipment, which is optional for any system with EMS personnel, credentialed at the specified level.

EMS Equipment	Conv.	EMT	EMT-I	EMT-P
Ventilation and Airway Equipment				
Bag Valve Mask (adult and child size bag with 4 sizes of masks)	B	B	B	B
Bulb Syringe	O	B	B	B
Blind Insertion Airway Device (BIAD) with 2 sizes (one adult and one pediatric)		B[5]	B[5]	B[5]
Cricothyroidotomy (Surgical) equipment				B[5]
Endotracheal tubes (ETT)-cuffed in all 10 sizes from 2.5 through 7.0			B	B
Capnometry (Color) ETCO2 detectors		B[4]	B[4]	B[4]
Laryngoscope blades in 4 straight sizes 0-4 and 3 curves sizes 2-4			B	B
Laryngoscope handle with extra batteries, bulbs			B	B
McGill forceps or equivalent with 2 sizes (one adult and one pediatric)			B	B
Meconium Aspirator adaptor			B	B
Nasal cannula for Oxygen Delivery with 2 sizes (one adult and one pediatric)	B	B	B	B
Nasopharyngeal airways in sizes 14, 18, 20, 22, 24, 26, 28, 30, and 32	O	B	B	B
Nebulizer			B	B
Needle at least 3.25 in. and large bore for Chest Decompression				B
Oropharyngeal airways in 6 sizes 0-5	B	B	B	B
Oxygen Mask (Non-Rebreathing) in 2 sizes (one adult and one pediatric)	B	B	B	B
Oxygen Tubing	B	B	B	B
Portable Oxygen with variable flow regulator (Portable and Fixed)	B	B	B	B
Rigid pharyngeal suction device	B	B	B	B
Stylettes for every required Endotracheal tube size			B	B
Suction apparatus (Portable and Fixed)	B	B	B	B
Suction catheters (one between 6 and 10F size, one between 12 and 16F size)	O	B	B	B
Syringe in 10ml size (non-luerlock)		B	B	B
Ventilator (Pressure or Volume based with PEEP)*				S, O
Wide-bore suction tubing	O	B	B	B
Monitoring and Defibrillation				
Automatic External Defibrillator with 2 pad sizes (one adult and one pediatric)	O	B[1]	B[1]	O
Capnography (ETCO2) monitoring, continuous		B[7]	B[7]	B[7]

Standards for EMS Equipment

EMS Equipment	Conv.	EMT	EMT-I	EMT-P
Glucose Measuring Device		B[2]	B	B
Pacemaker- External				B
Pacemaker-Transvenous				S
Monitor with 12 lead EKG		B[6]	B[6]	B[6]
Monitor/defibrillator with electrodes and 2 sizes of pads or paddles				B
Pulse oximeter with 2 probe sizes (one adult and one pediatric)	O	B[2]	B	B
Immobilization Devices				
Cervical spine immobilization device in at least 3 sizes (small, medium, and large)	O	B	B	B, S[1]
CPR Board	B			
Femur traction device in at least 2 sizes (one adult and one pediatric)	O	B	B	B, S[1]
Head immobilization device	O	B	B	B, S[1]
Backboards, short and long (Radiolucent preferred) with appropriate restraints (minimum of 3 straps)	O	B[8]	B[8]	B[8], S[1]
Spinal immobilization and extrication device	O	B	B	B, S[1]
Upper and Lower extremity immobilization devices	O	B	B	B, S[1]
Bandages				
Burn sheet	O	B	B	B
Cold packs	O	B	B	B
Dressings, bandages, gauze rolls, adhesive tape (must have 2 triangular bandages with 2 safety pins each)	B	B	B	B
Heavy scissors for clothing removal	B	B	B	B
Occlusive dressing	O	B	B	B
Sterile saline solution for irrigation (may use IV solution)	O	B	B	B
Medication Administration				
Alcohol wipes	O	B	B	B
Intraosseous needles in at least 2 sizes (one adult and one pediatric)				B
IV administration sets			B	B
IV arm boards			B	B
IV catheters in at least 4 sizes (14, 18, 20, and 24 Gauge)			B	B
IV pole/hook	O	O	B[8]	B[8]
Needles in various sizes (at least 1 must be 1.5 in. for IM injections)			B	B
Syringes in at least 3 sizes (1ml, 5ml, and 10ml)			B	B
Tourniquet		O	B	B
Obstetrical				
Thermal blanket capable of also covering the head	B	B	B	B
Sterile OB kit, scissors, bulb suction, cord clamps	O	B	B	B
Miscellaneous				
Bedpan and urinal	B	B[8]	B[8]	B[8]
Broselow Tape or equivalent	B	B	B	B
Cellular phone	O	B	B	B
Emesis basins	B	B	B	B
Lubricating jelly	O	B	B	B
Gastric tubes in at least 6 sizes (6, 8, 10, 12, 14, and 16F)				S, O
Sheets, pillows, pillow cases, and towels	B	B[8]	B[8]	B[8]
Sphygmomanometer (cuffs and device) with at least 3 sizes (pediatric, normal adult, and large adult)	B	B	B	B
Stair chair/folding stretcher	O	B[8]	B[8]	B[8], S[1]
Stethoscope	B	B	B	B
Thermometer with low temperature capability	O	B	B	B

Standards for EMS Equipment

EMS Equipment	Conv.	EMT	EMT-I	EMT-P
Triage tags	O	B	B	B, S[1]
Wheeled cot with security for patient transport	B	B[8]	B[8]	B[8], S[1]
Injury Prevention Equipment				
Appropriate Restraints for Crew and non-patient passengers	B	B	B	B
Fire Extinguisher	B	B	B	B
Flashlight with extra batteries	B	B	B	B
Heat and cooling source for ambulance compartment	B[8]	B[8]	B[8]	B[8]
Thermal blanket or other heat conserving device	B	B	B	B
Infection Control				
Disinfectant hand wash	B	B	B	B
Disinfectant solution for cleaning equipment	B	B	B	B
Disposable biohazard trash bags	B	B	B	B
Eye protection	O	B	B	B
Gloves, non-sterile	B	B	B	B
N-95 or HEPA Masks	B	B	B	B
Jumpsuits/gown	O	B	B	B
Latex Allergy Kit (If not using latex free equipment)****	O	B	B	B
Latex Free Gloves	B	B	B	B
Masks	B	B	B	B
Sharps containers (Fixed and Portable)	O	B	B	B
Shoe covers	O	B	B	B

Conv. = Convalescent Transport Program, EMT = Emergency Medical Technician, EMT-I = EMT-Intermediate, EMT-P = EMT-Paramedic

B[1] = Automated External Defibrillators (AED) currently in service may or may not be capable of using pediatric sized pads. As AEDs that are not capable of accepting pediatric pads are retired and replaced, pediatric capable devices should be implemented.

B[2] = Glucose Measuring Devices and Pulse Oximetry must be available to monitor any patient cared for within an EMT-Basic System. This should be monitored by the EMS System Peer Review Process if not required by the EMS System.

B[3] = All EMT-Paramedic Systems must have an airway backup. This can be a any Blind Insertion Airway Device such as the Combitube, King LT, Laryngeal Mask Airway (LMA). It is highly recommended that this airway backup have pediatric sizes. Systems performing Drug Assisted Intubation must also have the ability to perform Surgical Cricothyrotomy. Commercial Cricothyrotomy or Tracheostomy kits that create an airway comparable to a surgical Cricothyrotomy are acceptable.

B[4] = All EMT-Basic, EMT-Intermediate and Paramedic Systems must at a minimum use Capnometry (Color) to confirm the placement of every BIAD or intubation. EMT-Paramedic systems performing Drug Assisted Intubation must use Capnography (numeric or waveform) to confirm tube placement. Waveform Capnography is recommended for this requirement.

B[5] = All EMS System at all levels must have a Blind Insertion Airway Device of some type. This could be a Combitube, King LT, or LMA. BIAD devices with pediatric sizes are highly recommended.

B[6] = It is not required but highly recommended that all EMS Systems at all levels work to have 12 lead ECG capability at the scene of every emergent event.

B[7]= It is not required but highly recommended that all EMS Systems at all levels work to have waveform Capnography capability at the scene of every emergent event.

B[8] = Equipment which is considered optional (not mandatory) to non-transport EMS vehicles.

S[1] = Specialty Care Transport Programs are not required to maintain this equipment on every response, but the equipment must be available on a case by case basis dependent on the patient care scenario.

All Specialty Care Transport Programs which are listed in a counties primary 911 response plan or provide backup 911 primary response service, are required to maintain the same level of skills, medications and equipment which the county system maintains.

For the purposes of this document, a "ventilator" is a ventilation device, which attaches to an endotracheal or tracheostomy tube. It is capable of ventilating by a pressure or volume delivery mechanism. It must have adjustments for respiratory rate, volume/pressure settings, and for assisted or full ventilation. It has the capabilities of PEEP or other pressure based manipulations. A "respirator" is any other device that assists with ventilations during a respiratory/cardiac arrest.

****All EMS Systems must carry at a minimum the equipment associated with the EMT Level unless functioning as a convalescent transport service.**

****All EMS Systems must carry pediatric and adult when size is important. Items that require pediatric sizes are shaded ORANGE.**

*****A Latex Allergy Kit should be composed of all the necessary personal protection equipment and materials necessary to obtain and maintain IV access.**

APPENDIX B

10 NCAC 13P .0201 EMS System Requirements

SECTION .0200 – EMS SYSTEMS

10A NCAC 13P .0201 EMS SYSTEM REQUIREMENTS

(a) County governments shall establish EMS Systems. Each EMS System shall have:

(1) a defined geographical service area for the EMS System. The minimum service area for an EMS System shall be one county. There may be multiple EMS Provider service areas within the service area of an EMS System. The highest level of care offered within any EMS Provider service area must be available to the citizens within that service area 24 hours per day;

(2) a defined scope of practice for all EMS personnel, functioning in the EMS System, within the parameters set forth by the North Carolina Medical Board pursuant to G.S. 143-514;

(3) written policies and procedures describing the dispatch, coordination and oversight of all responders that provide EMS care, specialty patient care skills and procedures as defined in Rule .0301(a)(4) of this Subchapter, and ambulance transport within the system;

(4) at least one licensed EMS Provider;

(5) a listing of permitted ambulances to provide coverage to the service area 24 hours per day;

(6) personnel credentialed to perform within the scope of practice of the system and to staff the ambulance vehicles as required by G.S. 131E-158. There shall be a written plan for the use of credentialed EMS personnel for all practice settings used within the system;

(7) written policies and procedures specific to the utilization of the EMS System's EMS Care data for the daily and on-going management of all EMS System resources;

(8) a written Infectious Disease Control Policy as defined in Rule .0102(33) of this Subchapter and written procedures which are approved by the EMS System medical director that address the cleansing and disinfecting of vehicles and equipment that are used to treat or transport patients;

(9) a listing of facilities that will provide online medical direction for all EMS Providers operating within the EMS System;

(10) an EMS communication system that provides for:

(A) public access using the emergency telephone number 9-1-1 within the public dial telephone network as the primary method for the public to request emergency assistance. This number shall be connected to the emergency communications center or PSAP with immediate assistance available such that no caller will be instructed to hang up the telephone and dial another telephone number. A person calling for emergency assistance shall not be required to speak with more than two persons to request emergency medical assistance;

(B) an emergency communications system operated by public safety telecommunicators with training in the management of calls for medical assistance available 24 hours per day;

(C) dispatch of the most appropriate emergency medical response unit or units to any caller's request for assistance. The dispatch of all response vehicles shall be in accordance with a written EMS System plan for the management and deployment of response vehicles including requests for mutual aid; and

(D) two-way radio voice communications from within the defined service area to the emergency communications center or PSAP and to facilities where patients are routinely transported. The emergency communications system shall maintain all required FCC radio licenses or authorizations;

(11) written policies and procedures for addressing the use of SCTP and Air Medical Programs within the system;

(12) a written continuing education program for all credentialed EMS personnel, under the direction of a System Continuing Education Coordinator, developed and modified based on feedback from system EMS Care data, review, and evaluation of patient outcomes and quality management peer reviews, that follows the guidelines of the:

(A) "US DOT NHTSA First Responder Refresher: National Standard Curriculum" for MR personnel;

(B) "US DOT NHTSA EMT-Basic Refresher: National Standard Curriculum" for EMT personnel;

(C) "EMT-P and EMT-I Continuing Education National Guidelines" for EMT-I and EMT-P personnel; and

(D) "US DOT NHTSA Emergency Medical Dispatcher: National Standard Curriculum" for EMD personnel.

These documents are incorporated by reference in accordance with G.S. 150B-21.6, including subsequent amendments and additions. These documents are available from NHTSA, 400 7th Street, SW, Washington, D.C. 20590, at no cost;

(13) written policies and procedures to address management of the EMS System that includes:

(A) triage and transport of all acutely ill and injured patients with time-dependent or other specialized care issues including trauma, stroke, STEMI, burn, and pediatric patients that may require the by-pass of other licensed health care facilities and which are based upon the expanded clinical capabilities of the selected healthcare facilities;

(B) triage and transport of patients to facilities outside of the system;

(C) arrangements for transporting patients to appropriate facilities when diversion or bypass plans are activated;

(D) reporting, monitoring, and establishing standards for system response times using data provided by the OEMS;

(E) weekly updating of the SMARTT EMS Provider information;

(F) a disaster plan; and

(G) a mass-gathering plan;

(14) affiliation as defined in Rule .0102(4) of this Subchapter with the trauma RAC as required by Rule .1101(b) of this Subchapter; and

(15) medical oversight as required by Section .0400 of this Subchapter.

(b) An application to establish an EMS System shall be submitted by the county to the OEMS for review. When the system is comprised of more than one county, only one application shall be submitted. The proposal shall demonstrate that the system meets the requirements in Paragraph (a) of this Rule. System approval shall be granted for a period of six years. Systems shall apply to OEMS for reapproval.

History Note: *Authority G.S. 131E-155(1), (6), (8), (9), (15); 143-508(b), (d)(1), (d)(2), (d)(3), (d)(5), (d)(8), (d)(9), (d)(10), (d)(13); 143-509(1), (3), (4), (5); 143-517; 143-518;*
Temporary Adoption Eff. January 1, 2002;
Eff. August 1, 2004;
Amended Eff. January 1, 2009.

APPENDIX C

NCOEMS Triage and Destination Plan Templates

Trauma and Burn
EMS Triage and Destination Plan

Trauma or Burn Patient = Any patient less (regardless of age) with a significant injury or burn

The Purpose of this plan is to:

* Rapidly identify injured or burned patients who call 911 or present to EMS
* Minimize the time from injury to definitive care for critical injuries or burns
* Quickly identify life or limb threatening injuries for EMS treatment and stabilization
* Rapidly identify the best hospital destination based on time of injury, severity of injury, and predicted transport time
* Early activation/notification to the hospital of a critically injured or burned patient prior to patient arrival
* Minimize scene time to 10 minutes or less from patient extrication with a "load and go" approach
* Provide quality EMS service and patient care to the EMS Systems citizens
* Continuously evaluate the EMS System based on North Carolina's EMS performance measures

Acutely Injured or Burned Patient

Evidence of extreme shock or un-manageable airway

Yes → **Transport to the Nearest Hospital for Stabilization Unless Minimal Additional Time to a Trauma Center**

No ↓

Any Abnormal Vital Signs?

* Glasgow Coma Score: <13 or intubated
* Systolic Blood Pressure: <90 mmHg
* Respiratory Rate: <10 or >29 breaths per min. (<20 in infant aged <1 year)

Yes → **Trauma Center (Burn Center for isolated Burn Injury) within 60 minutes of EMS Transport?**

No ↓

Critical Injury by Assessment?

* Penetrating injury to head, neck, torso, or extremities proximal to elbow and knee
* Flail Chest or Pneumothorax
* Two or more proximal long-bone fractures
* Crushed, degloved, or mangled extremity
* Amputation proximal to wrist and ankle
* Pelvic fractures
* Visibly Open or depressed skull fracture
* Paralysis
* Critical or Serious Burns (per EMS Burn Protocol)

Yes → **Trauma Center (Burn Center for isolated Burn Injury) within 60 minutes of EMS Transport?**

No → **Air Medical SCTP within 30 minutes of patient's location or helipad?**

Yes → **Activate Air or Ground SCTP**

Yes → **Transport to closest Trauma Center (Burn Center for isolated Burn)**

* Choose a Level 3 Trauma Center if EMS transport time is less than 30 minutes compared to a Level 1 or 2 Trauma Center

Early Notification/Activation

Insert:
Trauma Center Name(s) Here
or
No Trauma Center(s) within Range

No ↓

Special Considerations?

* Anticoagulation and bleeding disorders
* Pregnancy >20 weeks

Yes → **Transport to closest Community Hospital Listed Unless Trauma Center can be reached in a near equal time**

Early Notification/Activation

Insert:
Community Hospital Name(s) Here

No ↓

Significant Mechanism?

* Falls: Adults >20 ft, Children >10 ft.
* MVC: Intrusion >12 inches occupant side
  >18 inches any site
  Ejection
  Death in same vehicle
  Vehicle Telemetry with high risk injury
* Auto vs. pedestrian/bicyclist thrown, run over
* Motorcycle crash >20 mph

Trauma and Burn EMS Triage and Destination Plan

Pearls and Definitions

* **All Injury and Burn Patients must be triaged and transported using this plan. This plan is in effect 24/7/365**
* **All Patient Care is based on the EMS Trauma Protocols**
* **Designated Trauma Center** = a hospital that is currently designated as a Trauma Center by the North Carolina Office of Emergency Medical Services. Trauma Centers are designated as Level 1, 2, or 3 with Level 1 being the highest possible designation. Free standing emergency departments and satellite facilities are not considered part of the Trauma Center.
* **Burn Center** = a ABA verified Burn Center co-located with a designated Trauma Center
* **Community Hospital** = a local hospital within the EMS System's service area which provides emergency care but has not been designated as a Trauma Center
* **Specialty Care Transport Program** = an air or ground based specialty care transport program which can assume care of an acutely injured patient from EMS or a Community Hospital and transport the patient to a designated Trauma Center.

(Insert Name Here) EMS System **2009**

This protocol has been developed by the North Carolina Office of EMS (Final Version 11-1-2009)

STEMI
EMS Triage and Destination Plan

STEMI Patient
(ST Elevation Myocardial Infarction)

* **Cardiac symptoms greater than 15 minutes and less than 12 hours**

And

* **12 lead ECG criteria of 1 mm ST elevation in 2 or more contiguous leads**

or

* **Left Bundle Branch Block NOT KNOWN to be present in the past**

The Purpose of this plan is to:
* Rapidly identify STEMI patients who call 911 or present to EMS
* Minimize the time from onset of STEMI symptoms to coronary reperfusion
* Quickly diagnose a STEMI by 12 lead ECG
* Complete a reperfusion checklist (unless being transported directly to a PCI hospital) to determine thrombolytic eligibility
* Rapidly identify the best hospital destination based on symptom onset time, reperfusion checklist, and predicted transport time
* Early activation/notification to the hospital prior to patient arrival
* Minimize scene time to 15 minutes or less (including a 12 lead ECG)
* Provide quality EMS service and patient care to the EMS Systems citizens
* Continuously evaluate the EMS System based on North Carolina's STEMI EMS performance measures

Active Symptoms of Cardiac Chest Pain
12 Lead ECG Findings = STEMI

PCI Capable Hospital within 30 minutes EMS transport time?

Yes → **Transport to closest PCI Capable Hospital Listed**
Early Notification/Activation

Insert:
PCI Capable Hospital Name(s) Here

No

Reperfusion Checklist
Contraindications to Thrombolysis

No → **Closest Non-PCI Hospital within 50 minutes EMS transport time?**

Yes

Air Medical SCTP within 30 minutes of patient's location?

No → No

Yes

Activate Air Medical SCTP
Transport to closest PCI Capable Hospital Listed
Early Notification/Activation

Insert:
PCI Capable Hospital Name(s) Here
or
No PCI Capable Hospitals within Air Medical Range

Transport to closest Non-PCI Hospital Listed
Early Notification/Activation

Insert:
Non-PCI Capable Hospital Name(s) Here

STEMI EMS Triage and Destination Plan

Pearls and Definitions
* **All STEMI Patients must be triaged and transported using this plan. This plan is in effect 24/7/365**
* **All Patient Care is based on the EMS Chest Pain and STEMI Protocol**
* **Consider implementing a prehospital thrombolytic program if a STEMI patient cannot reach a hospital within 90 minutes using air or ground EMS transport.**
* **PCI (Percutaneous Coronary Intervention) Capable Hospital** = a hospital with an emergency interventional cardiac catheterization laboratory capable of providing the following services to acute STEMI patients. Free standing emergency departments and satellite facilities are not considered part of the PCI Capable Hospital.
  * 24/7 PCI capability within 30 minutes of notification (interventional cardiologist present at the start of the case)
  * Single Call Activation number for use by EMS
  * Accepts all patients regardless of bed availability
  * Provides outcome and performance measure feedback to EMS including case review
* **Non-PCI Hospital** = a local hospital within the EMS System's service area which provides emergency care, including thrombolytic administration, to an acute STEMI patient but does NOT provide PCI services.
* **Specialty Care Transport Program** = an air or ground based specialty care transport program which can assume care of an acute STEMI patient from EMS or a Non-PCI hospital and transport the patient to a PCI capable hospital.

(Insert Name Here) EMS System 2009

This protocol has been developed by the North Carolina Office of EMS (Final Version 11-1-2009)

Stroke
EMS Triage and Destination Plan

Stroke Patient

* **A patient with symptoms of an acute Stroke as identified by the EMS Stroke Screen**

Time of Symptom Onset

* **Defined as the last witnessed time the patient was symptom free (i.e. the time of onset for a patient awakening with stroke symptoms would the last time he/she was known to be symptom free before the sleep period)**

The Purpose of this plan is to:

* Rapidly identify acute Stroke patients who call 911 or present to EMS
* Minimize the time from onset of Stroke symptoms to definitive care
* Quickly diagnose a Stroke using validated EMS Stroke Screen
* Complete a reperfusion checklist (unless being transported directly to a Stroke Capable Hospital) to determine thrombolytic eligibility
* Rapidly identify the best hospital destination based on symptom onset time, reperfusion checklist, and predicted transport time
* Early activation/notification to the hospital prior to patient arrival
* Minimize scene time to 10 minutes or less
* Provide quality EMS service and patient care to the EMS Systems citizens
* Continuously evaluate the EMS System based on North Carolina's Stroke EMS performance measures

Symptoms of Acute Stroke
Positive Stroke Screen

↓

Stroke Center or Stroke Capable Hospital within 2 hours from onset of patient's symptoms and no greater than 50 minutes EMS transport time?

Yes → **Transport to closest Primary Stroke Center or Stroke Capable Hospital Listed**
Early Notification/Activation

Insert:
Stroke Capable Hospital Name(s) Here
or
No Stroke Capable Hospitals within 50 minutes

No ↓

Reperfusion Checklist
Contraindications to Thrombolysis

Yes → **Air Medical SCTP within 30 minutes of patient's location and patient clearly a NEW onset stroke patient?**

Yes ↓

Consider Activating Air or Ground SCTP

Transport to closest Primary Stroke Center Listed
Early Notification/Activation

Insert:
Primary Stroke Center Name(s) Here

No ↓

Transport to closest Community Hospital Listed

Insert:
Community Hospital Name(s) Here

Stroke EMS Triage and Destination Plan

Pearls and Definitions

* **All Stroke Patients must be triaged and transported using this plan. This plan is in effect 24/7/365**
* **All Patient Care is based on the EMS Suspected Stroke Protocol**
* **Primary Stroke Center** = a hospital that is currently accredited by the Joint Commission as a Primary Stroke Center. Free standing emergency departments and satellite facilities are not considered part of the Primary Stroke Center.
* **Stroke Capable Hospital** = a hospital which provides emergency care with a commitment to Stroke and the following capabilities:
  * CT availability with in-house technician availability 24/7/365
  * Ability to rapidly evaluate an acute stroke patient to identify patients who would benefit from thrombolytic administration
  * Ability and willingness to administer thrombolytic agents to eligible acute Stroke patients
  * Accepts all patients regardless of bed availability
  * Provides outcome and performance measure feedback to EMS including case review
* **Community Hospital** = a local hospital within the EMS System's service area which provides emergency care but does not meet the criteria for a Primary Stroke Center or Stroke Capable Hospital
* **Specialty Care Transport Program** = an air or ground based specialty care transport program which can assume care of an acute Stroke patient from EMS or a Hospital and transport the patient to a Primary Stroke Center.

(Insert Name Here) EMS System 2009

This protocol has been developed by the North Carolina Office of EMS (Final Version 11-1-2009)

Pediatric
EMS Triage and Destination Plan

Pediatric Patient

* **Any patient less than 16 years of age with a life-threatening illness (Not Trauma)**

Life Threatening Illness

* **Decreased Mental Status (GCS<13)**
* **Non-Responsive Respiratory Distress**
* **Intubation**
* **Post Cardiac Arrest**
* **Non-Responsive Hypotension (shock)**
* **Severe Hypothermia or Hyperthermia**
* **Status Epilepticus**
* **Potential Dangerous Envenomation**
* **Life Threatening Ingestion/Chemical Exposure**
* **Children with Special Healthcare Needs** (and destination choice based on parental request)

The Purpose of this plan is to:

* Rapidly identify pediatric patients who call 911 or present to EMS with a life-threatening illness
* Minimize the time from EMS contact to definitive care
* Quickly diagnose patients with pediatric life-threatening illness for EMS treatment and stabilization
* Rapidly identify the best hospital destination based on symptom onset time, vital signs, response to treatment, and predicted transport time
* Early activation/notification to the hospital prior to patient arrival
* Minimize scene time with a "load and go" approach
* Provide quality EMS service and patient care to the EMS community
* Continuously evaluate the EMS System based on North Carolina's EMS performance measures

Pediatric Patient with Life Threatening Illness (Not Trauma/Injury)

Pediatric Patient too unstable to transport beyond closest hospital?

Yes → **Transport to closest Community Hospital Listed**
Early Notification/Activation if Life Threatening

Insert:
Community Hospital Name(s) Here

No

Pediatric Capable Hospital within a 50 minute EMS transport?

No → (to Community Hospital)

Yes

Transport to closest Pediatric Capable Hospital Listed
Early Notification/Activation

Insert:
Pediatric Capable Hospital Name(s) Here or No Pediatric Capable Hospital within Range

Pediatric EMS Triage and Destination Plan

Pearls and Definitions

* **All Pediatric Patients with a life-threatening illness must be triaged and transported using this plan. This plan is in effect 24/7/365.**
* **The Trauma and Burn Triage and Destination Plan should be used for all injured patients regardless of age.**
* **All Patient Care is based on the EMS Pediatric Protocol**
* **Pediatric Capable Hospital** = a hospital with an emergency and pediatric intensive care capability including but not limited to:
  * Emergency Department staffed 24 hours per day with board certified Emergency Physicians
  * An inpatient Pediatric Intensive Care Unit (with a physician pediatric intensivist available in-house or on call 24/7/365)
  * Accepts all EMS patients regardless of bed availability
  * Provides outcome and performance measure feedback to EMS including case review
* **Community Hospital** = a local hospital within the EMS System's service area which provides emergency care but does not meet the criteria of a Pediatric Capable Hospital
* **Pediatric Specialty Care Transport Program** = an air or ground based specialty care transport program that has specific pediatric training and equipment addressing the needs of a pediatric patient that can assume care of a pediatric patient from EMS or a Community Hospital and transport the patient to a Pediatric Capable Hospital.

This protocol has been developed by the North Carolina Office of EMS (Final Version 11-1-2009)

APPENDIX D

Ordinance Regulating Emergency medical Services

ORDINANCE REGULATING EMERGENCY MEDICAL SERVICE AND GRANTING OF FRANCHISES TO EMERGENCY MEDICAL SERVICES AND AMBULANCE OPERATORS

The Board of Commissioners of Bertie County does hereby enact an ordinance governing the granting of franchises for Emergency Medical Services and ambulance transportation services and does ordain the following:

SECTION I. DEFINITIONS

Unless the context otherwise requires or unless otherwise specified, the following definitions shall apply in the interpretation and enforcement of this Ordinance:

1.1 AMBULANCE

"Ambulance" means any privately or publicly owned vehicle, aircraft, or vessel that is specially designed, constructed, or modified and equipped and is intended to be used for and is maintained or operated for the transportation of patients on the streets or highways, waterways, or airways of this State.

1.2 DEPARTMENT

"Department" means the Department of Human Resources Office of Emergency Medical Services.

1.3 EMERGENCY MEDICAL TECHNICIAN (EMT)

"Emergency medical technician" means an individual who has completed an educational program in emergency medical care approved by the Department and has been credentialed as an Emergency Medical Technician by the Department.

1.4 AMBULANCE PROVIDER

"Ambulance provider" means an entity, whether an individual, firm, corporation, or association, including those operating for a profit or as non-profits, which engages or professes to engage in the business, whether for profit or not for profit, or service of transporting patients in an ambulance.

The term "ambulance provider" shall not include any volunteer, nonprofit, emergency rescue squads operating within Bertie County of which there are currently four (4), to-wit: Lewiston-Woodville Fire and EMS Incorporated, Bertie Rescue Squad, Colerain Rescue Squad, and Aulander Rescue Squad.

1.5 COUNCIL

"Council" shall mean the Bertie County Emergency Medical Services Council.

1.6 COUNTY

"County" shall mean Bertie County, which is governed by the Bertie County Board of Commissioners.

1.7 DISPATCHER

"Dispatcher" shall mean a person who is available at all times to receive request for emergency services, to dispatch emergency services, and to advise local law enforcement agencies and emergency medical facilities of any existing or threatened emergency.

1.8 EMERGENCY

"Emergency transportation service" shall mean the use of an ambulance, its equipment, and personnel, to provide medical care and transportation of a patient who is in need of immediate medical treatment in order to prevent loss of life or further aggravation or psychological illness or injury.

1.9 NON-EMERGENCY

"Non-emergency transportation service" shall mean the operation of an ambulance for any purpose other than "emergency transportation service".

1.10 FRANCHISE

"Franchise" shall mean a permit issued by the County to an ambulance provider, whether providing emergency or non-emergency service.

1.11 EMERGENCY MEDICAL SERVICE OR EMS

"Emergency Medical Service or EMS" means services rendered by emergency medical services personnel in responding to improve the health and wellness of the community and to address the individual's needs for emergency medical care within the scope of practice as defined by the North Carolina Medical Board in accordance with N.C.G.S. 143-514 in order to prevent loss of life or further aggravation of physiological or psychological illness or injury.

1.12 EMERGENCY MEDICAL SERVICES PERSONNEL

"Emergency Medical Services Personnel" means all of the personnel defined in N.C.G.S. Section 131E-155 and in this Ordinance.

1.13 MEDICAL RESPONDER

"Medical Responder" means an individual who has completed an educational program in emergency medical care and first aid approved by the Department and has been credentialed as a medical responder by the Department.

1.14 PATIENT

"Patient" means an individual who is sick, injured, wounded, or otherwise incapacitated or helpless such that the need for some medical assistance might be anticipated.

1.15 VOLUNTEER NONPROFIT EMERGENCY RESCUE SQUADS

"Volunteer nonprofit emergency rescue squads" means an organization within Bertie County, which is a volunteer nonprofit emergency rescue squad organized and existing under the laws of the State of North Carolina, which is eligible to receive public funds from Bertie County, of which there are presently four (4) within Bertie County, to-wit: Lewiston-Woodville Fire and EMS, Inc., Bertie Rescue Squad, Colerain Rescue Squad, and Aulander Rescue Squad.

1.16 HIPAA

"HIPAA" means the Health Insurance Portability and Accountability Act of 1996, PUB. L. No. 104-191, 110 Statute. 1936 (1996)

SECTION II. FRANCHISE REQUIRED

2.1 No entity either as owner, agent or otherwise, except any volunteer nonprofit emergency rescue squad, shall furnish, operate, conduct, maintain, advertise, or otherwise be engaged in or profess to be engaged in

the service of emergency or non-emergency transportation of patients within the County of Bertie unless the person holds a valid permit for each ambulance used in such business or service issued by the North Carolina Department of Human Resources, Office of Emergency Medical Services, and has been granted a franchise for operation of such business or service by the County of Bertie pursuant to the Ordinance.

2.2 Every ambulance, when transporting a patient, shall be occupied at a minimum by all of the following:

A. At least one emergency medical technician who shall be responsible for the medical aspects of the mission prior to arrival at the medical facility, assuming no other individual with higher credentials is available.

B. One medical responder who is responsible for the operation of the vehicle and rendering assistance to the emergency medical technician.

An ambulance owned and operated by a licensed healthcare facility that is used solely to transport sick or infirm patients with known, non-emergency medical conditions between facilities or between a residence and a facility for scheduled medical appointments is exempt from the requirements of this subsection.

2.3 No entity, either as owner, agent, or otherwise, shall furnish, operate, conduct, maintain, advertise, or otherwise be engaged in or profess to be engaged in the service of emergency or non-emergency transportation of patients within the County of Bertie unless the franchise is certified to operate at a level set by the County of Bertie.

2.4 No franchise shall be required for:

A. Any entity rendering assistance to franchised EMS in the case of a major catastrophe, mutual aid or emergency with which the services franchised by the County of Bertie are insufficient or unable to cope; or,

B. Any entity operated from a location or headquarters outside of the County of Bertie in order to transport patients, who are picked up beyond the limits of the County of Bertie, to facilities located within the County of Bertie.

C. Ambulances owned and operated by an agency of the United States Government.

D. Volunteer nonprofit emergency rescue squads operating within the County of Bertie.

SECTION III. APPLICATION FOR EMERGENCY/NON-EMERGENCY FRANCHISE

3.1 Application for a franchise to be an ambulance provider, whether providing emergency or non-emergency transportation service in the County, shall be made, by the ambulance provider as prescribed by the County, and shall contain:

A. The name and address of provider and of the owner of the ambulance(s).

B. The trade or other fictitious names, if any, under which the applicant does business, along with a certified copy of assumed name certificate stating such name or articles of incorporation stating such name.

C. A resume of the training and experience of the applicant in the transportation and care of patients.

D. A full description of the type and level of service to be provided including the location of the place or places from which it is intended to operate, the manner in which the public will be able to obtain assistance and how the vehicles will be dispatched.

E. An audited financial statement of the applicant as the same pertains to proposed or actual operations in the County which shall be filled with the County by June 1 of each year. When an initial application for a franchise is filed, the applicant must file an audited financial statement of the applicant as the same pertains to operations in the County as of June 1 of the nearest year to the date of the application. Said financial statement shall be made in such form and in such detail as may be required by the County.

F. The applicants will have to provide the period of coverage as designated by the County for the district covered by the franchise applied for and an accurate estimate of the minimum and maximum times for a response to calls within such district. The average response time can not be over 15 minutes.

G. Any information the County shall deem reasonably necessary for a fair determination of the capability of the applicant to provide service in the County in accordance with the requirements of State, Federal, and County laws, including the provisions of this Ordinance.

SECTION IV. GRANTING OF FRANCHISE

4.1 Before accepting an application for the operation of an ambulance provider, whether providing emergency medical service or non-emergency medical transportation service, the County may designate specific service areas as franchise districts. Said districts will be established using criteria including geographic size, road access, the location of existing medical transportation services, other ambulance providers, population, and response time. The County shall have the authority to redistrict or rearrange existing districts at any time in its sole discretion.

4.2 An applicant may apply for a franchise to operate either emergency medical service or non-emergency medical transportation service or both. If both types of service are to be provided, separate applications must be filled for each type of franchise.

4.3 Upon receipt of an application for a franchise, the County shall schedule a time and place for hearing the applicant. Within 30 days after hearing, the County shall cause such investigation, as it may deem necessary to be made of the applicant and its proposed operations.

4.4 A franchise may be granted if the County finds that:

A. The applicant has met State standards and the standards outline in this Ordinance.

B. The proposed service will fit within the existing service so as not to adversely affect the level of service or operations of other franchises to render service.

C. A need exists for the proposed service in order to improve the level of emergency medical services or non-emergency medical services available to residents of the County and that this is a reasonably cost effective manner of meeting this need.

SECTION V. TERM OF FRANCHISE

5.1 The County may issue a franchise hereunder to an ambulance provider, to be valid for a term determined by the County, provided that either party, at its option, may terminate the franchise upon sixty (60) days prior notice to the other party. After a notice of service termination is given, the provider may reapply for a franchise if continued service is desired. The franchise may be renewed upon application for renewal sixty (60) days before term expires.

5.2 Upon suspension, revocation, or termination of a franchise granted hereunder, such franchised provider immediately should cease operations. Upon suspension, revocation, or termination of a driver's license or emergency medical technician certificate, or medical responders certificate such persons shall cease to drive an ambulance, perform service, or be responsible for the operation of an ambulance. The franchisee shall not permit such an individual to drive an ambulance or provide medical care.

5.3 Each franchised provider shall comply at all times with the requirements of this Ordinance, the franchise granted hereunder, and all applicable state and local laws relating to health, sanitation, safety, equipment, ambulance design, and all other laws and ordinances.

5.4 Prior approval of the County shall be required where ownership, control, or right of control of more that 10 percent (10%) of the franchise is acquired by an entity or a group of entities acting in concert, none of whom own or control 10 percent (10%) or more of such right of control, singularly or collectively, at the date of the original franchise. By its acceptance of the franchise, the franchisee specifically agrees that any such acquisition occurring without prior approval of the County shall constitute a violation of the franchise and shall be a cause for immediate termination at the sole discretion of the County.

5.5 Any change of ownership of a franchised provider without the approval of the County shall terminate the franchise and shall require a new application and a new franchise and conformance with all the requirements of this Ordinance as upon original franchising.

5.6 No franchise may be sold, assigned, mortgaged, or otherwise transferred without the approval of the County and a finding of conformance with all requirements of this Ordinance as is required upon original franchising. Each franchised provider, its equipment and the premises designated in the application and all records relating to its maintenance and operation, as such, shall be open to inspection by the State, the County, or their designated representatives.

5.7 A franchise may not be defaced, removed, or obliterated.

SECTION VI. STANDARDS FOR EMERGENCY MEDICAL SERVICES PERSONNEL

6.1 Standards for emergency medical services personnel, as developed by the Department in accordance with the laws of the State of North Carolina, specifically N.C.G.S. Chapter 131E, Article 7, and N.C.G.S. Chapter 143, Article 56 shall be applied and same are incorporated in this Ordinance by reference.

SECTION VII. STANDARDS FOR VEHICLES AND EQUIPMENT

7.1 Vehicles and equipment standards as developed by the North Carolina Medical Care Commission pursuant to Article 7, Chapter 131E, and Article 56, Chapter 143, of the General Statutes of North Carolina, as amended from time to time, and shall be applied and the same are incorporated herein by reference.

SECTION VIII. STANDARDS FOR COMMUNICATIONS

8.1 Each vehicle used shall be equipped with an operational two-way radio capable of establishing good quality voice communications from within the geographic confines of the county to each hospital(s) emergency department in the county in which the ambulance is based. Each vehicle shall be equipped with two-way radio communications capabilities compatible with all hospitals emergency departments to which transportation of patients is made on a regular or routine basis anywhere within the state. Each vehicle shall be equipped with an operational two-way radio capable of establishing good quality voice communications from within the geographic confines of the county with the dispatching agency within the county.

8.2 Each ambulance provider shall either maintain current authorization from the Sheriff of Bertie County to use the County's Federal Communication Commission frequency and license or shall acquire and maintain Federal Communication Commission licenses for all frequencies and radio transmitters operated by that provider. Copies of all authorizations and licenses shall be on display and available for inspection pursuant to the Rules and Regulations of the Federal Communication Commission.

SECTION IX. INSURANCE

9.1 No franchise shall be valid before or after issued under this Ordinance, nor shall any provider operate in the County of Bertie unless the franchise has at all times in force and effect insurance coverage, issued by

an insurance company licensed to do business in the State of North Carolina, for each and every provider owned or operated by for the franchise providing for the payment of damages:

A. In the sum of $1,000,000 for injury to or death of individuals in accidents resulting from any cause for which the owner of said vehicle would be liable on account of liability imposed on him by law, regardless of whether the ambulance was being driven by the owner of his agency; and,

B. In the sum of $100,000 for the loss of or damage to the property of another, including personal property, where the owner of the vehicle would be liable, in such sums as may be required by law.

9.2 No franchise shall be valid before or issued under this Ordinance nor shall any ambulance provider operate in the County unless the franchisee has at all times in force and effect Workers' Compensation Insurance as required by the provisions of N.C.G.S. 97-93(a). Each ambulance provider shall also comply with all other Workers' Compensation Insurance provisions as required by the North Carolina Workers' Compensation Act set forth in N.C.G.S. Chapter 97.

9.3 No franchise shall be valid or continue to be valid once issued without certification to the County that the liability and workers' compensation insurance required in Sections 9.1 and 9.2 above are in full force and effect. Failure to produce such continuing certification and proof of the existence of such insurance shall be grounds for immediate termination of any franchise granted herein.

SECTION X. RECORDS

10.1 Each franchise shall maintain the following permanent records:

A. Record of Dispatch - Shall show time call was received, time dispatched, time arrived on scene, time arrived at destination, time in service, and time returned to base.

B. Audited Financial Statement as of June 1 of the previous year.

C. Certificate of continuing existence of the insurance required under Section IX of this Ordinance.

Each of these permanent records shall be maintained annually and shall be available for inspection by the Bertie County Office of Emergency Management upon request.

SECTION XI. RATES AND CHARGES

11.1 Each franchise shall submit a schedule of rates to the County for approval and shall not charge more or less than the approved rates without specific approval by the County.

SECTION XII. HIPAA

12.1 Each and every ambulance provider and entity for whom a franchise is required under this Ordinance shall comply with all of the requirements of HIPAA.

SECTION XIII. ENFORCEMENT

13.1 The Bertie County Office of Emergency Management shall be the enforcing agency for the regulations contained in the Ordinance. Such office will:

A. Receive all franchise proposals from potential providers.

B. Study each proposal for conformance to this Ordinance.

C. With the approval of the Council, recommend to the Board of Commissioners the award of the franchise(s) to the applicants submitting the best proposal(s).

D. Inspect the premises, vehicles, equipment, and personnel of franchises to ensure compliance to this Ordinance and perform any other inspections that may be required.

E. With the approval of the Council, recommend to the Board of Commissioners the temporary or permanent suspension of a franchise in the event of non-compliance with the franchise terms of this Ordinance.

F. Ensure by operative agreement with other emergency medical service providers the continued service in a district where an emergency medical service franchise has been suspended.

G. Receive monthly reports from providers and consolidate the same into a quarterly summary for review by the Council and the County.

H. Receive complaints from the public, other enforcing agencies, and EMS regarding franchise infractions. Review the complaint with the Council. Obtain corrective action with the approval of the Council.

I. With the approval of the Council, recommend improvements to the County, which will insure better medical transportation.

J. Maintain all records required by this Ordinance and other applicable County regulations.

K. Perform such of the above functions as may be requested by any municipality within the County of Bertie.

L. The Director of Emergency Medical Services shall serve as staff to the Bertie County Emergency Medical Services Council on all matters that pertain to the Council.

13.2 Any applicant for a franchise who is rejected by the Office of Emergency Management in the enforcement of this Section shall have the right to appeal first to the Emergency Medical Services Advisory Council and further to the Board of County Commissioners for final decision. Said aggrieved party should give ten (10) days written notice of appeal from the date the decision is received.

13.3 The Bertie County Board of Commissioners shall be the final and ultimate source for the interpretation of this Ordinance. The Bertie County Board of Commissioners may overrule or supercede decisions of the Bertie County of Emergency Management and may amend or modify this Ordinance as by law allowed.

SECTION XIV. MISCELLANEOUS

14.1 The County may inspect a franchisee's records, premises, and equipment at any time in order to ensure compliance with this Ordinance and any franchise granted hereunder.

SECTION XV. EMERGENCY MEDICAL SERVICE ADVISORY COUNCIL

15.1 The Council shall have the responsibility and duty of advising the Emergency Management Coordinator on matters relating to the enforcement of this Ordinance as specified in section XII above and shall develop and recommend for approval by the Board of County Commissioners such standards of care, policies, procedures, and other actions which will maintain and improve the quality of emergency medical services for the residents of Bertie County.

15.2 Membership on the Council shall consist of:

A. One member from the Bertie County Rescue Association

B. Administrator of Bertie Memorial Hospital or his designee

C. One member of the Bertie County Board of Commissioners

D. The Bertie County Emergency Management Coordinator

E. Two Citizens-at-large, who do not have to be citizens of Bertie County, appointed by the Board of Commissioners.

F. Bertie County Medical Director.

15.3 All members of the Council shall have full and equal voting rights on matters to be considered by the Council except the member from the Bertie County Rescue Squad Association and the Bertie County Emergency Management Coordinator, who shall be non-voting members, having advisory roles only.

15.4 Members of the Council shall be appointed by the Bertie County Board of Commissioners and shall serve a term of two (2) years.

15.5 The County Commissioners can remove any member of the Council for any reason at any time by majority vote.

SECTION XVI. ADDENDUM TO ORDINANCE

16.1 The Board of County Commissioners may, through appropriate actions, amend or expand this Ordinance to include other emergency departments or agencies as deemed necessary.

SECTION XVII. EFFECTIVE DATE

This Ordinance shall take effect on the _____day of_____, 2005.