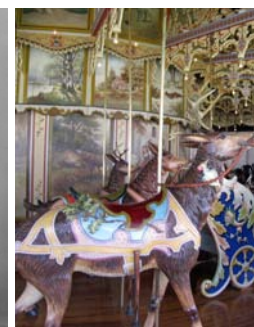
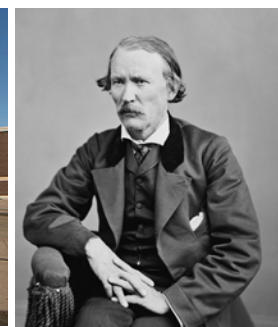


Emergency Medical Services Consultative Visit



Kit Carson County, Colorado

June 13, 2011

Preface

This document was produced for the Kit Carson County Board of County Commissioners and the Kit Carson County Emergency Medical Services Council. Coordination of the assessment team and production of this document was a joint effort by the Plains to Peaks Regional Emergency Medical and Trauma Advisory Council and the Emergency Medical and Trauma Services Section of the Colorado Department of Public Health and Environment under its authority at C.R.S. § 25-3.5-603 to provide technical assistance, upon request, to local governments.

The opinions, analysis and recommendations expressed in this document are those of the authors and do not reflect the official positions of the Plains to Peaks Regional Emergency Medical and Trauma Advisory Council or the Colorado Department of Public Health and Environment.

Additional or electronic copies of this report can be obtained by contacting the Colorado Department of Public Health and Environment at:

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Colorado Department
of Public Health
and Environment

June 13, 2011

Kit Carson County
Board of County Commissioners
P.O. Box 160
Burlington, CO 80807

Dear Commissioners,

On behalf of the Colorado Department of Public Health and Environment and the Plains to Peaks Regional Emergency Medical and Trauma Advisory Council, attached is the Kit Carson County Emergency Medical Services system consultative review report. Pursuant to your invitation and support of this project, a group of EMS system consultants worked under the general coordination of both the RETAC and CDPHE to review the current status of the EMS system in Kit Carson County. The Kit Carson Board of County Commissioners and the Kit Carson County Emergency Medical Services Council are to be commended for the dedication and foresight you have demonstrated by undertaking this important activity. Hopefully, this report will provide the basis from which the community can move forward to ensure that quality patient care and transportation continue to be provided throughout Kit Carson County.

The CDPHE is pleased to have provided the funding for this project and wishes to thank the PTPRETAC for its willingness to provide additional resources and support to this effort. Understanding that Colorado statute vests each county with the authority to develop, design and implement local emergency medical services systems, this consultative review is intended to provide insight and information from which the county board of commissioners, the county EMS council, the hospital and the EMS agencies can make the policy decisions necessary to support the development of improved services to patients throughout your jurisdiction. The report itself has been authored by members of the contracted review team and represents their perspectives and recommendations. Understanding that the CDPHE has no regulatory authority regarding agencies that provide prehospital care and transportation, this report does represent our commitment to work with local governments to ensure quality health care to all Coloradoans. As such, the Department looks forward to working with the Kit Carson County EMS and trauma community to support your future decisions regarding local system improvements.

(over)

As the Kit Carson County health care community considers its next steps, if our office or the PTPRETAC can be of further assistance, we will look forward to the opportunity.

Respectfully,

A handwritten signature in dark ink that reads "D. Randy Kuykendall". The signature is written in a cursive style with a large, stylized "D" and "K".

D. Randy Kuykendall, MLS, NREMT-P
Chief, Emergency Medical and Trauma Services Section
Health Facilities and EMS Division
Colorado Department of Public Health and Environment

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Executive Summary

An Emergency Medical Services (EMS) Consultative Visit of the Kit Carson County EMS system was conducted at the invitation of the Kit Carson County Board of County Commissioners (BOCC) in February of 2011. The review team was selected from throughout Colorado for their expertise in EMS issues faced by Kit Carson County. All major participants in the local EMS system were interviewed and additional information was collected from publicly available sources. The Kit Carson County EMS system is comprised of two ambulance services staffed primarily by volunteers supported by a number of small volunteer fire departments providing some rescue and limited medical first response services. The Kit Carson County Health Services District (KCCCHSD) operates the Kit Carson County Memorial Hospital (KCCMH), a critical access hospital, as well as a number of other health care services. Communications services are provided by a multi-jurisdictional communications center operated by the Kit Carson County Sheriff's Office (KCCSO).

The review team determined that EMS services currently being provided within Kit Carson County are adequate but face many challenges just under the surface. In particular, most response organizations were being held together through the tireless dedication of only a handful of people, or sometimes just one individual. The time consuming efforts to maintain appropriate response levels and other daily organizational responsibilities were an impediment to effective planning, communications, and overall system improvement. In many cases, basic strategic decisions about staffing, deployment and levels of service had not been made or recorded. Significant capital and infrastructure needs existed and an overall plan for long-term financial sustainability of the system was needed. Communications between, and sometimes within, organizations was intermittent, further inhibiting overall progress of the system. Despite these findings, the team was very impressed with the dedication of all system participants, as well as the commitment of the BOCC to EMS. The team further believes strongly that the improvement of planning and communications mechanisms, as well as a long-term financial sustainability plan, will allow the Kit Carson County EMS system to become a model for rural Colorado. This report contains a number of recommendations including:

- Conduct Comprehensive Human Resource Planning
- Provide for Improved and Ongoing EMS Leadership and Administration
- Fully Implement Medical Priority Dispatching
- Formalize and Improve EMS Resolution and EMS Council
- Increase Engagement with Medical Community
- Improve Medical Direction Resources
- Develop Comprehensive Plan for EMS Facilities
- Develop Capital Equipment Plan
- Improve Clinical Care
- Consider Additional Communications Center Structural Options
- Explore Sustainable Funding Options
- Explore Shared Services
- Integrate the Public Safety Radio System
- Consider Additional Health Integration Opportunities
- Improve Data Use in System Planning

Introduction and Project Overview

On September 8, 2010, the Emergency Medical and Trauma Services (EMTS) Section of the Colorado Department of Public Health and Environment (CDPHE) was asked to facilitate an assessment of the emergency medical and trauma services system in Kit Carson County, Colorado. This invitation came from the Board of County Commissioners (BOCC) and was supported by the Director of Kit Carson County Ambulance Service (KCCAS). Upon discussion with a number of local stakeholders, all participants in the countywide EMS response system agreed to participate. The local hospital also later agreed to participate in the consultative visit process. This visit was not conducted in response to any particular crisis or concern.

Under Colorado law, the Kit Carson County Board of County Commissioners is the ambulance licensing authority as defined by C.R.S. § 25-3.5-301. The BOCC expressed interest in developing viable long-term solutions to ensure that high-quality EMS services are provided to the residents and visitors of Kit Carson County.

The EMTS Section, pursuant to declaration and authority provided in C.R.S. § 25-3.5-102 and 603 respectively to assist local jurisdictions, recruited an EMTS Consultative Visit team to evaluate the Kit Carson County system and to make recommendations for improvement. Analysis of the current system included interviews with all primary stakeholders in the current EMS system, review of available system data, and comparison to other EMS systems within Colorado. Overall, the state of the current system was analyzed using the 15 essential EMS system components contained in the 1996 National EMS Agenda for the Future, published by the National Highway Traffic Safety Administration. These components serve as the basis for a number of statewide and regional planning activities and are further referenced in 6 CCR 1015-4, Chapter Four. Finally, both short and long-term recommendations are made for improvement to the overall Kit Carson County EMS system, including the treatment, transportation, communications and documentation subsystems addressed in C.R.S. § 25-3.5-101 et seq.

In order to accomplish this EMTS Consultative Visit, a Memorandum of Agreement (MOA) was entered into between CDPHE and the major EMS system stakeholders within Kit Carson County, which assured participation with the consultation process. The EMTS Section subsequently authorized approximately \$20,000 to conduct the review and developed a contractual relationship with the Plains to Peaks Regional Emergency Medical and Trauma Advisory Council (PTPRETAC) to serve as the fiscal agent for the project. Project management for the EMTS Consultative Visit was provided by the CDPHE EMS System Development Coordinator and a team of four seasoned EMTS leaders. In addition the Trauma System Specialist from CDPHE assisted with the review. Of the team of five experts, all were selected jointly by the EMTS section and the PTPRETAC for their expertise in EMS systems. In addition to these team members, the PTPRETAC Coordinator was instrumental to the success and support of the project team.

Kit Carson County Geography and Demographics

Kit Carson County, Colorado encompasses 2,162 square miles on the eastern plains of Colorado and is named for Christopher Houston “Kit” Carson (1809 – 1868), a noted western frontiersman, trapper and guide. Carson served as a guide to John C. Fremont during his western expeditions and played a role in the Mexican-American War in California and during the civil war in New Mexico. Kit Carson County had a 2009-estimated population of 8,402 in 3,000 households according to the U.S. Census Bureau. Overall population density is 4 persons per square mile. Primary economic drivers in Kit Carson County include agriculture, health care, tourism (food services and lodging,) retail and governmental services. Another major economic driver is the Kit Carson Correctional Center, a 1448 bed facility in Burlington, operated by Corrections Corporation of America (CCA). In addition, Duke Energy completed a 51 Megawatt wind farm near Burlington in 2010. Overall, the communities within Kit Carson County appear typical for the rural eastern plains of Colorado in terms of both demographics and economics.

The county seat of Kit Carson County is the city of Burlington that encompasses 2.1 square miles with an estimated 2009 population of 4,397 or approximately 2,093 persons per square mile. Burlington is the largest municipality in the county and serves as a retail and services hub for the county. Kit Carson County is transected by Interstate 70 for sixty (60) miles from the Lincoln County line at mile marker 389 to the Kansas State line at mile marker 449. I-70 is one of the major east-west interstate highways that runs 2,153 miles between Baltimore, Maryland and I-15 in Utah. The Colorado Department of Transportation data indicates 7,500 – 8,000 vehicles per day pass through Kit Carson County on I-70 with a 2020 estimated traffic volume of 10,000 vehicles per day. Kit Carson County contains portions of U.S. Highways 24 & 385 as well as State Highway 59. No land area is administered by the federal government within the county. The Burlington – Kit Carson County Airport is the only general aviation airport located within the county. Smaller incorporated communities within Kit Carson County include Bethune, Flagler, Seibert, Stratton and Vona. The total assessed valuation of Kit Carson County in 2010 was \$128,278,731 with \$283 million in retail sales reported in 2008.

Emergency services within Kit Carson County are provided by a variety of agencies. Law enforcement agencies include the Burlington Police Department, Flagler Marshal’s Office, Kit Carson County Sheriff, Stratton Police Department and Colorado State Patrol. Law enforcement agencies are not used as formal medical first responders but do provide first aid and assistance to EMS when requested. Local fire departments include the Burlington Fire Protection District, Flagler Rural Fire Protection District, Seibert Fire Protection District, Stratton Fire Protection District and Vona Fire Protection District. EMS first response and rescue services are provided by all fire departments as requested.

Ambulance response and transportation is provided by Community Ambulance Service (CAS) in the Flagler and Seibert areas on the west side of the county. CAS also provides service to the greater Arriba area in Lincoln County. Kit Carson County Ambulance Service (KCCAS) provides ambulance service to communities in the eastern portions of Kit Carson County including Burlington and Stratton. Air ambulance and specialized critical care ground transport services are provided by a number of services, however, Eagle Med LLC, based in Kansas, appears to be the primary provider in most cases. The Kit Carson County Memorial Hospital, operated by the

Kit Carson County Health Services District, is the only hospital in the county. Primary care clinics are operated in Burlington, Stratton and Flagler.

Emergency communications are provided by the KCC Sheriff's Office that provides 9-1-1 answering and all local emergency dispatching services. Emergency management coordination is handled by Kit Carson County in cooperation with one adjoining county.

Kit Carson County licenses ambulance services and issues ambulance vehicle permits annually in accordance with the requirements of C.R.S. § 25-3.5-301.

Emergency Medical and Trauma Services Providers

Community Ambulance Service Inc.

Community Ambulance Service (CAS) was incorporated in January of 1968 to provide ambulance service to the communities of Flagler and Seibert in western Kit Carson County. The CAS service area has expanded to include the area in and around Arriba in Lincoln County as well as to Vona in central Kit Carson County. CAS may hold the distinction of being one of the longest continually operated community non-profit corporations providing ambulance service in the state of Colorado. CAS continues to operate as an all-volunteer community service providing basic life support care with a combination of 30 – 35 EMTs and medically-trained First Responders. The CAS service area is estimated at 1,400 square miles in size with a population of 2,500. In 2010 CAS reported 176 responses with four ambulances currently operating out of three stations. CAS is headquartered in Flagler and shares space with the Flagler Rural Fire Protection District. CAS calls are split relatively equally between 9-1-1 emergency response and inter-facility transfers from the local clinic, operated by Lincoln Community Hospital. Overall, emergency patients from the Flagler and Arriba areas are generally transported to Lincoln Community Hospital in Hugo, while Vona and Seibert patients are usually transported to Kit Carson County Memorial Hospital (KCCMH) in Burlington. Inter-facility patients from the Flagler clinic are usually transferred to Hugo.

CAS is supported by approximately \$70,000 in annual ambulance fee revenue supplemented by local donations and approximately \$16,750 in public support from Kit Carson County Government. All of these sources combined yield a budget of about \$90,000 - \$100,000 annually. Due to the low costs of volunteer staffing and wise stewardship of funds, CAS has also accumulated a decent reserve allowing it to fund most vehicle and capital equipment needs without difficulty in recent years. CAS currently charges a base rate of \$400 and \$7 per loaded mile.

Call data provided to CDPHE indicated that CAS demonstrated an average 9-1-1 response time (dispatch – on scene) of 9.2 minutes with 90% of calls having a response time of 19 minutes or less.

Kit Carson County Ambulance Service

Kit Carson County Ambulance Service (KCCAS) is a general fund department of the Kit Carson County Government that provides service to eastern Kit Carson County including the communities of Burlington, Bethune and Stratton. KCCAS is the largest EMS provider in the county with an annual call volume of approximately 806 requests for service. KCCAS covers 1,200 square miles with an estimated population of 4,900 with 2 full-time and 27 paid on-call staff. KCCAS is primarily a basic life support service, but does provide Advanced Life Support whenever possible with two EMT-Intermediate providers.

KCCAS is headquartered immediately adjacent to the hospital in Burlington. The KCCAS Headquarters appears to have adequate office and meeting space, but has very limited storage and garage space with multiple ambulances stored outdoors. Four ambulances are stationed in Burlington and two are housed at the Stratton Fire station. The headquarters facility does have

excellent proximity to the hospital and is only a block from the Kit Carson County Courthouse and administration building.

KCCAS responds to approximately 500 9-1-1 emergency response requests annually with a 35% no transport rate. KCCAS transports approximately 200 patients from KCCMH to front range hospitals annually. In addition, approximately 75 patients per year are transported to the airport for transport by fixed wing aircraft.

KCCAS has an annual budget of \$280,000 that is mostly recovered through ambulance fees. Some general fund support has been provided over the years and KCCAS surpluses also become part of the general fund balance. The majority of KCCAS expenses are for employee salaries, including paid-per-call staff. KCCAS employs a full-time director / EMT-Intermediate responsible for operation of the service as well as a substantial amount of daytime coverage. The department recently hired a full-time EMT to assist with coverage. Ambulances are maintained at a local dealership. Two vehicles were recently purchased with the assistance of CDPHE grant funds in 2007 and 2010.

Call data provided to CDPHE indicated that KCCAS demonstrated an average response time of 11.4 minutes to 9-1-1 requests with 90% of requests handled in 19 minutes or less.

[Kit Carson County Memorial Hospital](#)

The Kit Carson Memorial Hospital (KCCMH) is a 19 bed critical access hospital designated as a level IV trauma center that is operated by the Kit Carson County Health Services District (KCCHSD). In addition to KCCMH, the health district also operates two primary care clinics in Burlington and Stratton as well as a home health and hospice service. KCCHSD employs 125 people with annual revenues of approximately \$13 million. The KCCHSD receives approximately \$384,000 annually from a countywide property tax mill levy of 3.0 mills.

KCCMH provides emergency services, outpatient surgery and an inpatient care unit. KCCMH also operates an extensive specialty clinic with 20 regularly visiting physicians. Three local primary care physicians practice at KCCMH and also provide OB services with 99 deliveries reported in 2010. KCCMH maintains relationships with a number of major hospital systems in the Denver area including Centura hospitals and HealthOne. The Emergency department has 4 dedicated beds including trauma and resuscitation bays. ED staffing at KCCMH is mostly shared with the inpatient unit and a physician is available for the ED on an on-call basis.

[Kit Carson County Sheriff Communications Center](#)

The Kit Carson County Sheriff's Office (KCCSO) communications center serves as the 9-1-1 public safety answering point (PSAP) for all of Kit Carson County. The communications center provides dispatching services for all local EMS, law enforcement and fire departments.

The KCCSO communications center and local emergency response organizations utilize a fairly complex radio system that primarily operates on the statewide digital-trunked radio (DTR) system, but is also supported by both a UHF and VHF radio system for paging and intradepartmental communications.

The KCCSO communications center was built with the support of the Colorado 9-1-1 network services firm, Intrado Inc., and is located within the KCC courthouse complex. The center will support up to three dispatch positions and usually has one or two telecommunicators on duty. The communications center has 6.5 full-time equivalent positions that answer 11,245 requests for service annually. The center is operated as a unit of the Sheriff's Department.

The communications center utilizes the CrimeStar® computer-aided dispatch system and also utilizes the Medical Priority Dispatch Pro QA system to prioritize emergency medical calls and provide pre-arrival medical instructions. Currently, the CrimeStar system does not integrate with the patient care reporting system used by KCCAS and CAS. The Kit Carson County Dispatch Center has agreements with both Cheyenne and Lincoln County dispatch centers to provide backup in the event of system failure on either side.

Burlington Fire Protection District

The Burlington Fire Protection District (BFPD) is the largest fire department in Kit Carson County that provides service to approximately 990 square miles in and around Burlington and Bethune from one station located in Burlington. BFPD reported 154 total calls in 2010 and responds to medical calls upon request in addition to fire and rescue service requests. BFPD rescue services include vehicle extrication. BFPD currently has 28 volunteers, including two to three EMTs and eight with CPR training. Most EMTs also volunteer with KCCAS. The number of volunteers in the department is capped and a formal background check and orientation program exists. The annual budget for the department is based on a property tax levy of 2.1 mills that generates approximately \$160,000 in annual funding. BFPD is dispatched by the KCC SO Communications Center and uses a combination of VHF radios for paging and initial response with officers and vehicles utilizing 800 MHz digital trunked radios (DTR) for on-scene operations. Burlington occasionally assists KCCAS by providing drivers when needed. Burlington, as well as a number of other fire districts in the county, is currently involved in the formation of a multi-district specialized rescue team.

Flagler Fire Protection District

The Flagler Rural Fire Protection District (FRFPD) covers 640 square miles on the western end of Kit Carson County in and around the town of Flagler. The population of the FRFPD is estimated at 600. FRFPD responds to approximately 80 calls per year with 25 volunteers. The FRFPD station shares space with the Community Ambulance Service (CAS) and serves as the headquarters for both organizations. Most EMS trained volunteers with FRFPD also volunteer with CAS and an agreement exists for the FRFPD rescue vehicle to respond with the CAS ambulance on all motor vehicle accidents. Flagler has a property tax mill levy of 1.316 mills that generates an annual budget of approximately \$23,000.

Seibert Fire Protection District

The Seibert FPD covers approximately 320 square miles east of Flagler and west of Vona with an estimated population of 400. Call volume for Seibert FPD is estimated to be about 60 calls per year. Seibert FPD provides free space for a CAS ambulance and a number of Seibert FPD volunteers also volunteer for CAS in Seibert. Seibert FPD is funded by a property tax mill levy of 4.812 mills that generates \$31,000 annually. The consultative visit team was unable to meet directly with Seibert Fire Protection District (Seibert FPD) members to verify these figures.

Stratton Fire Protection District

The Stratton Fire Protection District (Stratton FPD) covers 430 square miles in and around the Town of Stratton. Stratton is the second largest town in Kit Carson County with an estimated population of 1,200. Stratton reports approximately 55 calls annually with 19 volunteers. Volunteers with EMS training also frequently volunteer with KCCAS. The Stratton fire station also houses two ambulances from KCCAS. A number of the volunteers are planning to participate in the specialized rescue team being formed. The Stratton FPD is funded by a property tax mill levy of 2.275 mills that generates approximately \$38,000 annually.

Vona Fire Protection District

The Vona Fire Protection district is the smallest fire protection district in Kit Carson County providing service to approximately 216 square miles and 350 residents in and around the town of Vona. Vona reports an annual call volume of 8 – 17 responses and utilizes 10 regular volunteer responders. The Vona fire station has at times in the past housed an ambulance for both CAS and KCCAS. No ambulance, however, is currently stationed in Vona and no Vona FPD members are currently certified as EMTs. Vona FPD does not provide any vehicle rescue services and currently relies on Seibert or Stratton for assistance at motor vehicle collisions. Vona FPD is funded by a property tax mill levy of 4.057 mills which generates approximately \$21,000 annually. Unlike a number of other communities in the county, Vona has a very limited daytime population as the community is almost entirely residential.

Analysis of Kit Carson County EMS System Elements

Prior to the consultative team visiting the county, key participants from the countywide EMS response system and Kit Carson County Memorial Hospital were asked to complete a survey rating their current assessment of the EMS services and relationships in the county. Consultants on the review team also participated in scoring. The results from the various components of the survey are provided throughout this section of the report.

Human Resources

Human Resources	10 = Strongly Agree 1 = Strongly Disagree											
Answer Options	1	2	3	4	5	6	7	8	9	10	Don't Know	Rating Average
Our community has adequate numbers of EMS providers	1	4	1	1	1	1	0	0	0	0	1	3.00
Adequate numbers of EMS response units are available	1	0	0	1	2	0	0	2	2	1	1	6.56
EMS Providers are held in high regard by the community	0	0	2	1	0	0	1	0	2	2	2	6.88
People want to work or volunteer for EMS organizations	0	1	4	2	1	0	0	0	0	0	2	3.38
EMS and trauma care providers are overworked	0	1	0	1	1	0	1	1	0	3	2	7.00
EMS and trauma care providers have a high turnover rate	0	0	0	0	2	1	0	3	1	1	2	7.38

The consultative visit team was very impressed with the dedication and commitment of all of the members of the Kit Carson County emergency services community who were interviewed. There was also a great deal of well-deserved pride expressed that the primarily volunteer EMS providers were consistently meeting the current service needs. This success, however, appears to mask a number of issues that may be brewing just under the surface including:

- An inadequate number of responders
- A high provider turnover rate
- Limited supply and willingness of new volunteers
- Excessive time spent by management staff covering shifts or responding to calls
- Lack of human resource planning
- Inconsistent or ill-defined recruitment, orientation, and retention programs
- Limited succession planning

The team was further concerned that many EMS organizations in the system may be relying on only one or two key leaders. In the event those leaders become unavailable to the community, significant organizational disruption could occur. It was also clear that among the paid EMS staff, the pay rates were reasonable for the area, but not competitive with most paid EMS services across the state. As with many rural services utilizing part-time or volunteer leadership, most management expertise was obtained laterally from other industries or professions, and that specialized emergency service administration training had been limited in the system.

System Finance

System Finance							10 = Strongly Agree 1 = Strongly Disagree						
Answer Options	1	2	3	4	5	6	7	8	9	10	Don't Know	Rating Average	
The EMS System is adequately funded	1	3	1	0	1	0	1	1	0	0	2	3.75	
The local EMS and trauma care system is sustainable over the long term	1	1	1	1	1	1	1	1	0	1	1	5.11	
The public is willing to support EMS funding needs	0	0	1	2	1	1	0	0	2	0	3	5.71	
Ambulance rates are reasonable	0	1	1	1	1	0	0	0	1	1	4	5.50	

As noted in the scoring, there is concern about the funding levels of the current system. There is also a concern regarding long term sustainability of the system. The consultative visit team further noted the following areas that would likely require additional funding support in the future:

- EMS facilities
- Additional KCCAS paid staff
- Additional administrative support for CAS
- Advanced Life Support (ALS) staff system wide
- Improved fleet replacement and maintenance

Currently, the KCC EMS system is financially supported almost exclusively by ambulance fee revenue despite the fact the economy-of-scale of the system is far too small to support a well-equipped, adequately staffed, reliable EMS system over time. Many small communities in Colorado support the provision of ambulance service through tax funding that is currently not provided in Kit Carson County. It is also clear that there is little appetite for an increased tax burden amongst the citizenry as reflected by multiple failures of a ballot measure to enact a local sales tax. Despite this resistance, however, many municipal property and school district tax rates are quite high in comparison to other areas of the state. Fire district levies, by contrast, are somewhat lower.

Current ambulance fee revenue is adequate to support bare-bones services, but insufficient to properly support many needs of the current system or future growth. The system further relies on the goodwill of minimally or non-compensated volunteers to keep costs down. The budgeting for ongoing maintenance costs and replacement of capital equipment also appeared inconsistent overall. The facilities used by some services, including KCCAS and CAS, were also in substantial need of modernization.

Ambulance rates, by contrast, appeared to be reasonable for the area and quite close to allowable rates for the Medicare program and most commercial insurers. As such, the collection rate of for these fees was higher than what would normally be expected if more expensive ambulance rates were charged. It is unclear if increased fees would generate substantially increased revenue, or if the collection rate would simply decrease accordingly.

Legislation and Regulation

Legislation and Regulation	10 = Strongly Agree 1 = Strongly Disagree											
Answer Options	1	2	3	4	5	6	7	8	9	10	Don't Know	Rating Average
The County EMS Resolution provides a solid foundation for the EMS system	0	0	0	1	2	0	0	3	0	0	4	6.33
EMS and trauma care organizations are in compliance with all applicable regulations	0	0	1	0	0	1	1	3	1	1	2	7.38
All participants in the EMS and trauma care system understand their role	0	0	1	0	3	2	0	1	0	2	1	6.44
The EMS System and trauma care system is accountable	0	1	1	0	3	0	1	1	2	0	0	5.89

Counties in Colorado are required to license ambulance services and issue ambulance vehicle permits (C.R.S. § 25-3.5-301). Counties are also authorized to adopt regulations and develop EMS system frameworks that meet or exceed the requirements contained in state EMS regulations (6 CCR 1015-3). Many counties establish their EMS framework and licensing policies through a resolution or ordinance. In many cases these resolutions also formally create EMS councils to advise the BOCC on EMS issues. Based on research with the County Clerk, BOCC staff and KCCAS it does not appear that Kit Carson County has ever formally adopted a resolution addressing these issues. Although no resolution exists, KCC does license ambulance services as required and arranges for annual inspections through an independent third party. Some efforts were apparently made a number of years ago to adopt a template resolution with the assistance of the PTPRETAC, however, it does not appear this effort reached conclusion.

The KCC EMS system uses a large number of EMS or medical “first responders” throughout the system in addition to certified Emergency Medical Technicians (EMTs). The name of this provider level will soon be changing to Emergency Medical Responder (EMR). In many cases these first responders drive ambulances and/or assist EMTs with patient care activities. While EMT training systems, licensure and oversight is well established through CDPHE regulations, state-level support for the many first responders through the Division of Fire Safety is generally less available due to the voluntary nature and limited staff support at the Division of Fire Safety.

Integration of Health Services

System Integration	10 = Strongly Agree 1 = Strongly Disagree											
Answer Options	1	2	3	4	5	6	7	8	9	10	Don't Know	Rating Average
Various elements of the EMS and trauma care system are coordinated	0	0	1	1	1	1	3	1	1	0	1	6.22
EMS is well connected to the overall health care system	0	0	1	3	0	2	0	2	1	0	1	5.78
Public safety agencies cooperate effectively	0	0	0	2	1	1	1	3	1	1	0	6.90

The Kit Carson County Government, Kit Carson County Memorial Hospital and Kit Carson County Ambulance Service are located adjacent to each other in Burlington. Despite this proximity, it was evident that KCCAS was not viewed as a key component of the overall local health care system and neither the county government, nor the ambulance service worked frequently with the Health Service District. CAS was also not particularly well integrated into the health care services provided in the Flagler area. This was not surprising considering that most EMS responders provided care in their spare time and the limited paid staff had substantial time constraints due to their ambulance coverage, response and administrative requirements.

Overall, however, effective cooperation was noted between local public agencies. Cooperation was especially evident between the local fire districts and ambulance services. It was evident that many volunteer firefighters also volunteered for local ambulance services, improving cooperation. Some strained relations and a general lack of communication was noted between ambulance and hospital staff and some issues were also expressed regarding roles and expectations in emergency management activities.

The review team believes many opportunities exist to improve the integration of EMS into the overall local health care system and that no significant structural barriers exist to improved communication and cooperation.

Clinical Care

Clinical Care	10 = Strongly Agree 1 = Strongly Disagree										Don't Know	Rating Average
Answer Options	1	2	3	4	5	6	7	8	9	10	Don't Know	Rating Average
The EMS system has good clinical protocols	0	0	0	0	0	2	2	3	1	0	2	7.38
EMS protocols are coordinated between organizations	0	1	1	0	1	0	1	3	1	0	2	6.25
EMS and trauma care providers are well trained	0	0	0	0	1	3	3	1	1	0	1	6.78
EMS and trauma care providers are experienced	0	0	0	0	3	2	2	1	1	0	1	6.44
Capability exists to provide critical care inter-hospital transports	2	3	1	0	2	0	0	0	1	1	0	4.00

The vast majority of EMS in Kit Carson County is provided at the EMT or Basic Life Support (BLS) level. KCCAS does have two EMT-Intermediates on staff, including the ambulance director. No paramedics currently provide care within the system. All KCC EMS providers utilize standard protocols and the same medical direction. Patients requiring paramedic-level or specialized critical care transport are usually transported by fixed-wing air ambulance.

Kit Carson County is an example of a system that has a very limited number of advanced life support providers and no paramedic staff. This is a common situation whereby advanced level EMS providers are frequently unavailable in rural areas where they could provide substantial patient care and comfort benefits. This is in contrast to urban and suburban areas where the utility of paramedics is more limited due to short transport times, but they are nonetheless plentiful.. Overall this represents what is known as the “paramedic paradox.” Due to the size of Kit Carson County with extended transport times to the hospital, paramedic staff would be useful in the 911 context. Paramedic level staff would also be particularly useful for inter-facility transport needs where patients require advanced level monitoring and care. While EMT-Intermediates can bridge a certain amount of this gap, the paramedic scope of practice could substantially increase the number of patients that could be transported from KCCMH less expensively by ground ambulance. KCCAS estimates that approximately 60 transports per year must be turned over to other services due to the absence of paramedic level staff.

It is unclear if an adequate number of paramedic staff could be home grown from existing local providers due to the paramedic education time requirements that often involve 3 or more semesters of college level coursework. To address this issue, the KCC EMS system could potentially recruit outside providers working extended shift lengths (i.e. 48 hours on / 96 hours off)

Medical Direction

Medical Direction	10 = Strongly Agree 1 = Strongly Disagree											
Answer Options	1	2	3	4	5	6	7	8	9	10	Don't Know	Rating Average
The Medical Director(s) participate actively in the system	0	2	1	0	2	1	2	0	0	0	2	4.63
The Medical Director(s) regularly monitor clinical performance	0	3	1	0	1	2	1	0	0	0	2	4.13
The Medical Director is consulted on EMS and trauma care system issues	0	1	1	0	2	0	2	1	1	0	2	5.75

Medical Direction is currently provided to both CAS, KCCAS, the KCCSO communications center and all KCC fire districts by Dr. David Ross of Colorado Springs. Dr. Ross is an active participant in the Plains to Peaks RETAC, serves as a co-medical director for the PTPRETAC, and is a former member of the State Emergency Medical and Trauma Services Advisory Council (SEMTAC). Dr. Ross provides EMS medical direction for approximately 15 EMS transport services in the Plains to Peaks region including AMR El Paso County, the largest EMS service in the PTPRETAC. Dr. Ross also provides oversight for a number of first response agencies and communications centers throughout PTPRETAC. As Dr. Ross is very active in the statewide EMS community, he was specifically recruited to provide oversight to all of the Kit Carson County EMS services in 2007 when it became clear that the limited number of local physicians did not have sufficient time and resources to provide EMS oversight functions in addition to their other responsibilities.

Dr. Ross regularly reviews EMS run reports and has remote access to the KCCAS and CAS records management system, ESO Solutions. Dr. Ross is assisted with quality improvement and educational outreach by Mr. Jeff Force of the Penrose St-Francis Health System. Quarterly educational sessions based on case reviews are generally provided and Dr. Ross attempts to personally visit KCC at least annually but does agree that he does not interact with the KCC EMS and physician community as often as he would like.

The review team did note that medical direction and oversight services were stretched thin, and additional staff and financial resources to support medical oversight would be helpful. Ongoing communication was also limited between Dr. Ross and the local medical community.

Evaluation

Evaluation	10 = Strongly Agree 1 = Strongly Disagree											
Answer Options	1	2	3	4	5	6	7	8	9	10	Don't Know	Rating Average
Each EMS organization has a defined and ongoing quality improvement program	0	0	2	0	2	1	0	2	0	0	3	5.43
Quality improvement findings are integrated into the EMS and trauma care system	0	1	2	0	2	1	0	0	1	0	3	4.71
Quality improvement activities are coordinated and communicated between services	0	2	2	0	2	1	1	0	0	0	2	4.13

Ongoing evaluation of EMS care in Kit Carson County is mostly limited to organizational level quality improvement activities. KCCMH, KCCAS and CAS all indicated a mechanism for chart review and KCCMH further indicated an established process for formal case review. It is clear however, that EMS and hospital representatives are not active participants in each other's case review process. As such, the review team was made aware of situations where concerns existed between EMS and hospital personnel where there was no formal mechanism for resolution and loop closure. Clinical issues and care coordination are also not regular topics at KCC EMS Council meetings. It was unclear what, if any quality monitoring activities were in place for medical first responders not affiliated with a transport EMS services.

Communications

Communications	10 = Strongly Agree 1 = Strongly Disagree											
Answer Options	1	2	3	4	5	6	7	8	9	10	Don't Know	Rating Average
Local cell phone coverage is adequate	0	1	0	2	3	0	1	1	0	1	1	5.56
EMS and trauma care organizations have good access to broadband internet service	0	0	1	1	2	1	0	1	0	0	4	5.17
Public safety agencies have an effective radio system	0	0	0	1	1	2	3	0	0	1	2	6.50

Access to emergency services and a fair amount of operational communications related to local EMS system, including ambulance to hospital communications is currently conducted by cellular telephone. Most cell carriers provide good coverage along the I-70 corridor and in most of the municipalities in Kit Carson County. Coverage does fade quickly and somewhat dramatically a few miles north or south of I-70, including along state highways. This level of cell phone service is equivalent to other rural communities throughout Colorado.

According to the National Telecommunications and Information Administration (NTIA), a subsidiary of the Federal Communications Commission (www.broadbandmap.gov), Kit Carson ranks 9th amongst Colorado counties in broadband availability with 99.7% of the population having broadband internet speeds of >3Mbps available by either DSL or Wireless service through one hardwired line and 2 wireless providers. Although availability of service is quite good, a June 2010 survey conducted through NTIA indicated that 6 of 8 health institutions had broadband availability, yet only 5 of 15 public safety agencies reported use of broadband services.

The public safety agencies have several radio systems they operate on separately in the VHF, UHF and 800 MHz bands. For the most part, paging and initial communications by EMS and fire responders is conducted on the VHF and UHF systems, while response, interagency and mutual aid communications uses the statewide 800 MHz digital-trunked radio system. This is a potential point of vulnerability for a potential communications failure where incidents require more than one agency response and has already proven to be a limiting factor. The multiple radio systems also inhibit system-wide situational awareness. The 800 MHz statewide digital-trunked radio system is operational throughout most the county and should be used for emergency responses to ensure the communications is consistent for all agencies for the safety of all responders.

The KCCSO Communications center is routinely staffed by 1 or 2 telecommunicators, which appears to be adequate for most system needs. Dispatchers are challenged, however, with the requirement to operate on multiple radio consoles and the CAD system.

Information Systems

Information Systems	10 = Strongly Agree 1 = Strongly Disagree											
Answer Options	1	2	3	4	5	6	7	8	9	10	Don't Know	Rating Average
Transport EMS services collect and upload electronic patient care data to the state system	0	0	0	1	0	1	0	1	1	0	6	6.75
System performance data is regularly collected and analyzed	0	0	0	4	2	0	0	1	0	0	3	4.86
Information technology needs are being met within the EMS and trauma care system	0	0	1	2	3	0	0	0	1	0	3	5.00

Both CAS and KCCAS collect EMS patient care information electronically using the ESO Solutions© system. Run records are, for the most part, generated after the call once the ambulance returns to the station. Some efforts are underway, however, to allow for real-time data collection via mobile computing devices. Both transport services are uploading patient encounter data to CDPHE as required by regulation. The quality of that data received was good with some issues around condition code and CMS service level reporting. Improvement of reporting in these areas will significantly enhance understanding of what type of patients the KCC EMS system is dealing with.

Computer equipment and software needs for most EMS system participants were adequate, although some investment in updated information technology may be warranted. What appears to be the biggest issue, however, is the routine collection of system performance data and formal systems to analyze and make improvements based on this information. Both ESO Solutions and the CDPHE data collection system have tools available to analyze EMS operations and clinical care that could be more widely utilized by all participants.

Public Education

Public Education	10 = Strongly Agree 1 = Strongly Disagree											
Answer Options	1	2	3	4	5	6	7	8	9	10	Don't Know	Rating Average
The public understands and supports the local EMS and trauma care system	0	1	1	3	1	1	1	0	1	0	1	4.89
Regular efforts are made to inform the public about EMS and trauma care	0	3	1	0	0	1	1	1	1	0	2	4.88
Regular efforts are made to inform policy makers about EMS and trauma care	0	1	1	1	1	1	0	0	0	1	4	5.00

The EMS system in Kit Carson County is meeting the needs of the community. While this is a good position to be in that speaks highly of the many dedicated volunteers and staff, it is evident that the greater community likely knows very little about the precarious state of the EMS system. Should the system choose to pursue additional resources in the future, a significant public education campaign would be required to adequately inform the public regarding the current nature of the system, and its heavy reliance on volunteer providers. The review team also believes additional opportunity exists to publicly acknowledge local EMS providers who donate substantial amounts of time to provide essential EMS services. Efforts in these areas of public education may be very beneficial to long-term financial stability and volunteer recruitment and retention efforts.

Education

Education	10 = Strongly Agree 1 = Strongly Disagree										Don't Know	Rating Average
Answer Options	1	2	3	4	5	6	7	8	9	10	Don't Know	Rating Average
New members have access to EMS Training when needed	0	0	0	1	1	0	1	3	2	0	2	7.25
Local EMS education is of high quality	0	0	1	0	0	2	3	0	2	0	2	6.75
EMS and trauma care providers have regular access to continuing education	0	1	0	0	2	1	1	1	1	0	3	6.00
Leaders in the EMS and trauma care system are well trained	0	0	0	1	1	1	1	3	1	1	1	7.22
Leaders in the EMS and trauma care system are effective	0	0	1	1	1	1	2	2	1	1	0	6.70

Initial training for EMS providers is primarily conducted locally through the efforts of Morgan Community College (MCC), headquartered in Fort Morgan. MCC has faculty members available in Kit Carson County who are able to conduct one or two EMT classes per year based on local needs and student interest. Local EMT classes are small and usually do not exceed 10-12 students in size and are held over a number of months at varying locations. Candidates for EMT certification are also required to travel to a testing site to complete the computer-based testing. In the event local EMTs are interested in additional training, significant travel would be required to obtain EMT-Intermediate or EMT-Paramedic initial training. Additionally, local MCC instructors are also volunteer responders who take on the burden of these additional duties. While the educational system currently works well to maintain the volunteer EMT workforce, all of these logistical and personnel considerations must be addressed as local services seek to recruit and train new members.

Continuing education (CE) is provided primarily by the medical direction system through their CQI efforts and the PTPRETAC. An annual two day conference is held either in Limon or Burlington each year which is well-attended. Additionally, CAS is very supportive of sending their volunteers to conferences that provide CE including the Colorado State EMS Conference. KCCAS has more limited educational funds and limited ability to send staff to classes off-site, and is currently unable to send staff to the state conference.

EMS Managers in Kit Carson County have substantial experience, and most have obtained some formal management training outside of EMS. Considering the technical, regulatory and financial complexities of EMS, and the added issues with managing a mostly volunteer workforce, it is imperative that EMS leaders also receive appropriate initial and continuing education. Currently little effort is being applied to EMS management education or continuing education and limited resources are available to develop future leaders for succession planning purposes.

Mass Casualty

Mass Casualty	10 = Strongly Agree 1 = Strongly Disagree										Don't Know	Rating Average
Answer Options	1	2	3	4	5	6	7	8	9	10	Don't Know	Rating Average
EMS Agencies and facilities have written mass casualty response plans	0	1	0	1	0	0	3	1	1	1	2	6.75
MCI plans are regularly tested by all organizations	0	4	1	1	1	0	0	1	0	1	1	4.22
EMS and trauma care leaders are aware of local and state emergency management efforts and programs	0	1	2	1	1	1	0	1	0	2	1	5.67

The Office of Emergency Management, which is a shared function between Kit Carson and Cheyenne County, has the lead role in planning for a mass casualty event in addition to a number of other disaster scenarios. The Emergency Manager has established relationships with all emergency services agencies in the County and works with all local EMS providers to conduct a mass casualty drill on an annual basis. While this is clearly a step in the right direction, it was clear that despite the proliferation of federally mandated training on the National Incident Management System (NIMS) throughout the local emergency services community, it was evident that most emergency service providers do not utilize incident management principles to any significant extent on a routine basis. As a result, it could be expected that the use of incident command system tools during a large event would be problematic until responding services developed familiarity with incident management principles. It was also unclear if EMS services or the KCCSO communications center regularly monitored the statewide Intermedix EMSytems EMResource® hospital and air ambulance availability tool that would be critical to the management of a mass casualty event.

It was also clear, likely due to the volunteer nature and limited administrative resources of KCCAS and CAS, that EMS agency specific response plans had not been developed or practiced. While it is likely that EMS responsibilities are discussed in the Local Emergency Operations Plan (LEOP), those responsibilities have not been defined in terms of how they would specifically apply to CAS or KCCAS.

Prevention

Prevention	10 = Strongly Agree 1 = Strongly Disagree										Don't Know	Rating Average
Answer Options	1	2	3	4	5	6	7	8	9	10	Don't Know	Rating Average
An analysis of local injury and illness data is performed regularly	0	2	0	0	0	1	1	1	0	0	5	5.00
Prevention programs are developed based on local needs	0	2	0	1	0	0	1	1	0	0	5	4.60
Prevention programs are regularly offered to the community	0	2	1	1	0	0	1	1	0	0	4	4.33

At this time there is not any organized approach to injury prevention activities by EMS services in Kit Carson County. KCCAS has done some limited activity regarding car seat and seat belt usage and KCCMH has been involved in bicycle safety at the elementary school level. Overall, it appears injury and illness prevention activities are undertaken as opportunities or events arise. There appears to be no structured process in place to link local EMS or emergency department data to specific injury or illness prevention activities. As such, there is significant opportunity for improved coordination and effectiveness in this area.

Public Access

Public Access	10 = Strongly Agree 1 = Strongly Disagree											
Answer Options	1	2	3	4	5	6	7	8	9	10	Don't Know	Rating Average
The public can easily access EMS services	0	0	0	0	0	1	0	3	2	4	0	8.80
High quality medical instructions are provided to callers	1	1	1	1	0	0	2	1	1	0	2	5.13
Sufficient EMS response is available quickly	0	1	0	1	0	1	2	3	2	0	0	6.80
Inter-hospital ambulance transport is readily available	1	0	0	3	1	0	0	2	3	0	0	6.10

As of 2010 all landline telephones in Colorado are able to connect with a local Public Safety Answering Point (PSAP) via the universal 9-1-1 emergency number. While the reliability and redundancy of the 9-1-1 system is somewhat subject to local telephone equipment, it is universally available in Kit Carson County. In addition to universal landline access, the Kit Carson Sheriff's Office Communications Center is currently listed as wireless phase II compliant, meaning the dispatch center can receive caller ID and location information from wireless callers. In addition, commercial carrier cellular coverage maps indicate robust coverage along the I-70 corridor with limited coverage in the far northern and southern sections of the county as you proceed away from I-70 along state highways or county roads. Overall, however, there appear to be no public access barriers to accessing the EMS system.

It was unclear, however, the extent to which the KCC SO Communications Center provides pre-arrival medical instructions via the ProQA® system integrated into the computer-aided dispatch (CAD) system. As with many small communications center, the ability to provide pre-arrival medical instructions is limited by the number of staff available, and the willingness of the calling party to remain on the phone. It would be helpful, however, to better understand the level to which this service is currently being provided and increase utilization of the Pro QA system to the fullest extent possible.

Finally, the public access category is also used to evaluate the overall perception that both EMS response and inter-facility ambulance transport services are available. Overall, there was consensus regarding the reliability and availability of 9-1-1 response, yet some concern regarding the availability of inter-facility ambulance transportation for critically ill/injured patients.

Research

Research	10 = Strongly Agree 1 = Strongly Disagree											
Answer Options	1	2	3	4	5	6	7	8	9	10	Don't Know	Rating Average
Evolving EMS and trauma care research is incorporated in the local EMS system	0	2	0	1	1	0	0	1	0	0	5	4.20
Medical Directors and Leaders are aware of the latest EMS and trauma care research	0	2	2	0	0	0	0	0	2	0	4	4.67
Local EMS and trauma care organizations regularly participate in system research	0	3	0	0	1	0	0	0	1	0	5	4.00

No prehospital research is currently being conducted within the Kit Carson County EMS system. Future research is possible, however, considering that both KCCAS and CAS are reporting EMS data. Trauma registry data and ED discharge data are also being reported by KCCMH. Considering these data sets, and Burlington's position as a small city within a rural area of the state, the opportunity for future research and benchmarking certainly exists as the system moves forward. The medical direction system administered by Dr. Ross has also worked with state staff previously on EMS related research.

Overall Effectiveness

In your opinion, how effective is the overall local EMS and trauma care system in meeting the needs of the community with 1 being non-functional and 10 being ideal?												
Answer Options	1	2	3	4	5	6	7	8	9	10	Rating Average	
Rating	0	0	0	2	1	2	2	4	0	0	6.45	

The overall opinion of local stakeholders and reviewers is that the Kit Carson EMS and trauma care system is effective. Based on the scoring noted above the opinions were mostly favorable (8 out of 11 responses) although all respondents indicated the system could benefit from minor to moderate improvements.

Kit Carson County EMS – A Vision

At 7:30am on January 3, 2015 Paramedic Vona Burlington is checking her ALS response unit at the start of the shift. She has already checked the status of the EMS system through the countywide scheduling system and noted that an EMTI crew is on duty in Burlington, Advanced EMT(AEMT)crews are-on call in Stratton and Flagler and a BLS crew is on-call in Arriba. Seibert has only 1 EMT on-call until 7:00pm. One of the Stratton-based ambulances is also scheduled for maintenance at 10:00 am. Vona is an employee of the Kit Carson County Health Service District which provides paramedic staffing that is shared between KCCAS, CAS, KCCMH, and the Stratton clinic. Vona's salary, as well as that of other EMS employees is offset by a recently increased KCCHSD mill levy.

Meanwhile at the new EMS headquarters in Burlington, the EMS Director is also reviewing the daily staffing, as well as predicted weather conditions and the current KCCMH census. The EMS Director will meet with the KCCSO communications center this morning to review the recently updated response time reports prior to a lunch meeting with one of the Medical Director's staff members and the KCCMH ED Director on an updated stroke alert system specific to Kit Carson County. While these meetings are underway, the fleet mechanic shared with KCCSO and the Burlington PD will be adjusting the brakes on one of the Stratton ambulances and performing a routine service on the primary transport ambulance. At 7:00 pm the EMS Training Coordinator will be conducting a session on cardiac care at the Stratton Fire Station. This session will be repeated 3 times over the next quarter at various times and locations across the county.

Over on the west end of the county, the CAS Ambulance Director, Training Officer, and Recruitment Officer will be meeting tonight to discuss progress on the new station under construction in Flagler that is being built for CAS and FRFPD under a bond financing program. This facility will also be the new home of the Flagler Community Library and will include offices, training space, crew quarters, and a community room. Results from the recent Seibert recruitment campaign will also be discussed as well as the status of 4 new AEMTs currently in-training on the Arriba crew. Last on the agenda will be improving AEMT coverage in Flagler on the weekends. Each of the participants in the meeting are paid a modest monthly stipend by KCCHSD to perform their various duties for CAS on a part-time basis. All of the participants have also recently completed a 3-day EMS management program in Colorado Springs.

At 2:07pm a motor vehicle collision with multiple injuries and entrapment is dispatched at I-70 mile marker 400 west of Seibert. Ambulances respond from Flagler and Stratton in conjunction with the Stratton Paramedic Unit. The EMT on-call in Seibert stands by at the station while an additional crew member is paged for a 3rd ambulance. Rescue units from Seibert FPD, Vona FPD and Stratton FPD also respond to assist. The ambulance crew from Arriba is dispatched to stand by at the Flagler station until local units return to service. The paramedic jumps onboard the Seibert ambulance with a critical pediatric patient for the transport to KCCMH and will later continue this patient's care with the Burlington ambulance crew to the Children's Hospital in metro Denver.

Short-Term Recommendations (1 Year)

Conduct Comprehensive Human Resource Planning

The EMS response system in Kit Carson is currently meeting the needs of the community and is doing so thanks to the dedication of the volunteer workforce at both Community Ambulance Service (CAS) and Kit Carson County Ambulance Service (KCCAS). In addition to the volunteer responders, both organizations are being led by a handful of administrators who also perform double-duty as responders. The loss of as little as one or two of these key administrators, or even a small number of volunteer responders could have a significant effect on the ability of either CAS or KCCAS to effectively respond. This situation is also mirrored in a number of the fire districts. As such, it is imperative that both CAS and KCCAS engage in comprehensive human resources planning to address the following issues:

- Designation of recruitment coordinators
- The appropriate number of volunteers including:
 - Total volunteers needed
 - Geographic distribution
 - Certification levels
 - Support or non-response volunteers
- Ongoing volunteer recruitment strategies
- New member orientation, training and mentoring programs
- The level and nature of paid response support needed
- The level of paid or contracted administrative support needed
- Current and future advanced life support (ALS) provider requirements
- Volunteer and paid staff retention strategies
- Succession planning for key leadership positions

Opinions varied amongst the review team regarding the ongoing sustainability of volunteer response systems overall. A number of volunteer systems across the state have increased their use of paid-on-call, paid-per-call, or full-time personnel to meet response needs. Other team members felt the current volunteer system was sustainable indefinitely provided it received the appropriate level of leadership and administrative support

Provide for Ongoing Leadership and Administration Needs

As mentioned above, the ongoing effectiveness of emergency response organizations in Kit Carson County is contingent on competent, dedicated and engaged leaders with the time and resources necessary to effectively manage their organizations. It is also reasonable to assume that predominantly volunteer organizations, such as those in KCC, often require leadership that is equally or more capable than the leadership provided to paid services. Currently, the local EMS system relies on either volunteer leadership (CAS) or paid leadership with significant response obligations (KCCAS). In both cases, these key leaders must make administration and leadership a secondary priority.

The review team recommends that both CAS and KCCAS clearly establish what leadership roles are required in their organizations, how much time those roles require, and what type of resources are needed to support those positions. Both KCC services may want to explore a common practice of EMS services in the San Luis Valley where leadership roles, either volunteer or part-time, are clearly established and compensated through a modest monthly stipend. The EMS services in KCC may also be in a position to share some services such as EMS training, quality improvement, information technology, purchasing and maintenance.

Finally, it was clear to the review team that local EMS leaders were not in a good position to expand and improve their specialized knowledge of EMS management. Most current leaders have assumed EMS leadership roles based on collateral talents with no formal training in EMS systems. In order to improve the effectiveness of system leaders it is recommended that both CAS and KCCAS make it an ongoing priority for key administrators to attend EMS management-related courses. A variety of programs are regularly available both in and out-of-state such as EMS leadership academy courses offered by the EMS Association of Colorado, National Fire Academy EMS Management programs or the American Ambulance Association Ambulance Service Management program. Local leaders should also consider regular participation in the annual EMS Leadership Conference produced by the Northwest RETAC.

Fully Implement Medical Priority Dispatching

The Medical Priority Dispatch® system (MPDS) currently available to the Kit Carson County Communications Center is a valuable tool that represents a substantial investment in a region-wide commitment to high quality emergency medical dispatching. Due to the potential for extended response times, the integrated medical instructions that can be provided to callers requesting EMS services will significantly enhance care provided to the community. These medical instructions are frequently updated and validated across hundreds of Medical Priority users worldwide. In addition to the medical instructions component, the added use of the call prioritization component may also be useful in determining when EMS units may need to respond with lights and siren and when additional fire or law enforcement response may be useful. The system, which is based on procedural compliance to ensure proper call screening and instructions, also includes a quality assurance component to assist dispatchers in properly utilizing the system. The KCCSO Communications should also be given credit for the partial implementation of MPDS, however, the review team felt strongly that the system be fully implemented as soon as possible. The review team further recommends a dispatcher “champion” be assigned as the lead for Medical Priority Dispatch implementation and ongoing quality assurance who should receive the full support of KCCSO management.

Formalize and Improve the Current County EMS Resolution and EMS Council

The current Kit Carson County ambulance licensing resolution was difficult to locate and clearly not a document that was universally referenced as the framework of the local EMS system. As county governments, particularly the BOCC, have the authority under C.R.S. § 25-3.5-301 to establish a framework for ambulance licensing and the delivery of EMS that meets or exceeds state requirements contained in 6 CCR 1015-3, the BOCC should undertake to promulgate an updated EMS resolutions as soon as possible. The PTP RETAC is likely well positioned to assist the BOCC in identifying effective resolutions established in similar communities.

Many EMS resolutions across the state also officially establish a County EMS Council or similar body to advise policymakers on EMS issues. Kit Carson currently has such a group that meets informally and includes many of the local EMS system participants. The connection to the medical community, however, appeared to be the weakest link. The council may also benefit from a standardized agenda that regularly deals with coordination issues including but not limited to:

- EMS training
- Hospital interface issues
- Disaster preparedness
- Coroner and law enforcement interface
- Communications system coordination
- Mutual aid
- Data collection
- Standardization between agencies

The team felt strongly that the current council and the familiarity among members was a strong framework upon which an even more effective coordination mechanism could be built, especially if the greater local health care community could also be engaged.

Improve Medical Direction Resources

The system-wide changeover of EMS medical direction a few years ago was universally heralded as an effective change by Kit Carson EMS stakeholders. While the previous medical direction services provided by local physicians was well-intentioned, the three local physicians were stretched quite thin with other responsibilities and had difficulty remaining current with evolving EMS issues and regulations. While Dr. Ross was able to bridge this expertise gap, both Dr. Ross and his support staff through the Centura Penrose - St. Francis® hospital system have region-wide responsibilities that inhibit their ability to spend a substantial amount of time on KCC issues, oversight and relationships. While Dr. Ross is very committed to serving the KCC EMS providers, his ability to interact with local EMS providers and the medical community is quite limited. Quality improvement activities are also significantly under-resourced leading to a situation where only the most urgent concerns can be effectively addressed. As a result, quality improvement driven or “just-in-time” continuing education is difficult to deliver. Most of these issues can be directly related to the absence of support resources provided to Dr. Ross.

By comparison, it is not uncommon for 3 – 10 full-time EMS professionals to be assigned to support quality improvement and continuing education needs of EMS medical direction activities in the Centura Littleton – Porter Adventist®, Centura St. Anthony’s®, HealthOne® and Exempla® health care systems. As such, it is imperative that the Penrose – St. Francis system increase the resources devoted to EMS medical direction and outreach. Additional opportunity to improve medical direction support and clinical quality improvement may also exist as the PTPRETAC regional medical direction program continues takes shape in the next few years.

Increase Engagement with the Medical Community

As previously noted, Kit Carson County is a small community and the key players in County Government, EMS and health care enjoy a cordial relationship and excellent physical proximity to each other. Considering that EMS is an essential health care service, we believe it is important for the local health care community, particularly the KCCHSD, be a more active participant in EMS system. While some low-level tension seemed to exist, especially between KCCAS and KCCMH, we feel strongly a cooperative environment must exist between the BOCC, KCCHSD, KCCAS and CAS in order for the local EMS system to thrive. As noted in the long-term recommendations, the KCCHSD may also be a key component to any future expansion of EMS services that may be required by growth or increased health care needs. We would also encourage the EMS Medical Director to interact more regularly with the local medical community.

Medium Term Recommendations (1-2 Years)

Develop Comprehensive Plan for Improved EMS Facilities

The current state of the physical facilities used by KCCAS, and to a lesser extent CAS, are not conducive to the delivery of safe, effective and sustainable EMS services. While the facilities are capable of housing some ambulances, they are not conducive to future growth or improvements in staffing levels. Additionally, the facilities are not attractive to volunteer members from a recruitment or retention perspective, and lack a professional appearance.

The KCCAS headquarters facility is well located in Burlington and contains adequate meeting and office space. Vehicle storage space, however, is inadequate with up to 3 ambulance vehicles parked outside. Outside storage of ambulances in Colorado's weather conditions is problematic as many medical fluids and pharmaceuticals can be rendered ineffective or destroyed by fluctuations in temperature. While attempts were being made to address this issue through the use of space heaters, a significant amount of supplies had been destroyed in recent years due to freezing and overheating. The KCCAS headquarters also offered little or no storage space for EMS equipment and supplies. Furthermore, no space was available that could be converted into crew quarters in the event KCCAS wished to have scheduled volunteer or paid response personnel immediately available 24/7. The facility also offered no lounge space that would encourage volunteer providers to "hang out" in close proximity to the ambulance. The KCCAS space in the Stratton fire station also had similar limitations, but was at least adequate to house response vehicles. The CAS facility, shared with the Flagler Rural Fire Protection District was adequate to store CAS vehicles. Meeting, administrative and lounge space, however, was very limited.

As volunteer organizations, both KCCAS and CAS would do well to have physical facilities that portray the underlying professionalism of their organizations. Additional space dedicated for crew quarters and lounge space with some amenities such as kitchen, sleeping rooms, TV and internet could allow for additional volunteers to participate that may be outside of the immediate response area. Such space could also be a useful benefit to provide no cost lodging as an incentive for instructors from outside the area to provide continuing education to members. Community use facilities attached to EMS facilities such as meeting rooms, recreational amenities and commercial kitchens could also help strengthen the relationship between EMS and the community while providing broader community benefits.

Develop a Capital Equipment Plan

Planning regarding the appropriate number, capability and replacement schedule for capital assets such as ambulances, stretchers and cardiac monitoring equipment is haphazard. Existing revenue streams are often inadequate to allow for the development of capital acquisition or replacement. Much of the capital medical equipment in the system is aged. As such, the overall capability of the EMS system is mostly determined by urgent replacement needs and/or availability of funds. For example, the KCCAS fleet was at least partially determined by the availability of inexpensive or donated used ambulances. This random approach to capital planning is obscuring the true costs of the KCC EMS system and is also preventing the system

from having the state-of-the-art facilities, vehicles and equipment the citizens of Kit Carson County require from their EMS system. The team recommends all EMS response agencies develop a multi-year plan to acquire, replace and fund necessary capital needs.

Improved Clinical Care

Most of the EMS service in Kit Carson County is delivered at the basic life support (BLS) level by EMTs and medical first responders. KCCAS is able to provide some ALS care with two EMT-Intermediates and a Registered Nurse. No Paramedics are currently available in the system. While it is likely that most EMS runs in Kit Carson County do not require ALS care, the routine availability of ALS care could improve patient care in some areas (i.e. pain control) and would significantly enhance the ability of patients to be transferred from local medical facilities without the added expense of air transport. Rough estimates made by KCCAS staff and the review team estimate that between 60 – 100 ambulance transfers are lost annually to air services due to paramedic care being unavailable. This imposes a significant cost on patients and results in corresponding lost revenue for local EMS.

We recommend that KCCAS strongly consider adding 1 – 3 paid paramedics to the system to improve care and increase revenue capture from inter-facility transports. The review team further recommend these ALS provider be deployed utilizing a non-transport vehicle that would allow them to supplement current EMS response throughout the county while also being available to staff inter-facility transports.

In addition to paramedics, KCCAS and CAS should also seriously consider utilizing the new Advanced EMT (AEMT) level as it becomes available July 2011. Use of this level would allow for the delivery of a number of high frequency and high impact ALS procedures by AEMTs who would undergo focused training that is substantially less burdensome than the current EMT-Intermediate program.

Finally, the team noted that many organizations in KCC, including KCCAS and CAS, struggled with the medical first responder program administered by the Colorado Division of Fire Safety. To the extent possible, all response organizations should plan to train and deploy as many people as possible to the EMT standard in order to streamline training and improve overall response coverage. While the maximization of EMTs should be an ongoing goal, it is certainly reasonable to maintain first responders into the foreseeable future.

Consider Additional Communications Center Structural Options

The KCC communications center is currently run as a division of the Sheriff's Office and funded by the KCC general fund. While this is a common structural model, a number of other models exist across the state. The review team did note some frustration on the part of non-law enforcement agencies that they did not have adequate input or participation in the overall operation of the communications center. This is balanced, however, by the fact the Sheriff is directly accountable for the communication center's performance. While the team found no immediate structural issues with the KCCSO Communications Center, the Kit Carson County Government may wish to explore the utility of other options regarding both governance and funding of the center.

For example, consideration of a standalone, consolidated or regional communications center may offer opportunities for current and future improvements. A governing board could include representatives from multiple agencies and may offer more possibilities for shared funding and regionalization. Additional space, not currently available at the KCCSO will most likely also be required in the future. Due to various requirements of the NCIC and CCIC criminal databases, law enforcement officials will be required to continue to play a key role in center oversight regardless of the structure utilized. Visits to several communications centers in the state may be helpful to explore the available options. The shared Washington and Yuma County facility, as well as the standalone center in Logan County may be other models worth visiting on the Eastern Plains.

Explore Sustainable Funding Options

Based on the future needs of Kit Carson County EMS System, the limited amount of transport revenue available in the system may be inadequate to support a comprehensive state-of-the-art EMS system. In particular, future staffing, facilities and capital equipment requirements will likely drive the need for supplemental public funding. However, in comparison to a variety of other public services such as schools, roads and criminal justice, EMS is a relatively small expense that also provides a modest revenue stream. As noted above, even a predominantly volunteer system will require adequate investment to maintain its ongoing viability.

A pro-forma budget for Kit Carson County EMS in 2015 is attached in Appendix A. The team recommends this example be used to initiate a community-wide strategic planning conversation regarding the future needs and costs of EMS. This document experiments with the concept that a number of services could be shared between KCCAS, CAS, KCCMH as noted below. The team also recommends exploration of the KCCHSD as the potential mechanism to improve EMS funding and oversight.

The review team feels that KCCAS has the opportunity to share resources with the Kit Carson County Health Services District that could result in a more efficient use of personnel resources. Cooperation would also support EMS staff in maintaining their skill proficiency. Allowing EMS personnel to work on a routine basis in a hospital or clinic setting has been proven a success in both rural and suburban settings. EMS staff are experienced in moving patients and can assist hospital personnel in moving patients within the hospital. EMS staff could assist the hospital in several other areas, such as restocking rooms, assisting patients and family members and assisting other clinicians in providing medical care. The hospital may wish to consider the possibility of partially funding EMS personnel as Emergency Department or Clinic Technicians, potentially offsetting hospital costs while improving EMS response capabilities. Working in the hospital or clinic setting will likely also improve the EMS provider – physician and nurse relationships necessary for a highly functioning emergency care system.

Long Term Recommendations (2 or More Years)

Explore Shared Services

All of the emergency medical provider organizations in Kit Carson County, including the EMS responders, KCCHSD, local clinics and the communications center have established organizations that are functional, competent and responsive to the needs of their communities. Each of these organizations has a mission, culture and history that has been optimized for its needs. The next step, however, is for these organizations to work together to optimize the EMS system for the community. To this end, a number of efficiencies can be gained by the sharing of services. Both CAS and KCCAS have already done this to some extent by sharing an electronic records management system and billing services. Local response agencies have additional opportunity, however, to share support services such as:

- Vehicle and equipment maintenance
- Disposable supplies purchasing and management
- Employee / volunteer scheduling systems
- Public education and injury prevention programs
- Clinical quality improvement
- EMS Continuing Education
- Telecommunications and radio equipment and services
- Information technology services
- Insurance programs

Over time, the review team also believes there could be substantial opportunity for both CAS and KCCAS to share paramedic or other personnel between organizations. The review team also thought there could be substantial value in unified scheduling where both CAS and KCCAS could be aware of the status and location of on-call or on-duty EMS personnel throughout county.

Integrate the Public Safety Radio System

As noted in the communications component evaluation, KCC response agencies currently use a variety of radio systems in a semi-coherent manner driven mostly by individual response agency needs. This is an ineffective and costly approach that makes situational awareness, dispatching, coordination and mutual aid difficult. There is an opportunity to eliminate at least one radio system (VHF or UHF) and the corresponding ongoing maintenance costs. The team recommends that all public safety agencies, communications center, local governments and KCCMH participate in the development of a comprehensive and universal communications plan.

Consider Additional Health Care Integration Opportunities

Currently, EMS services in Kit Carson County are mostly limited to BLS response provided on an on-call basis. While these services are meeting the needs of the community, neither EMS service in KCC was closely linked to the greater health care system. The review team believes that including EMS in the greater system should be a priority of the BOCC, KCHSD and potentially the Lincoln Community Hospital which operates the clinic in Flagler.

In particular, the review team thought it would be prudent to explore an arrangement where a paramedic with a response vehicle could be shared with the Stratton Clinic providing assistance during clinic hours and responding to requests in either the KCCAS or CAS areas as needed. Based on outcome pilot projects in Colorado and nationwide, the potential of further integration of paramedic services into the community health care system may also be viable at some point in the future that could better utilize EMS personnel for public health and wellness activities. Shared use of BLS and ALS providers at the Flagler Clinic, or KCCMH could also be a viable option to share resource costs, improve the clinical acumen of EMS providers and upgrade the level of EMS care available.

Improve Data Use in System Planning

Currently, both CAS and KCCAS are utilizing the ESO Solutions® EMS records management system for clinical reporting and billing purposes. The KCCSO Communications Center is utilizing the CrimeStar® computer-aided dispatch system. Both of these products offer substantial reporting capability and the opportunity to build customized reports. The CDPHE EMTS Data Program is also capable of providing local agencies with reports based on uploaded patient care reports. Reports on uploaded data will also likely improve in the next few years as CDPHE deploys an updated database that captures additional National EMS Information System (NEMSIS) data elements.

The review team recommends that CAS and KCCAS continue to report, troubleshoot and improve the quality of their patient care data and work aggressively to ensure submitted information is correct and that response personnel understand the value of accurate data entry. Both services should also work with the KCCSO communications center to establish CAD report formats and should review CAD data regularly. Once this data is being collected and analyzed, both services, the EMS service medical director, and the EMS Council should review these reports regularly and use the information to direct the EMS system in the future. Sharing report data with the BOCC in their system oversight role and with the public in general may also serve the public education needs of the EMS system.

Summary of Recommendations

Type	Recommendation
Short-Term	Conduct Comprehensive Human Resources Planning
Short-Term	Provide for Ongoing Leadership and Administration Needs
Short-Term	Fully Implement Medical Priority Dispatching
Short-Term	Formalize and Improve EMS Resolution and EMS Council
Short-Term	Increase Engagement with Medical Community
Medium-Term	Improve Medical Direction Resources
Medium-Term	Develop Comprehensive Plan for Improved EMS Facilities
Medium-Term	Develop Capital Equipment Plan
Medium-Term	Improve Clinical Care
Medium-Term	Consider Additional Communications Center Structural Options
Medium-Term	Explore Sustainable Funding Options
Long-Term	Explore Shared Services
Long-Term	Consider Additional Health Care Integration Opportunities
Long-Term	Integrate the Public Safety Radio System
Long-Term	Improve Data Use in System Planning

Appendix A

Kit Carson Regional EMS Pro Forma Budget

Sample Budget

<u>Category</u>	<u>Current</u>	<u>Sustainable</u>	<u>Notes</u>
Revenue			
<u>Fees</u>			
Community Ambulance	\$ 70,000	\$ 75,000	+\$5000 for Increased transports
KCC Ambulance Service	\$ 250,000	\$ 295,000	+\$45,000 for Increased transports
Public Funding		\$ 500,287	Mill Levy or Sales Tax
Bond Financing		\$ 118,000	Bond Financing
<u>Total Revenue</u>	<u>\$ 320,000</u>	<u>\$ 870,287</u>	
Expenses			
<u>Payroll</u>			
EMS Director		\$ 52,000	Countywide EMS Administrator
CAS Part Time Admin	\$ -	\$ 24,000	\$2000 Month for Stipends
KCCAS Ops Manager	\$ 37,700	\$ 45,000	KCCAS Manager (ALS Provider)
Clinical Svcs Manager		\$ 45,000	New Hires / EMS Con Ed / CQI
Shared Paramedic Staff		\$ 120,000	3 Paramedics & \$40k
			\$3.50/hr average x 4 x 8760
KCCAS Paid Per Call	\$ 84,000	\$ 122,640	(24/7/365)
Benefits	\$ 44,000	\$ 78,600	30%
<u>Total Payroll</u>	<u>\$ 165,700</u>	<u>\$ 487,240</u>	
<u>Operations</u>			
CAS Operating	\$ 70,000	\$ 70,000	Current Level
KCCAS Operating	\$ 116,800	\$ 116,800	Current Level
Addl Shared Services		\$ 25,000	TBD
<u>Total Operations</u>	<u>\$ 186,800</u>	<u>\$ 186,800</u>	
<u>Capital</u>			
Capital Replacement			
Fund	\$ -	\$ 75,000	Vehicles & Capital Medical Equip
Debt Service	\$ -	\$ 118,000	\$1.5M at 5.0% for 20 years
<u>Total Capital</u>		<u>\$ 193,000</u>	
<u>Total Expenses</u>	<u>\$ 352,500</u>	<u>\$ 867,040</u>	
<u>Net</u>	<u>\$ (32,500)</u>	<u>\$ 3,247</u>	

Revenue Calculations

Assessed Valuation 2010	\$ 128,278,731		
Taxable Retail Sales 2009	\$ 83,515,000		
Bond Mill Rate	0.00092	0.92	Mills
Operating Mill Rate	0.00390	3.90	Mills
Equivalent Sales Tax rate (Bond & Operating)	0.0104	1.04%	

Pro Forma Description

Based on the recommendations made above and the anticipated future needs of the system the financial framework for a countywide, sustainable EMS system is noted above. In addition to the use of the most current retail sales and assessed valuation information available, the following assumptions were made:

Revenue

- Current ambulance fee revenue is projected to be flat
- Additional revenue is projected with the addition of paramedics to provide additional ALS billing not currently possible, or lost to flight programs.

Personnel

- Both CAS and KCCAS would remain independent organizations supported by the countywide EMS system and personnel
- The overall EMS system would be managed by an EMS Director responsible for overall coordination and shared services
- CAS would have \$2000/month to provide as stipends to administrative personnel estimated at \$500 - \$1000 per position per month.
- KCCAS would maintain a paid operations manager position
- The coordinated system would add 3 paramedics to provide ALS support to both agencies. Actual deployment was not determined.
- The Clinical Manager would support new hire & volunteer orientation and field training, EMS continuing education and clinical quality improvement activities
- KCCAS paid-per call / volunteer costs are estimated at 4 people on-duty 24/7/365 at an average cost of \$3.50 /hr for combined on-call and on-duty time
- Benefits are calculated at 30% for FT employees (Health / Retirement / Employer Taxes)

Operating

- Operating expenses are calculated at current levels
- An additional \$25,000 is earmarked for shared services. The nature and extent of these services was not determined but could include fleet maintenance, supply purchasing, radio equipment, information technology, telecomm, etc.
- Additional savings through shared services may be possible, but insufficient detail was available to fully analyze.
- New energy efficient facilities would likely reduce current utility costs

Capital

- Annual capital replacement amount of \$75,000 is anticipated for replacement of vehicles, and capital equipment.
- New ambulances will likely be required approximately every 3 years with approx 25,000 per year for other capital purchases
- Debt Service indicates financing of \$1.5M in facilities and other capital needs for the system on or about 2015. Estimates are:
 - \$800,000 Burlington KCCAS & EMS Headquarters
 - \$500,000 Flagler CAS Headquarters
 - \$50,000 Stratton Station improvements
 - \$150,000 Other Capital Needs (Vehicles / Equipment / Furniture / Fixtures)
- Financing is estimated over 20 years at 5.0% Interest

This pro forma budget does not take into account exactly what structure will be used to provide the public funding and bond financing. As noted earlier in the report, a number of options exist for an ad valorem (property) tax including an ambulance district or regional service authority. Incorporation with the KCCHSD is also an option, as well as an increase to the existing KCC general fund mill levy. Sales tax options also include incorporation with the KCCHSD or addition of a county portion of the sales tax. While it is expected that any tax increase in the current economic climate would be unpopular, important EMS system upgrades and long-term sustainability would require public funding above and beyond what was currently available through fees alone. The anticipated increase in median age of the local population will also likely drive an ongoing need for increased healthcare services, including EMS.

Appendix B

List of Stakeholders Interviewed

Kit Carson Board of County Commissioners

Kit Carson County Memorial Hospital

Community Ambulance Service Inc.

Kit Carson County Ambulance Service

Kit Carson County Sheriff's Office

Burlington Fire Protection District

Flagler Rural Fire Protection District

Stratton Fire Protection District

Vona Fire Protection District

David Ross, D.O.

Jeff Force, EMTP

Kim Schallenberger – Plains-to-Peaks RETAC

Darcy Janssen – Kit Carson & Cheyenne County Office of Emergency Management

Appendix C

Assessment Team Biographical Information

Ted Anderson, EMT-P

Ted Andersen is the Director of Alamosa Ambulance Service in Alamosa, Colorado. Alamosa Ambulance is a countywide ambulance district operated under contract by the San Luis Valley Regional Medical Center. Ted started his career in prehospital care as a volunteer in Julesburg, Colorado as an EMT Basic. In 1990 he moved to Denver and began working full time as a paid EMT-Basic. Ted completed paramedic training in 1991 and worked in Denver as a Paramedic until 1997. Ted then went to work at Melissa Memorial Hospital in Holyoke, Colorado as a Paramedic. Ted became certified as a limited scope operator for X-Ray and worked in the X-ray department until 2005. Ted then moved to Alamosa to be the Director of the Ambulance. He is currently the chair of the all hazards department and head of Security for the San Luis Valley Regional Medical Center. He is also currently serves on the San Luis Valley RETAC board representing Alamosa County.

Rick Hartley, EMT-P

Rick Hartley has been the Director of the Southeast Colorado Hospital District Ambulance Service since 1992. The Southeast Colorado Hospital Ambulance Service is located in Springfield, Colorado that is operated as a department of the critical access hospital. Rick began his career as an EMT-Basic in 1984 and has served as an EMT-Intermediate and Paramedic. Rick represents Baca County on the Southeast Colorado RETAC. Rick was instrumental in the formation of the RETAC in 1996 and has previously served as vice-chairman and chairman. He is a member of the EMS Advisory Council of Lamar Community College and instructs a variety of EMS educational programs including EMT programs, Advanced Cardiac Life Support, and the Paramedic Program throughout southeast Colorado. Rick has also been awarded the CJ Shanaberger Lifetime Achievement award for his service by the EMS Association of Colorado.

In addition to his EMS responsibilities, Rick has previously served on the Board of Directors of the Southeast Colorado Hospital District from 1989 - 1992 and owned a successful construction company for 18 years. He has also been President of the Colorado Track and Field Coaches Association for two years, and has coached the Springfield high school boys track team for 15 years. Rick and his wife Pam have been married for 35 years and were blessed with four wonderful children. When his busy schedule allows, he enjoys many of the recreational activities that living in Colorado affords him and he likes to spend as much time as possible with his family

Randy Leshner, EMT-P

Randy Leshner is the Chief of Thompson Valley Emergency Medical Services, a Health Services District located in suburban Loveland, Colorado. Randy started his EMS career in a Funeral Home – based Ambulance Service in Canon City moving on to owning and operating his own Ambulance Service for 15 years in Fremont County. He is currently a member of the State Emergency Medical and Trauma Services Advisory Council and chairs the Public Policy and Finance Committee. Randy is a member of the Northeast Colorado RETAC representing Larimer County, sits on the Larimer Emergency Telephone Authority and the Fremont County E-911 Board. He currently serves as the President of the EMS Association of Colorado, a non-profit professional organization representing EMS providers and ambulance services statewide.

Margaret Mohan, RN, BSN

Margaret Mohan is the Trauma System Specialist for the EMS and Trauma Services Section at the Colorado Department of Public Health and Environment. In this role, she provides technical assistance to trauma facilities throughout the state on maintaining and improving the trauma program at individual facilities and the system of trauma care throughout the state. Prior to coming to CDPHE, Margaret worked at the Department of Health Care Policy and Financing (HCPF) which is the Medicaid agency for the state of Colorado. During her ten years at HCPF, she supervised the unit that conducted provider payment audits for overpayments, fraud and abuse, as well as investigated quality of care issues. Margaret also managed the benefits section at HCPF where she worked to refine the amount, scope and duration of the Medicaid services provided. Margaret is a registered nurse who has worked at a level I trauma center in a variety of roles including staff nurse on the surgical unit, house supervisor and nurse manager of the float pool, forensic, surgical and orthopedic units.

Tony Wells, EMT-P

Tony Wells is the current Director of Washington County Ambulance Service, a department of Washington County Government. He has served in that capacity for twenty one years. He is the county representative on the Northeast Regional Emergency Medical and Trauma Advisory Council (NCRETAC). Tony also serves as the chairperson for the High Plains Regional Emergency Medical Services Council for Morgan, Washington, Logan, Yuma and Phillips County. He also heads the High Plains Critical Incident Stress Management Team, covering the 13th Judicial District of Colorado. Tony's experience includes paramedic assignments in Denver back in the day of Reed Ambulance (a private ambulance provider in the Denver area). He then moved to the mountain area of Estes Park and worked ambulance and hospital for a year full-time and eleven years part-time prior to assuming the directorship of Washington County Ambulance. He is a certified primary instructor and teaches classes in CPR, ACLS, PALS, EMT in all levels and is a retired volunteer fire fighter I for the town of Akron. He is primary instructor for Northeastern Junior College and Morgan Community College and My Educational Resources, Inc. His best job description these days is grandpa and master angler.

Sean Caffrey, CMO, MBA, NREMT-P

Sean Caffrey served as the project manager and editor for this project. Sean is the System Development Coordinator for the EMS & Trauma Services Section of the Colorado Department of Public Health and Environment. Sean previously served as the Director of the Summit County Ambulance Service, a county-based governmental enterprise, located in Frisco, Colorado. Sean has been a paramedic since 1991 and is certified as a Chief Medical Officer (CMO) through the Center for Public Safety Excellence. He received a BS degree in Emergency Services Administration from the George Washington University in Washington, D.C. and a Masters in Business Administration from the University of Denver. Sean's experience includes service in volunteer, hospital-based, fire service, governmental and private-sector EMS providers. Sean also represented governmental EMS providers on the Colorado State Emergency Medical and Trauma Services Advisory Council (SEMTAC), served as Secretary/Treasurer for the Central Mountains RETAC and President of the EMS Association of Colorado, Inc. Sean has been instrumental in developing EMS management education programs at the local, state and national levels. He has lead previous EMS assessment projects in the San Luis Valley, Park County Las Animas County and Logan County Colorado.