

***Tucker County***  
***Emergency Medical Services***

**Organizational Assessment**

**Findings  
and  
Recommendations**

**March 24, 2014**



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**I. PROJECT OVERVIEW:**

J.R. Henry Consulting Inc. was engaged by the Tucker County Commission to conduct an assessment of certain organizational, administrative, operational and financial practices of the Tucker County EMS (“TCEMS”).

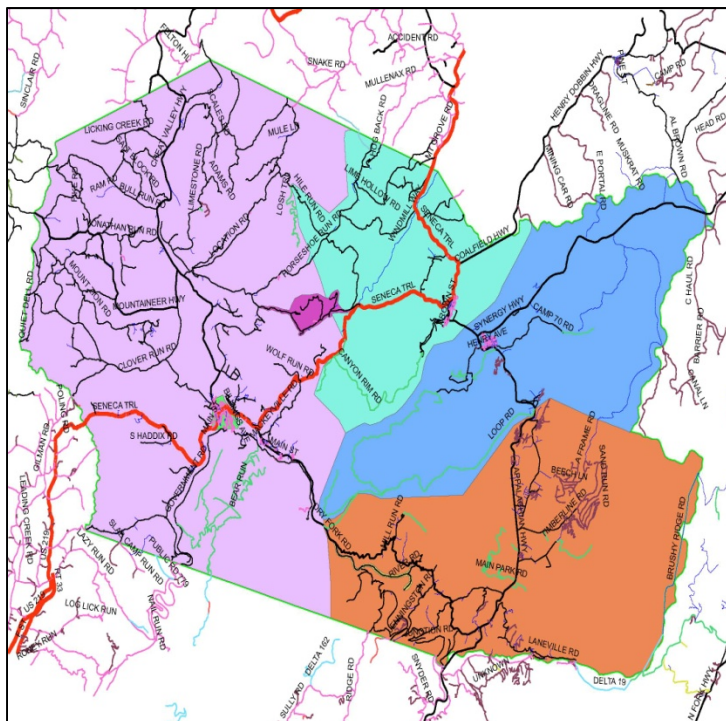
An on-site assessment was conducted on January 8, 2014, which consisted of interviews and data collection with TCEMS administrative personnel.

During the site visit, TCEMS was cooperative and provided requested operational and financial data which was available for our review.

Pursuant to the site visit, we subsequently contacted Tucker County 911 and MCA (billing subcontractor) to obtain additional call volume, billing and other applicable data for analysis.

**II. TCEMS OVERVIEW:**

TCEMS is the primary provider of basic and advanced life support services to Tucker County. TCEMS responds to approximately 1,200 annual requests (average monthly call volume = 76 per month) and provides EMS and medical transportation services to the ill and injured in this primarily rural county located in northeastern West Virginia.



Resident population of the combined 421 square mile service area is estimated to total ~ 7,000.

The service area is located in a mountainous region which has a number of popular tourist destinations (i.e.: 2 state parks, a national wildlife refuge and 3 ski resorts). ***All of these areas create dramatic population shifts during certain peak seasonal periods. Some estimate that the total population of the County can nearly double during certain times.***

Tucker County contains only 5% residential and/or commercial development. The remaining ~95% is agricultural, wildland and /or undeveloped, open space.

It should be noted that in regard to property values, it is estimated that more than 53% of Tucker County properties are owned by either the State and/or Federal government. In addition, more than ~28% of the county's properties are agricultural in nature. These designations make most of the properties - non-taxable. The result is that only ~19% of Tucker County properties are taxable.

**Public Safety Agencies:**

There are four (4) volunteer fire departments in Tucker County. The departments are located in Canaan, Thomas, Davis and Parsons. The fire departments respond to all types of hazards including fire suppression, rescue and haz-mat. However, none of the fire departments are trained or equipped to provide "quick response" to EMS calls. TCEMS and the fire departments jointly respond and work together to support each other at emergency incidents but the fire departments do not currently provide any type of medical services, treatment or transport.

Most of the County's law enforcement is provided by the Sheriff's Office. Currently, the Sheriff's Office responds to certain emergency medical incidents. However, the Sheriff units are not equipped with first aid supplies or automated external defibrillators.

In regard to hospital and medical facilities, the nearest receiving facility is Davis Memorial Hospital located in Elkins, WV. A critical care center formerly located in Parsons, WV, ceased operations in 2009. Depending on the point of origin, the next closest hospital to Tucker County is Garrett Memorial Hospital located in Oakland, MD.

<p><b>Typical EMS call turnaround times are estimated to be 1.5 hours to 2.5 hours</b></p>
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**Ambulance Inventory:**

At the time of the site visit, TCEMS had a vehicle inventory which included five (5) Advanced Life Support (ALS) equipped ambulances. The ambulance inventory includes (2) 1997 Ambulances, a 2005 ambulance, a 2009 ambulance and the newest ambulance which is a 2011 model.

*The newest ambulance appears to be used on more than ~60% of all transports identified in calendar years 2012 and 2013.*

TCEMS also has access to an aging utility vehicle (Unit 50) which was described as an age unknown Jeep. The usage of this vehicle appears to be very limited.

**EMS Stations:**

TCEMS currently operates from three (3) stations located within the 421 square mile service area.

Station #1, located in the Parsons, is the primary TCEMS station. This is the station that is typically staffed when there is only one scheduled crew on duty.

Station #2, is located at the Cortland Acres Nursing Facility in the Thomas area. Typically, this station is not staffed unless a second crew is on duty. This station may also be staffed during certain peak times and/or for seasonal events.

Station #3 is located at the Canaan Valley Fire Station. Typically, this station is not staffed unless a second crew is on duty. This station may also be staffed during certain peak times and/or for seasonal events.

The Director indicates ambulances are sometimes dynamically posted at various other locations within the County in an effort to reduce EMS response times. The postings are based upon a number of complex local issues including but not limited to: weather conditions; population shifts; the number of expected attendees at certain events; and available EMS staffing.

**Office Location:**

The TCEMS administrative offices include offices for the Director and the Administrative Assistant.

The offices are located on the second floor of the old Courthouse Building in Parsons (approximately one block from Station #1).

The offices are very small, crowded and appear to be in general disarray. Amid the overall disheveled office area, we noted many confidential files were in plain view and could be easily accessed by anyone visiting the office.

**EMS Staffing Levels:**

TCEMS has a limited administrative staff which consists of the Director and an Administrative Assistant.

The TCEMS operational staff currently consists of compensated personnel only. The roster indicates a total of 35 members including 13 paramedics, 20 EMT's, and 2 EVOC

certified drivers. However, the actual number of **active** employees appears to be far less than the roster indicates.

*It should be noted that no volunteer personnel are currently utilized. The administrative staff indicated that the organization previously has had human resource and other difficulties with certain volunteers. Due to these past issues, the current administration has elected not to recruit or use volunteers to augment TCEMS staffing.*

TCEMS currently operates two (2) twelve hour shifts. One shift starts at 0800 hours and ends at 2000 hours. The other shift starts at 2000 and ends at 0800. This provides one staffed unit - 24 hours per day – 7 days a week.

In addition, on certain weekdays, averaging 4 days a week, TCEMS also staffs a second daylight unit from 0900 hours to 2100 hours.

### **ALS Staffing:**

All units are typically staffed at a minimum at the BLS level.

Based upon the information made available to us during the site visit, it is estimated that TCEMS has at least one unit, staffed at the ALS level, approximately 70% of the time. This includes the Director's scheduled and on-call time and other employees.

ALS staffing is largely dependent upon the availability of the Director and a limited number of TCEMS paramedic personnel.

Although, the roster contains 13 paramedics, the number of truly active paramedics appears to be very limited. A review of payroll records indicates that ALS coverage is provided by the Director, one full time paramedic and three (3) active part-time paramedics.

### **Employee Wages:**

The Director is paid an hourly wage of \$13.40 for 40 scheduled hours each week. The Director also routinely receives an additional 128 hours of on-call pay per week and /or the paramedic fee outlined below.

Current hourly wages for TCEMS drivers is \$8.65 per hour. The EMT hourly rate is \$10.20 and hourly rate for a Paramedic is \$11.85.

It is reported that these wage levels were adjusted in 2012 and 2013. Apparently, TCEMS employees did not receive wage adjustments in any of the four (4) previous years.

Funds in the amount of more than \$116,000 (2012/13) and \$84,000 in subsidies provided by the Tucker County Commission made the wage adjustments possible.

Based upon an informal survey of adjacent EMS agencies which was conducted during the site visit, Tucker County EMS wages appear to be much lower than adjacent counties. The wage scales for drivers in other adjacent EMS systems range from \$9.00 – \$9:50; EMT hourly wage rates range from \$11.00 - \$16.50 and Paramedic rates from \$13.00 - \$19:00

The TCEMS Administrative Assistant is paid \$11.65 per hour.

**On-Call System:**

There is an employee on-call system in place but is reported to have limited effectiveness.

During the site visit, we requested a schedule of the on-call personnel. However, TCEMS indicated that they did not have a copy of any type formal on-call schedule.

A review of payroll records show an average of eighty (80) hours of weekly on-call time was paid to employees - other than the director.

The on-call system provides a stipend of \$1.00 per hour for drivers; \$1.50 for EMT's and \$2.00 per hour for Paramedics. This stipend only applies when no calls are taken.

If a call is taken during the on-call period, the employee receives compensation based upon their certification level and the amount of loaded mileage.

As the paramedic intercept fee charged by Randolph County EMS was already set at \$175.00, the administration elected to change on-call compensation system for paramedics only. The new incentive program now offers paramedics a flat rate of \$150.00 for any transport.

**Financial Overview:**

A cursory review of the 2012-13 TCEMS budget showed expenditures which totaled more than \$1.059 million dollars.

Revenue including \$883,530 from billing fees and subsidy from the Tucker County Commission of \$116,380 along with other miscellaneous income totaled \$1.022 million dollars. The net loss for the last fiscal year is \$37,000

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As TCEMS is located in designated “super rural” area by Medicare (CMS), it receives a ~23% bonus for all reimbursement for all billed base rates. Effective on April 1, 2014, this bonus is set to expire. Unless Congress takes action to extend this bonus, TCEMS may face significant decreased in it future Medicare reimbursement.

**Billing Revenue:**

MCA, TCEMS billing subcontractor provided the following summary information which was used to evaluate TCEMS revenue production associated with fee for service billing.

**TCEMS  
Collection Percentage Reports**

Year	Total # of PCR's vs. Billable Transports	Total Charges	Total \$\$\$ Paid	Gross Collection Percentage
2012	1,225 Total 882 Billed	\$ 861,849.08	\$ 435,936.74	50.6%
2013	1,136 Total 782 Billed	\$ 785,437.71	\$ 404,124.44	51.5%

***The current gross collection percentages are considered “above average” in comparison with other EMS services with similar call volume and payer mix***

**TCEMS  
Payer Mix Reports**

<b>2012 Primary Payor Report</b>	<b>Number of Runs</b>	<b>Charges</b>	<b>Payments</b>	<b>CA / Write Off</b>
<b>Medicare</b>	<b>447</b>	<b>\$ 432,896</b>	<b>\$ 264,039</b>	<b>\$ 160,582</b>
<b>Commercial</b>	<b>188</b>	<b>\$ 178,080</b>	<b>\$ 115,682</b>	<b>\$ 55,139</b>
<b>Welfare</b>	<b>157</b>	<b>\$ 161,891</b>	<b>\$ 48,402</b>	<b>\$ 109,531</b>
<b>Private Pay</b>	<b>90</b>	<b>\$ 88,980</b>	<b>\$ 17,415</b>	<b>\$ 8,932</b>

<b>2013 Primary Payor Report</b>	<b>Number of Runs</b>	<b>Charges</b>	<b>Payments</b>	<b>CA / Write Off</b>
<b>Medicare</b>	<b>365</b>	<b>\$ 358,931</b>	<b>\$ 217,543</b>	<b>\$ 133,619</b>
<b>Commercial</b>	<b>193</b>	<b>\$ 197,962</b>	<b>\$ 118,378</b>	<b>\$ 53,064</b>
<b>Welfare</b>	<b>133</b>	<b>\$ 135,535</b>	<b>\$ 43,198</b>	<b>\$ 87,963</b>
<b>Private Pay</b>	<b>91</b>	<b>\$ 93,009</b>	<b>\$ 25,003</b>	<b>\$ 14,038</b>



**Unit Hour Analysis:**

The following unit hour analysis (UHA) was developed using actual call volume and an adjusted amount of annual TCEMS expenditures for the 2012-13 fiscal year (total expenditures minus contractual allowance). The amount of annual expenditures (including depreciation) used for the calculation totals \$645,000.

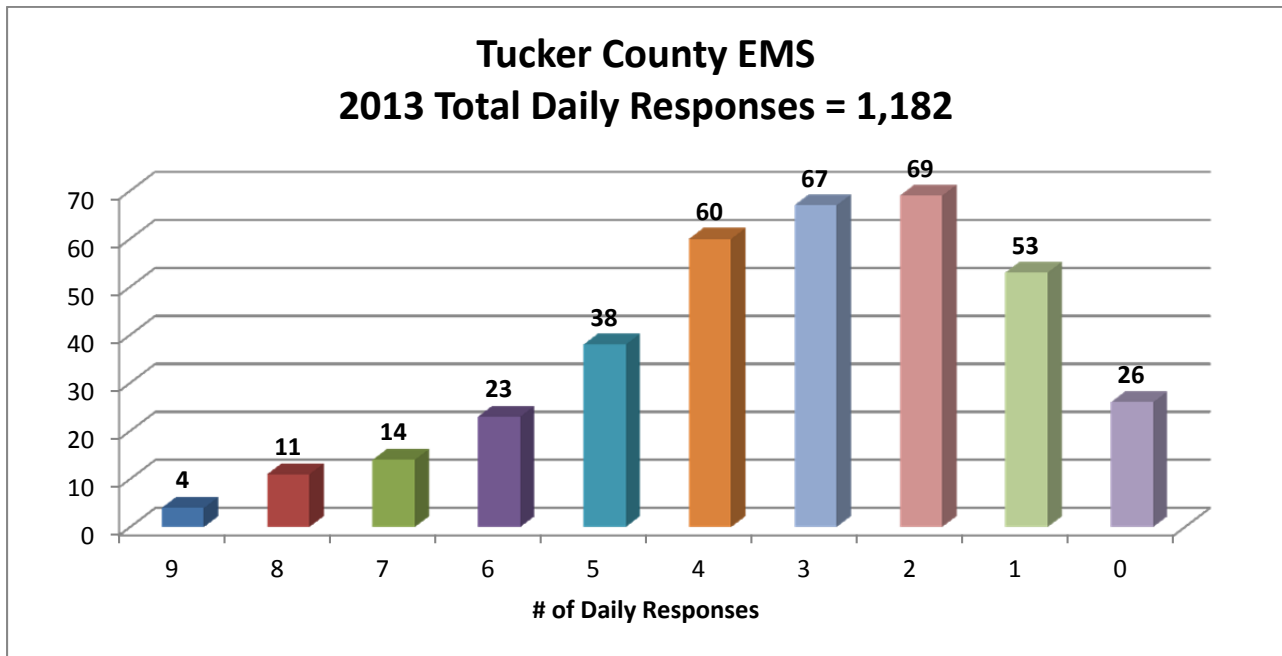
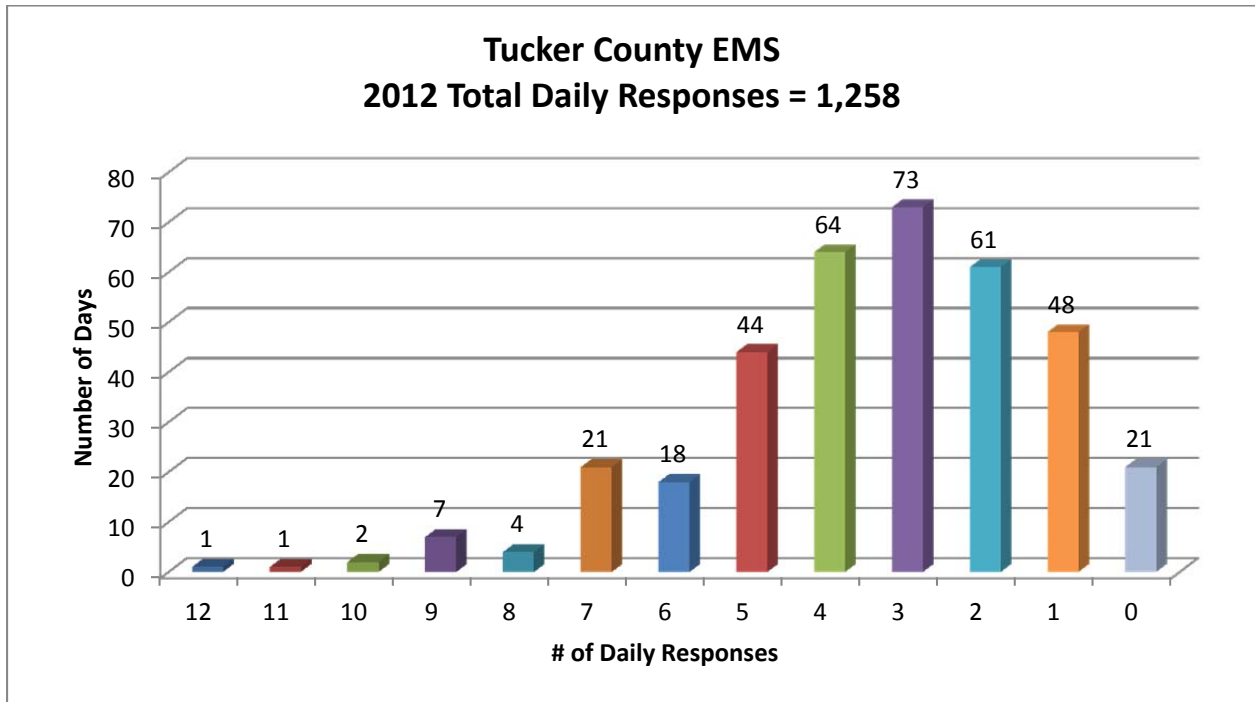
1. TOTAL UNIT HOURS PER WEEK = (A)    **216 manned ambulance hrs.**  
Estimated number of hours staffed per week.
  
2. AVERAGE CALL VOLUME PER WEEK = (B)    **23.05 calls per week**  
Estimated annual number of calls (1,200) / divided by 52.07 weeks in a year
  
3. UNIT HOUR UTILIZATION = (B/A)            **.11 calls per unit hour**
  
4. SHIFT UTILIZATION = (B/A) x 12 hrs.        **1.28 calls per unit shift**
  
5. TOTAL EXPENSES PER WEEK = (C)        **\$12,387 per week**  
Total expenses per year (\$645,000)/ 52.07 weeks in a year
  
6. TOTAL EXPENSES PER DAY = (C) / 7 days    **\$1,769 per day**
  
7. COST PER UNIT HOUR = (C/A)            **\$ 57.35 per unit hour**
  
8. COST PER UNIT SHIFT = (C/A) x 12 hrs.    **\$ 688.18 per unit shift**
  
9. COST PER CALL = (Line 8 / Line 4)        **\$ 537.50 per call**

- x 25 % increase for non-transport (\$134.38)
- x 50 % Estimated Bad Debt Allowance (\$268.75)

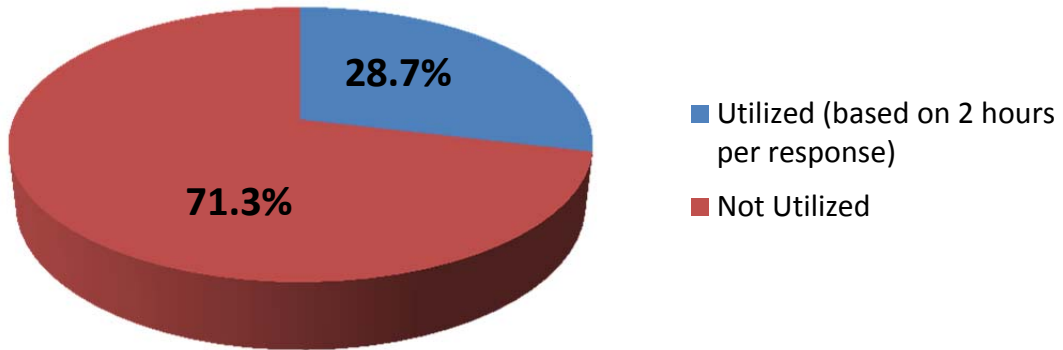
<b>Average Billed Amount @ Transport required to meet projections = \$940.63</b>
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***Based upon 2012-13 call volume and staffing patterns,  
TCEMS has an average productivity rate of 11%***

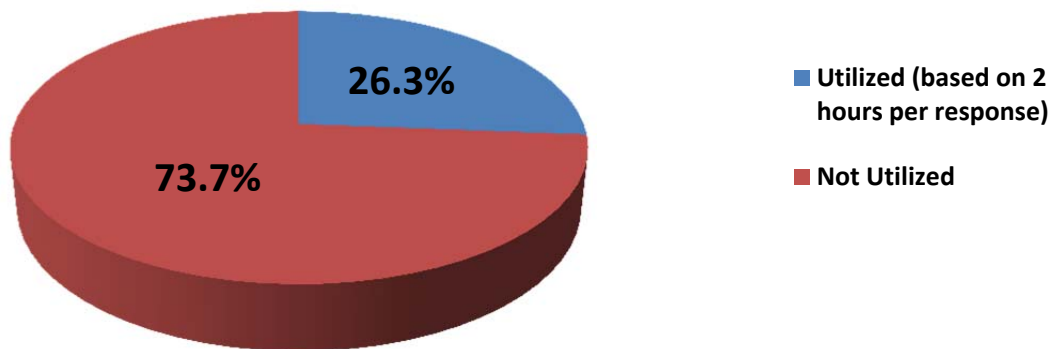
**Call Volume Data:**

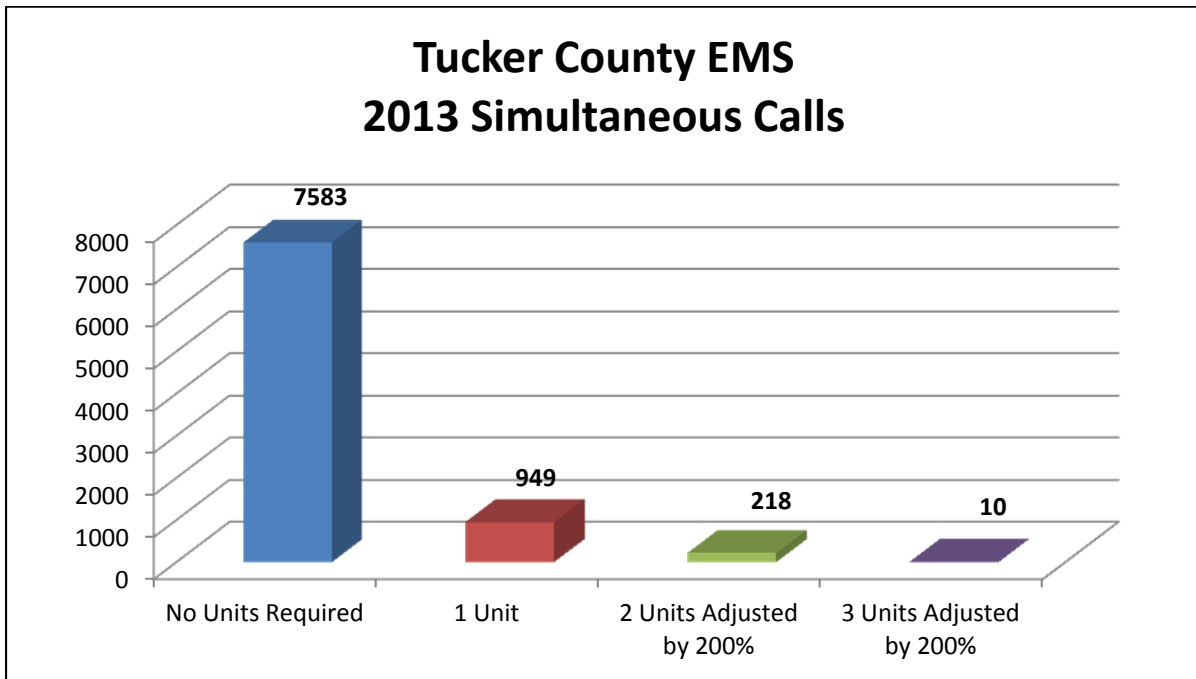
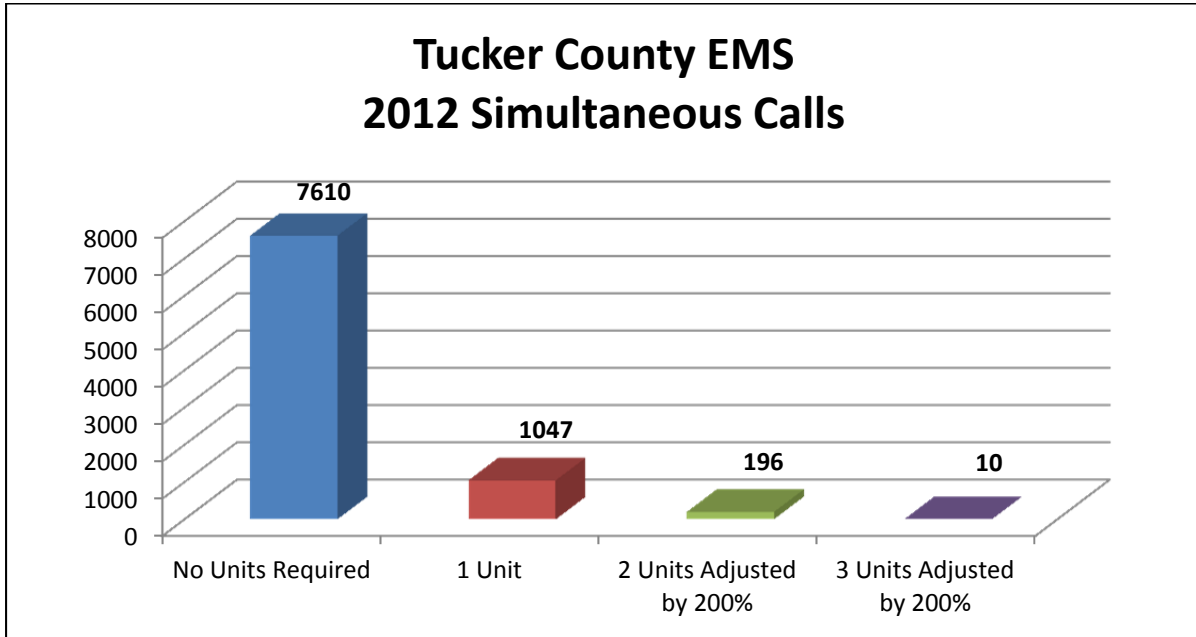


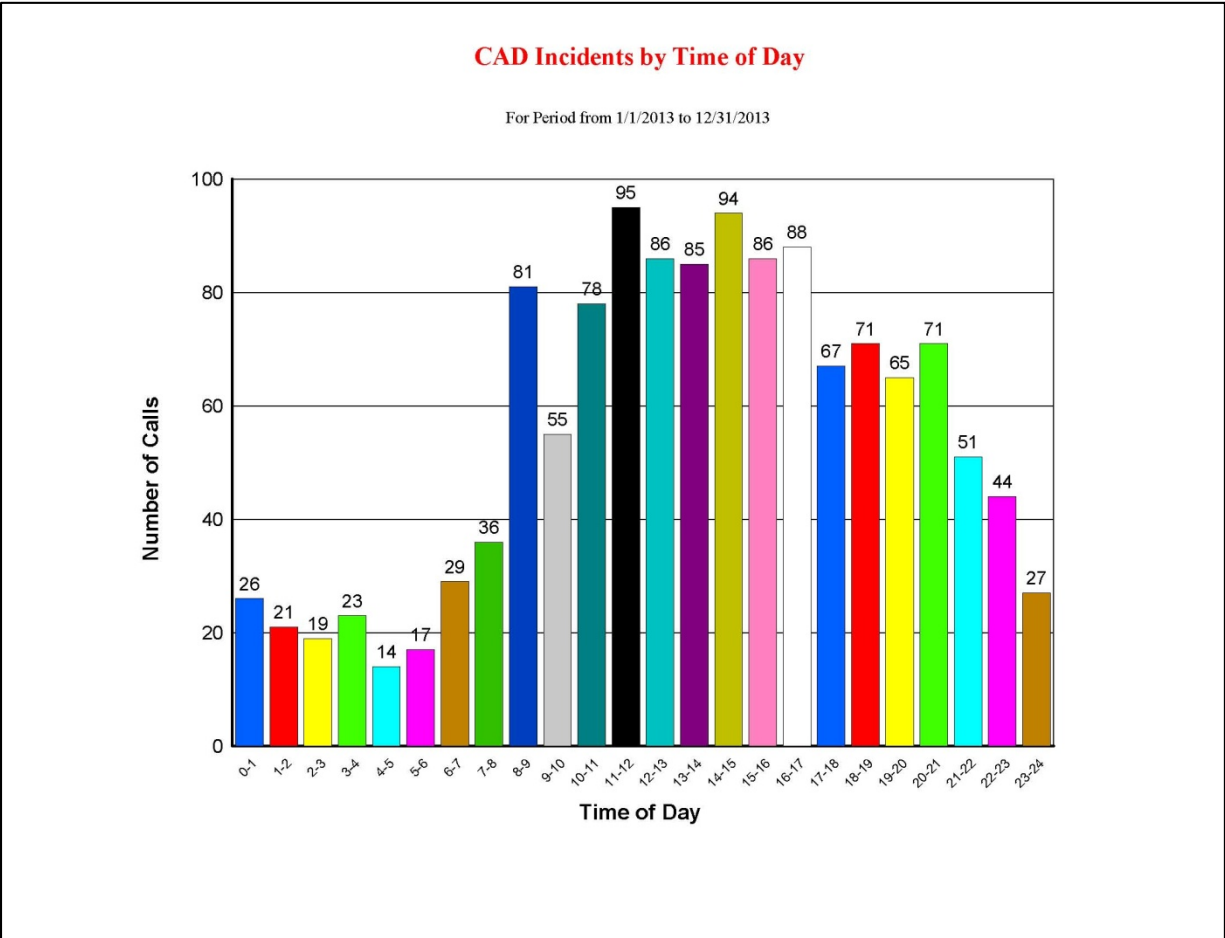
**Tucker County EMS  
2012 Hourly Utilization**



**Tucker County EMS  
2013 Hourly Utilization**

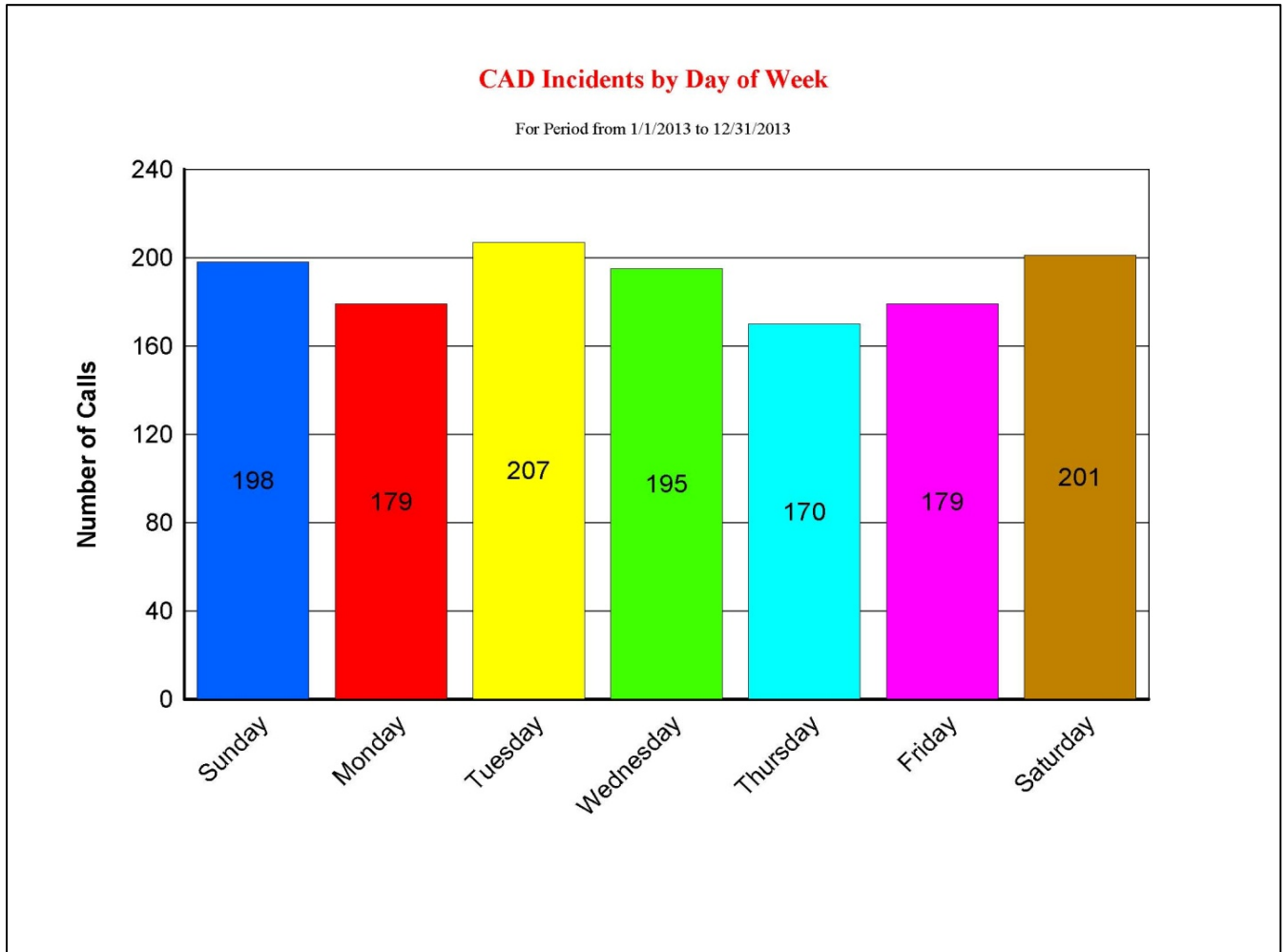






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**III. Findings and Recommendations:**

*The following is a summary of our findings and recommendations related to current organizational structure, financial and administrative issues.*

**Finding:**

***TCEMS covers ~87% of its call volume demand with a single crew.***

***Simultaneous responses only occur ~ 200 times per year***

***Based upon the current call volume, transport and turnaround times, the statistical call volume demand can be covered with a single ALS crew, 24 hours a day – 7 days a week***

***The current EMS staffing model appears to be more than adequate and clearly exceeds the current EMS call volume demands of Tucker County***

***Additional crews are simply not justified***

***Hiring of additional crews will dramatically increase labor and related costs. Furthermore, additional crews will exacerbate and further lower crew utilization and productivity***

**Personnel Recommendations:**

- Consider development of a new part time job description for an employee to help manage the administrative and operational aspects of the TCEMS organization.

The Director is admittedly overwhelmed by certain aspects of her responsibilities and is appears deficient in many administrative / oversight areas. For, example, it appears that there is no daily reconciliation process to assure that a PCR is generated for each response and/or transport.

- Restructure and revise the Director's salary;

- Consider reducing the second crew from its current 12 hour staffing (4 days week) to 8 hour shifts - 7 days a week.
- Consider implementing a new structured on-call scheduling call process and methodology to help provide cost effective, back up staffing when call volume peaks.
- Enhanced recruitment and retention methodologies:
  - Schedule employee meetings to educate and obtain input on system issues, improvements and solutions for the action plan;
  - Discuss schedule needs with each individual employee. Determine their status as active or non-active. Determine what each employee can contribute;
  - Schedule and other changes should assure minimum staffing of one (1) ALS crew, 24 hours a day / 7 days a week;
  - *Review and adjust hourly rates of pay for all employees* as wages still appear to be an issue. As stated previously, the rate of pay is considerably lower for TCEMS than adjacent Randolph County;
  - TCEMS may wish to explore methods to improve compensation factors to attract and retain personnel. That does not necessarily mean an immediate large increase in hourly compensation. It could include the expansion of other benefits that could improve personnel's acceptance of the rate of pay;
  - Possible expansion of the full-time pool with benefits of a live-in residency program could help to maximize staffing efforts. Additional study will be necessary to determine the feasibility of these options;
  - Consider recruitment and integration of EMS volunteers;
    - During our site visit the Director and President of TCEMS vocalized many previous difficulties – all of which lead to the decision not to recruit EMS volunteers. One of the reasons cited was the cost saving. They indicated that dropping volunteer insurance coverage. Generated a cost saving of \$750.00 per year. In our opinion, this minimal cost saving measure does outweigh the long term advantages and benefits that volunteers could bring to TCEMS;



- TCEMS should be restructured in order to plan, manage and implement practical methodologies which incorporate EMS volunteers into their system. The volunteers must be willing to be properly trained to provide effective and professional EMS treatment and transport. A small number of well trained volunteers could greatly enhance the services provided by TCEMS and the organization's long term viability;
- ***TCEMS should enhance effort related to scheduling (on-duty and on-call)***
  - Scheduling of personnel is a time intensive and frustrating process for all EMS agencies. However, there are numerous methodologies and new technologies available to help EMS agencies better schedule and manage personnel. These software products along with staff education can provide a cost effective ways to improve management and improve employee job satisfaction;
  - We recommend that TCEMS implement any one of a number of web based scheduling, time and attendance programs. There are wide selections of products and features available that can improve the management of staffing for TCEMS. TCEMS should choose a product that meets their specific needs. Although, we do not endorse any specific product, we can provide further guidance in the selection of a program to meet the needs of TCEMS, if requested;
  - The use of a scheduling system can also potentially assist the 911 Center in monitoring the availability of on-call personnel. Additionally, depending upon the product selected, the 911 Center and TCEMS can use these systems for notifications, requests and statistical reports;

**Emergency Vehicle and Fleet Recommendations:**

In an effort to reduce overall capital and operational costs, TCEMS should review its entire emergency vehicle fleet.

***TCEMS should consider decreasing the number of ambulances in the fleet to three (3) ALS units.***

This opinion is justified by our review of the current TCEMS call volume which simply does not support the operation and maintenance of five (5) ambulances.

Our opinion to decrease the fleet size is further substantiated by the fact that TCEMS does not typically staff or need more than two (2) units per day. Additionally, TCEMS

does not appear to have any reliable method to actually staff the remaining three ambulances.

*The capital costs required to purchase and maintain these unnecessary ambulances is one of the primary factors in the relatively high TCEMS overall capital and operational costs.*

*Additional duplicate and unnecessary expenses are also incurred in purchasing and maintaining of all the other medical equipment contained in these ambulances.*

*The major capital items include such items as the ECG monitor and the primary / secondary stretchers. These items alone have a conservative combined yearly maintenance cost of \$3,000.00.*

In addition, there are many other items including soft supplies and medications which have to be replaced on a regular basis due to expiration dates. This replacement process increases operational readiness cost and can include labor and other costs required to accomplish the review, replacement and / or acquisition of expiring onboard medical equipment and supplies.

**TCEMS should consider different ambulance configurations and other types of supplemental emergency vehicles.**

The winter weather, topography and rural nature of Tucker County certainly indicate the need for availability of at least one (1) four-wheel drive ambulance.

However, due to the climate in this part of West Virginia, the actual need for four wheel drive ambulance operation is limited to only a certain number of days in the winter months.

*As the majority of the TCEMS ambulances are four-wheel drive capable, capital and year round operational costs are significantly increased.*

Due to these facts, we suggest that TCEMS consider purchasing one or more future ambulances without four-wheel drive capability.

As an alternative, TCEMS may wish to consider the purchase of a supplemental vehicle such as a four-wheel drive SUV type vehicle - with a stretcher mount option. This type of vehicle could be used for multiple purposes including transport of patients from a remote area to a waiting ambulance which is stationed in a safer, parked location. Also, the vehicle could be used by the Director and other operational employees (on duty or on-call) to respond to calls helping to maximize staffing resources and reduce response times.

**System Approach Recommendation:**

As Tucker County is a rural and sparsely populated county, the provision of EMS is very challenging and more difficult in many ways as compared to urban and suburban EMS systems.

We recommend that Tucker County consider including other private and public safety organizations in evaluating and adopting a system approach to providing Emergency Medical Services (EMS) to its residents and visitors.

A system approach for Tucker County could involve other stakeholders within the county to provide the services in a more cost effective manner. These stakeholders can be organized by the TCEMS Ambulance Authority Board or the County Emergency Manager.

The stakeholders include law enforcement, fire personnel, 911 and TCEMS. Because of the expanse of the county, the coordination and best practice usage of these resources could greatly enhance the level of care in a more cost effective manner.

For example, we propose that the Sheriff's Office, TCEMS, and the County Commission determine the feasibility of equipping and training law enforcement officers to respond to EMS calls in order to perform CPR and other services including the use automatic external defibrillations (AED). We believe that, if feasible, the program would be a worthwhile initiative which could reduce overall EMS response times and improve patient care outcomes.

The fire departments located in Tucker County should also be approached to see if they could be part of EMS system enhancements. For example, many rural fire departments are willing to take the necessary first responder training to be part of a Quick Response Service (QRS) or provide supplementary personnel to assist EMS on medical calls.

These departments may also be queried to determine if they could help to enhance delivery of EMS services in other ways. For example, TCEMS should not purchase duplicate equipment or vehicles - if the resources are readily available within other public safety agencies in the County. For example, if the Sheriff's Department or a fire department already has four-wheel drive vehicles, could they be equipped or retrofitted with stretcher mounts to assist with removal of patients from remote locations to a waiting ambulance?

**Private Organizations:**

Private organizations such as the ski resorts and other organizations should be approached to determine if they can offer financial or other types of assistance to enhance the delivery of EMS in Tucker County. For example, as the ski resorts contribute to seasonal peaks in tourism and EMS system demand, would they be willing to help provide a monetary subsidy to TCEMS? Or could an arrangement be made to have ski patrol or other medically trained personnel serve as QRS for on-site and nearby EMS calls?

**Neighboring EMS Systems and Private EMS Agencies:**

TCEMS should approach other adjacent county EMS agencies to determine if there are any opportunities to share or integrate resources in a cost effective and practical manner. Potential viable alternatives may include sharing of administrative personnel, plans and programs, sharing and backup vehicles, sharing equipment and / or personnel in order to help enhance the overall effectiveness of the EMS system.

As a last resort, in the event that all of the described or future developed alternatives are not sufficient to assure long term viability of TCEMS, the County Commission may wish to engage adjacent EMS entities and counties to determine if there is an interest in providing EMS coverage in Tucker County.

As a last resort, the County may also wish to explore the feasibility of contacting with a private agency to provide EMS services within Tucker County.

**Miscellaneous Recommendations:**

- TCEMS should review its management and administration for opportunities to improve efficiencies;
- TCEMS should place more emphasis on administrative and oversight issues. During this organizational assessment, we found numerous occasions of conflicting, contradictory and confusing organizational, administrative and financial data. For example, a review of internal call volume data did not match the independent data obtained from the Tucker County 911 Center;
- TCEMS should have a plan for management transition and succession;
- TCEMS should address the disheveled office environment and implement a practices and policies to assure proper document storage, retention and security to minimize the possible risk of disclosure of protected employee and patient confidential information;

- TCEMS should implement a PCR accountability process to assure that each response has a corresponding PCR and all billable transports are billed;
- TCEMS should consider the feasibility of outsourcing its payroll process to an outside vendor. If approved, TCEMS should seek a payroll vendor whose product will accept the output of any approved TCEMS scheduling software;
- TCEMS should review and develop new job descriptions for its Officers and other staff positions. At time of our interview, the Director and Administrative Assistant both stated that they were “overwhelmed” by certain aspects of their duties and “needed help getting everything done.” The goal of this effort would be to determine the proper delegation of duties among the Board, Officers, staff members and sub-contractors.

**IV. CONCLUSION:**

***There are no easy answers or “quick fixes” to the TCEMS issues outlined in this report***

***Many of the issues are related to Tucker County’s extremely small population who reside in a large rural land mass. Although, population density vary with seasonal tourism and special events, current EMS call volume is relatively low at ~1,200 responses per year***

***This results in limited EMS billing revenue, extremely low EMS productivity and higher EMS system costs***

***We encourage that the Tucker County Commission and the TCEMS representatives to use this report as a starting point for the development of a long term action plan***

***The action plan should identify specific goals, objectives and timelines which are developed to maximize EMS resources while enhancing the delivery of reliable, high quality patient care***

***If all parties are agreeable, the Tucker County Commission should consider continued funding and approval of new EMS funding which should be specifically tied to implementation milestones of the action plan. This subsidy should help to offset certain pre-approved TCEMS related capital and operational expenses***

**V. DISCLAIMER:**

J.R. Henry Consulting Inc. does not engage in the practice of providing legal or accounting advice. The consulting services that we provide may contain summary references to certain statutes, regulations, or other policy materials pertaining to complex federal and state health care laws, regulations and policies. We encourage clients to review with legal counsel any applicable statutes, regulations, policies and other interpretive materials to obtain a full and accurate understanding of their contents.

It is also expressly understood that the consulting services provided by J.R. Henry Consulting Inc., although specifically intended to assist the ambulance service in its compliance with applicable laws and regulations, cannot be interpreted as a guarantee of any such compliance and, as such, J.R. Henry Consulting Inc. shall not be held liable for any fines, penalties, or other damages assessed as a result of non-compliant actions.

All clients are strongly advised to obtain professional legal advice from an experienced and qualified attorney and or; a certified public accountant, prior to implementing any material change in their administrative, billing or operational polices or any other matter which is governed by law or regulation.