



**Emergency Medical Services  
Community EMS Assistance Program**

1. Greenville County  
2. 10-Oct-13 Date of Application

3. Grant Project Period:  
From: July 1, 2013  
To: June 30, 2014

4. 1 Year  2 Year

|                          |    |           |  |
|--------------------------|----|-----------|--|
| 5. State Funds Requested | \$ | 31,993.47 | Source of Local Funds  |
| Total Local Cash         | \$ | 2,536.53  |  |
| Total Project Cash       | \$ | 33,760.00 | <input checked="" type="checkbox"/> County <input type="checkbox"/> Community <input type="checkbox"/> Private |

6. Ambulance Service:

|                                    |   |                      |
|------------------------------------|---|----------------------|
| <u>Greenville County EMS</u>       | <u>301 University Ridge, Ste.1100, Greenville 29601</u> | <u>(864)467-7009</u> |
| Name                               | Mailing Address   | Telephone            |
| <u>tgault@greenvillecounty.org</u> |   |                      |
| E-Mail Address                     |   |                      |
| <u>Tim Gault</u>                   | <u><i>David T Gault</i></u>                             |                      |
| Director / Chief / Name            | Signature   |                      |

7. County Authorization:

**Choice of Funding Formula**

The county has chosen a local formula for distribution of monies among the ambulance service and all the services have agreed in writing on this formula. The documentation of their agreement with signatures is attached.  
If yes, initial here: \_\_\_\_\_

The county has chosen to fund each of the ambulance services based on the percentage of the county's total emergency runs which were run by each ambulance service.  
If yes, initial here: \_\_\_\_\_

I certify that I understand and agree to comply with the general and fiscal requirements of this application and that I am duly authorized to commit the application to these requirements. I also understand that the funds available through this grant are not to be used to replace existing dollars now used for the EMS assistance through this grant program.

8. Authorizing Official

|                                      |                       |                             |
|--------------------------------------|-----------------------|-----------------------------|
| <u>Greenville</u>                    | <u>Joseph Kernell</u> | <u>County Administrator</u> |
| County                               | Name                  | Title                       |
| <u>301 University Ridge</u>          | <u>Greenville</u>     | <u>29601</u>                |
| Street                               | City                  | Zip                         |
| <u>jkernell@greenvillecounty.org</u> |                       | <u>864-467-7105</u>         |
| Email Address                        |                       | Telephone                   |
| _____                                | _____                 |                             |
| Signature                            | Date                  |                             |





**Budget Justification**

**ONLY USE FOR EQUIPMENT NOT ON THE LIST OF ELIGIBLE ITEMS. Please provide your justification, attach brochure or vendor literature.**

**Please see attached.**

## **LP12 Upgrade and Installation**

Greenville County EMS serves the state's most populous county at over four hundred fifty thousand citizens, and is the largest EMS service in the state.

GCEMS provides 911 pre-hospital emergency medical treatment and transport to these residents in the county covering 790 square miles. GCEMS has an authorized strength of 167 Paramedics, 42 EMT-Intermediates and 12 EMT-Basics who work a hybrid system of high-performance EMS. In 2012 GCEMS responded to almost 76,000 emergency medical calls.

GCEMS strives to be medically focused and data driven, and is committed to the development of the latest advances in basic and advanced life support patient care. Most recently, GCEMS has focused its attention on improving pre-hospital cardiac care; it is with the special functions and capabilities available in the newest generation of cardiac monitors that will ensure the improvement in that area of pre-hospital medical care continues. Unfortunately, 35% of GCEMS current supply of cardiac monitors is inadequate to perform many of the procedures necessary to provide the highest levels of pre-hospital care.

The American Heart Association (AHA) recommends the use of quantitative waveform capnography for confirmation and monitoring of endotracheal tube placement, which is considered a Class 1 recommendation by the society. Further, quantitative waveform capnography is able to verify that adequate chest compressions are performed in cardiopulmonary resuscitation (CPR) and is also able to be used as a diagnostic tool which can uncover various compromises to the respiratory system such as asthma, chronic obstructive pulmonary disease (COPD) and even congestive heart failure (CHF), and can show EMS providers how well the patients respond to certain treatments. Of the agency's 37 total cardiac monitors, 13 do not possess this ability, therefore leaving 35% of our cardiac monitor inventory incapable of providing this critical diagnostic tool. Further, the South Carolina Department of Health and Environmental Control (SCDHEC), the regulating agency for emergency medical services in South Carolina, has also mandated the use of quantitative waveform capnography for all EMS systems in the state. The mandate became effective October 1, 2011.

GCEMS requests assistance for the purchase of four (4) ETCO<sub>2</sub> upgrades for our inventory, which would bring our inventory of monitors able to provide this diagnostic service up to 75%. The purchase of these upgrades would help us continue to meet the national and state standards of pre-hospital care. The current monitors in need of this device would be retrofitted immediately upon receipt and placed in service, and used immediately. We appreciate your consideration in continuing to assist us strive to serve the community and our patients better through top notch diagnostic tools.

## ALS Bags and Accessories

Greenville County EMS is looking to change the type of kits that each truck contains that are utilized when EMT's and Paramedics are on scene, and go inside of a patient's residence to provide emergency care. These kits accompany the personnel inside and contain many of the items utilized in the ambulance in attempt to stabilize the patient prior to moving them to the unit. The current model is a source of many injuries and complaints over the years. Greenville County EMS is a busy EMS system providing 911 Emergency Services to a county of over four hundred twenty nine thousand residents, responding to over seventy thousand 911 requests annually. Because of how busy the system is, the potential for injuries are high, thus the reason for desiring to change our EMT and Paramedic load-out.

Currently, the type of ALS bag that Greenville County EMS utilizes is a very large bag with only two carrying options- either in hand or slung over one shoulder via one shoulder strap. The weight of the equipment bag is variable, however ranges between thirty-two (32) and forty (40) pounds per bag. When the bag is slung over the shoulder, personnel are generally forced to lean to the opposite side in attempts to compensate for the weight of the bag and the strain applied to the EMT or Paramedics' shoulder and neck muscles.

Further, when the bag is moved from the unit to the residence and carried in hand, the weight and size of these bags cause additional strain to the hands, wrists and forearms of many EMS providers. These problems are amplified when providers must move the equipment from residences, in addition to operating the stretcher and other EMS equipment, such as cardiac monitors and oxygen caddies. The bulk and weight of the current ALS bag model then becomes an unintentional hazard, especially if the bag is carried over the shoulder, acting as a pendulum and potentially striking a patient's personal property inside of the residence or inadvertently striking bystanders.

Upon the return to the ambulance, the current ALS bag is stored in an outside compartment near the driver's door of the ambulance. For many EMS personnel, the compartment is situated at the level of the provider's head. This adds to the potential for injury because the provider must then hoist the bag beyond the level of the shoulders to place the EMS bag back into the compartment for storage.

In the last two years, there have been twenty six reports of injuries tied directly to the current ALS bag model. These injuries include shoulder pain (7), back pain (12), hand and arm strains (4) strained shoulder muscles (3). One employee received corrective surgery for a shoulder injury, and a former employee was sidelined from the EMS profession from permanent injury. Given the fact that the ALS bag may weigh differently, from one specific bag to the next, the potential for injury increases. Further, some current ALS bag models do not have the option to be placed over the shoulder, but only carried by hand. Depending on how far the bag has to be carried, forty pounds may

feel like a hundred pounds the further the provider has to walk, given muscle fatigue and total muscle failure.

Any time there is the lifting and moving of heavy equipment or people there is an inherent risk of injury, however Greenville County EMS desires to mitigate injuries and discomfort to the employees from carrying EMS equipment further by moving to smaller, more lightweight and modular equipment bags.

Because the weight of the current ALS bag and current carrying options present the largest possibility of injury to the employee, Greenville County EMS desires to change our current model to a better option. This type of ALS kit is a backpack-style, and can only be carried as such by the EMS provider. The new kit also features a chest strap to further distribute the weight of the kit more evenly across the back of the EMS provider. Furthermore, EMS desires to use three additional modules with the Load N' Go style bag. These modules are detachable from the bag and are used for intubation, medication delivery, and IV administration.

EMS received a test bag of the Stat-Pack Load N' Go with the three modules, and they were loaded with a modest assortment of EMS equipment. The test bag weighed an approximate twenty-one (21) pounds as opposed to the thirty two and forty pound current model. It is further estimated that the new bag can shed an additional two pounds by moving pediatric equipment into a repurposed, specialized pediatric response kit. Because these kits can only be worn on the back, high and tight, they do not pose a hazard as a striking object inside patient's residences. Further, there is no option to hand-carry the kit, thereby reducing or eliminating wrist and hand injuries associated with carrying the old equipment. Weight is distributed evenly, and the provider does not have to "lean to one side" to compensate for weight added to one side of their body only.

The test bag was fielded to an ambulance unit and was met with a high satisfaction rate among employees, with each employee that encountered the kit applauding the new overall weight of the bag, as well as the weight distribution. One employee in particular stated that it "Feels like I'm carrying nothing at all".

EMS workers are seven times more likely to miss work as a result of an injury than that of an average worker. Half of all EMS workers suffer back pain on an annual basis, and a back injury is a number one reason for leaving EMS. Further, one in four EMS providers will suffer a career ending injury within the first four years of service (NAEMT, 2013). As noted above, back pain is the number one complaint when using our current ALS bag model, with shoulder related complaints coming in second. Greenville County EMS has many safeguards in place to help mitigate many injuries, and the ability to change our current bag will further assist to decrease complaints and injuries. Our employees are our biggest asset in this industry, and we want to continue to invest in their health and well being.

## **MCT Justification**

Greenville County Emergency Medical Services (GCEMS) is seeking assistance with acquiring three computers which are desired to be used as Mobile Computing Terminals (MCT) in our ambulances.

GCEMS is a leader in pre-hospital medical care, and to continue to provide cutting edge EMS service, the organization has become and maintains some of the highest technological advances in the industry since its inception.

Through our current model, 911 requests for assistance are routed to the individual ambulance through the MCT computers, which in turn display the address of the patient(s) requesting an ambulance along with the specific nature of the 911 call. The EMS crew can also pinpoint the exact location of the address where the emergent call was spawned and be able to route themselves to the call without the use of fold-out maps, or map-books, which take a considerable amount of time to thumb through and select an appropriate route.

Further, through the use of the MCT terminals, the amount of spoken radio traffic has drastically decreased, allowing for the open air channels to be used without interruption in the event of a dire emergency or a crew in jeopardy.

The use of the MCTs improves patient care by a more expedient response, cutting seconds, or even minutes, off the total response time of the ambulance from the receipt of the call to the arrival of the unit on the scene of the emergency.

The new units would be installed immediately upon receipt to ambulances that do not have them equipped, and placed into service immediately. In a busy rural and metropolitan county fast approaching half a million residents, and growing and expanding rapidly, it is often the minute or seconds shaved off of the total response time that these devices currently offer us that make the difference between life or death. We appreciate any assistance you can offer us.