



Recommendation for
Fire Based Pre-Hospital
Emergency Medical Transport Service

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Executive Summary

The Arvada Fire Protection District has an exciting opportunity to expand the services we provide to the citizens by incorporating emergency medical response, treatment and transport without increasing the tax burden. The integration of Emergency Medical Services (EMS) will not only ensure that the citizens are being treated by highly trained Paramedics on every call for ambulance service, it will increase the number of resources available in the District to respond to the other emergency situations. This document describes how we can provide a more consistent level of care, with a reduced cost to our end users. In some cases there will be no cost incurred by our users for services which they are currently billed for.

The following recommendation will lay out the key aspects that this redesign of Arvada's EMS system will improve upon including how we intend to enhance continuity of care, standardize the training and education of responders, expand our existing quality assurance and improvement program, streamline EMS oversight, and improve our patient's experience. It will also explain that in addition to the above improvements the implementation of this plan will supplement our budget and give the Fire District 24 new medically trained firefighters available not only for emergency medical response, but for other emergencies including structure fires.

If we receive Board approval we will set a new standard for emergency medical care within the boundaries of the District. We will address the aggressive response time goals, the expanded use of a nationally accredited emergency priority dispatch system, interoperable communications systems, and state of the art ambulances designed to meet the needs of fire based transport systems. We will describe how we intend to measure and track the effectiveness of the new EMS system.

The recommendation concludes with financial reports demonstrating how the District can start providing EMS transports, at an equal or higher level of service while supplementing our current budget and daily staff without exceeding current budget restrictions. Costs are provided for startup and ongoing operations. In addition, the proposal shows how the original one-time costs will be reimbursed back to the district. Revenue projections are also included. In the end, the plan will show that not only is fire based EMS transport financially feasible, it will have tremendous benefits for both the community and the Fire District.



Background and Significance

Why Now

Our situation has changed.

In 2009 we hired Emergency Services Consulting, Inc. to evaluate the operations of the District and provide recommendations enhance the services we provide. We specifically did not include ambulance transport in the evaluation as we had no intention at the time of providing this service. We knew we were capable but felt no change was necessary.

In early 2010 we completed a strategic plan and once again, even though it was brought up as something to look at by participants, we told them that we did not want to include ambulance transport in the Fire District's strategic plan.

Later in 2010 we appointed a Blue Ribbon Panel consisting of business and community leaders from around Arvada to evaluate whether we should ask the voters for a mill levy increase and how much we should ask to raise it. Ambulance transport was not discussed at this time as it had still not presented itself as an issue. The dollar amount that the panel recommended was to continue to fund our current services.

In October of 2010, Rural Metro Corporation (Rural Metro) purchased the contracted EMS provider for the Arvada Fire Protection District, Pridemark Paramedic Services, LLC (Pridemark). The District Board and Fire Chief were assured that at that time that we would see no changes in the operations of Pridemark for at least two years. The fact is there have been changes within the organization. One example of a significant change occurring in the new organization is that Mike Donner, the former President and CEO of Pridemark, is no longer overseeing the business in Colorado, contrary to the initial conversations that we had with them. He is now a part-time consultant. Mike was the primary contact for the District and was a significant reason for the successful partnership that had been developed between the two agencies over the last decade.



In January of 2011 we were informed that a citizen group was looking to exclude a portion of our District currently within the limits of the City of Wheat Ridge. The loss of this area would have a significant impact on the District's revenue. As a result, in February of 2011 the elected Arvada Fire Board instructed the Fire Chief and his staff to look into ways that the District could offset this potential loss of revenue. After evaluating various options and seeing some of the changes occurring at Rural Metro, the Chief Staff asked the Fire Board for permission to prepare a study to evaluate whether ambulance transport provided by the District would be a financially feasible option. This initiated the first discussions regarding ambulance transport and the project began in March.

In March of 2011, Rural Metro announced that it was intending to sell to a private investor. This meant that the ambulance provider to our District was sold twice in less than six months. We find this troubling for two reasons.

Primarily, the provision of EMS is an essential function as important as fire suppression and city policing. The District is charged with providing EMS transport and to this point has always contracted with a private agency for that service. To have instability surrounding such an important service is a risk that we don't want to take on behalf of the citizens of the District.

The second reason these recent announcements are troubling is that we initially contracted with Pridemark, which at that time was a locally owned and operated company, to escape a similar situation. Our experience shows us that when a small company is purchased by a national consolidator such as Rural Metro the level of service and the ability of the local managers to respond to issues with the contract will be dramatically diminished. In the past 25 years, there have been at least 10 changes in the provision of ambulance transport within the District.

Should the Board approve this recommendation and initiate the transition to Arvada Fire Protection District being the primary transport agency within our boundaries, local control and stabilization of this essential function will be permanently assured. The personal investment that our firefighters currently have in serving the citizens of the District will carry over to the provision of EMS transport. While being managed in a fiscally responsible manner, the primary objective of quality EMS is exceptional patient care.



Benefits of the Public Model

Internationally, the fire service has been using cross trained and multi-role firefighters to deliver EMS to communities. The success of this model has a great deal to do with an already existing infrastructure. Several components of that infrastructure already exist in AFPD, they are:

- The 911 dispatch system.
- Administrative / human resource oversight.
- Training, medical direction, and Continuous Quality Improvement.
- Facilities / housing and fleet maintenance.
- Partial staffing (cross trained Paramedic Firefighters and EMS Staff).

Nationally, EMS is most frequently handled by public or governmental organizations. In the Denver Metro area we see a very similar situation. More fire departments similar in size to Arvada provide their own EMS transport than don't. All of the agencies listed below provide their own government based transport system:

- Castle Rock Fire Department
- Cunningham Fire Protection District
- City and County of Denver (Denver Health Medical Center – Paramedic Division)
- Englewood Fire Department
- Lafayette Fire Department
- Littleton Fire & Rescue
- Louisville Fire Department
- Mountain View Fire & Rescue
- North Metro Fire & Rescue
- North Washington Fire Department
- Rocky Mountain Fire District
- South Metro Fire & Rescue
- Southwest Adams County Fire & Rescue (*Serving eastern Arvada*)
- West Metro Fire & Rescue
- Westminster Fire Department

As you can see, provision of this service is handled largely by fire departments and other governmental agencies in the metro area.



Around the Denver metro area, more public agencies provide 911 medical transport services than private agencies. Arvada would be aligning itself with a national and local trend and standard level of care by providing ambulance transport service.

Currently, the District is providing free labor and expertise to our private vendor with our fire apparatus providing first response and occasionally sending one or even two firefighters to the hospital in the back of the private ambulance with patients in critical condition. The Fire District receives no form of cost recovery for this extra service. When we begin providing the emergency medical transport the reimbursement for the response will go directly to the District helping to offset the cost of that response. The dollars paid for ambulance service will be reinvested back into the District, which in the end means a better overall fire department for the citizens of our community.



There will be an improvement in the administration of the EMS system

The division of oversight responsibilities between two separate organizations complicates administration. Improvements will be realized by having the EMS system integrated within one agency. A clear administrative line of authority with a single quality improvement mechanism and a coordinated training and planning effort focused on a single set of values and organizational goals, and a common set of procedures will create an opportunity for a more responsive organization to exist.

Effective use of data for quality improvement and system planning will be made easier when there is one central collection point for data in the District's Communications Center. Timelines for implementing new procedures are condensed and the coordination of training is easier and less duplicative. By taking control of the administration of EMS and transporting our own patients systems and processes can be streamlined.

There will be an improvement in the continuity of care

The provision of patient transport by the District will immediately improve EMS in a number of ways and allow for easier implementation of future improvements to the system. What the Fire District will deliver is a system that will ensure the best possible patient care. Continuity of care is a common discussion topic in EMS regarding the potential loss of information and interruption of a patient's treatment plan each time they are handed off during the response, triage, treatment and transport phases of care.

When you have firefighters and paramedics working, training, eating and living together, the end result is a seamless and cohesive delivery of emergency care. This was actually reinforced during a recent conversation with a Rural Metro Manager as he agreed with this theory. Continuity of care is a hallmark and primary objective of EMS and must be maintained. The more times a patient is passed from one provider to another, the more likely it is that important information will be lost. Improvements will be made in this regard by limiting or avoiding the handing off of patients in the pre-hospital setting.



There will be a strengthening of the Fire District

The fire service has recognized the need to become an all-hazards responder and has evolved to meet those demands. When a citizen dials 911, the fire service is prepared, trained and equipped to respond to a wide variety of emergencies. As fire department staffing levels become more robust, we enhance the capabilities of the District and add value to the community at a cost significantly lower than a new stand-alone response system.

We intend to employ dual mission Paramedic and EMT Firefighters trained not only to respond and treat those that are critically ill or injured, but to also respond and work seamlessly in the existing command structure on all other types of emergencies, including structure fires and rescue operations.

This will be a tremendous advantage to the District as a whole. We believe that when there is a way to increase the number of firefighters within our organization without adding to the tax burden, the District and its citizens greatly benefit.

Ongoing Partnership with a Rural Metro Ambulance

This proposal identifies the continued need for the District to partner with a private ambulance provider in a backup capacity to provide the citizens of the District with a modern, flexible and multi-faceted EMS transport service. Pridemark Paramedic Services, now Rural Metro is the provider of transport service for the Arvada Fire Protection District as well as Wheat Ridge, Fairmount and Edgewater. We know that our contracts do not operate independently of each other. It will be crucial for Rural Metro to maintain a presence in Arvada to augment the coverage that is provided to our neighboring cities. The relationship will change in nature from its current state, but allow for Rural Metro to maintain its other 911 and facility contracts in the Arvada area. In the Denver metro area this type of primary and backup relationship is common and necessary especially in times of higher call volume and concurrency.

We are proposing that Rural Metro continue to operate as our partner in this new capacity with oversight from District administrators. This will enable us to continue the long relationship between the two agencies and help to ensure that they are able to maintain adequate resources in the city to provide coverage for the other emergency and nonemergency contracts for which they are responsible. Since we do not intend to bring a new private provider into the city; we feel that Rural Metro should continue to be the provider of choice for intra-agency transports to nursing, rehabilitation and assisted living facilities in the community as well as Exempla Lutheran Medical Center.



Economic Impact on the Community

This recommendation is focused on improving the District and the community. The plan that we have developed will increase the number of people employed in the EMS industry in Arvada and will strengthen existing business. We are proposing to hire 21 medically trained firefighters to staff the new deployment of ALS resources, an EMS Administrator, EMS Captain and one mechanic. These employees would be employed exclusively within the District boundaries and monies spent during their service would be retained entirely within the District, generating revenue for local business and sales tax for the city. We believe that this hiring will more than offset any adjustment Rural Metro will have to make in their staffing model to meet the new needs of the District.

Emergency medical transport is currently the only pre-hospital emergency medical service that is universally covered by insurance. The fees for service collected from insurance companies and system users can be used to offset the tax burden of our citizens. The cost that the district already incurs through training personnel, compensating for medical certifications, dispatching, equipment and apparatus is large and some of it will now be able to be recovered.

We are recommending that the District contract with a local company, EMS Billing Services Inc., to provide billing expertise to our transport service. Not only are we proposing that this company be contracted for billing services, we are exploring the possibility of leasing them space at District Headquarters to house the entire company. They currently employ eight billing specialists and would likely grow to 11 if we can negotiate terms of a contract successfully.

This company would provide the services needed to obtain efficient return of revenue. They will utilize proper billing techniques in dealing with governmental and private insurance carriers ensuring that we are billing in compliance with all state and federal laws. They will also provide training and feedback, in conjunction with our EMS Captain, to our paramedics to ensure proper documentation is being completed on all patients. This partnership could potentially keep a newly formed business within the city for a long period of time. The net result of this is that more jobs will be created than are lost and those will be stable jobs here in Arvada for years to come. EMS Billing Services, Inc. qualifies as both a woman and minority owned business.



Effectiveness of EMS Transport Systems



Measuring the success of the program

The success of an EMS system is a difficult thing to measure. In some cases nationally recognized standards can be used and in other cases measurements of success are derived through comparison with other providers. Measurements can take the form of response time compliance, fee schedules, resource availability, patient outcomes, end user surveys, sustainability and public opinion.

Fire based EMS would be the start of a new program for AFPD. As such, there is little historical data from which to draw. In this section, we will focus on measuring effectiveness using response times and resource availability. The following sections will address efficiency as it relates to cost, and long term sustainability through effective billing practices.



Exceeding the current National Standard for ALS response times

NFPA 1710 dictates that “when provided, the Fire District’s EMS resources providing ALS shall be deployed to provide for the arrival of an ALS company within an 8-minute response time to 90 percent of the incidents.” Arvada Fire District will exceed the national standard by adhering to the following response criteria just as we have required our contracted ambulance provider to in the past.

Emergent Response Time

The District will have ALS resources on scene with any constituent that utilizes 911 within:

- Six minutes thirty seconds (6:30) with ninety percent (90%) reliability
- Nine minutes (9:00) with a ninety-eight percent (98%) reliability
- These times are calculated in the same manner as the current contract which defines the total response time as the sum of turnout time and the response time.

Turnout Time

Upon notification from the dispatch center and alerting of crews of an emergency, there is a time allocated for the crew to board the responding unit and initiate their response. This will be done in an expeditious fashion to ensure prompt responses.

Response Time

Much of the response time is governed by local road conditions and traffic associated with a response. All responding apparatus shall be equipped with an Opticom to allow for the pre-emption of traffic signals generating a green light in the direction of travel. All District personnel are mandated to drive in accordance with District policy and state law in a safe, reasonable and prudent manner at all times.

Non-Emergent Response Times

The Fire District will provide response times of eleven minutes (11:00) to all non-emergent responses with 90% reliability. Non-emergent response times will be calculated and defined in the same manner as emergent responses.



Resource Availability

Two of the most complicated questions to anticipate the answer to when developing a new transport service are how many resources you should make available and where should you house them. The coverage recommendations contained in this proposal were developed under the assumption that all apparatus are in stations and a single incident is being reported within the District. While ideal, this is not a reality and the District must evaluate and prepare for call volume to fluctuate and for calls to come into the communications center concurrently. A few of the ways we plan on preparing for these inevitabilities are outlined below.

Through adequate preparation and training we can ensure that the response time benchmark will be met as patient care will be the primary focus of this new system.

Recommendations to overcome call volume surges and concurrency are as follows:

- Place our ALS equipped engines strategically to compliment the eventual location of ambulances and therefore cover more of the district with ALS resources. Research indicates that this is the most cost effective way to decrease ALS response times and ensure the proper treatment is initiated quickly
- Contract with a private ambulance service to provide backup coverage during times of extreme call volume and concurrency. Rural Metro Ambulance is the private company with which we would like to contract with as they hold contracts with facilities throughout Arvada and will have ambulances in the area. This would be a mutually beneficial situation.
- Use the current mutual aid agreements with nearby governmental transport agencies including Westminster Fire Department, Southwest Adams County Fire & Rescue and West Metro Fire & Rescue.
- Utilize cross trained personnel to staff the backup District ambulances that will be ready for use as needed. Personnel can be transferred from ALS engines or the EMS Captain can respond to meet the ambulance with the addition of an EMT-B from an engine. Trigger points for staffing the backup ambulances will be established prior to implementation of fire based EMS transport.



User Opinion

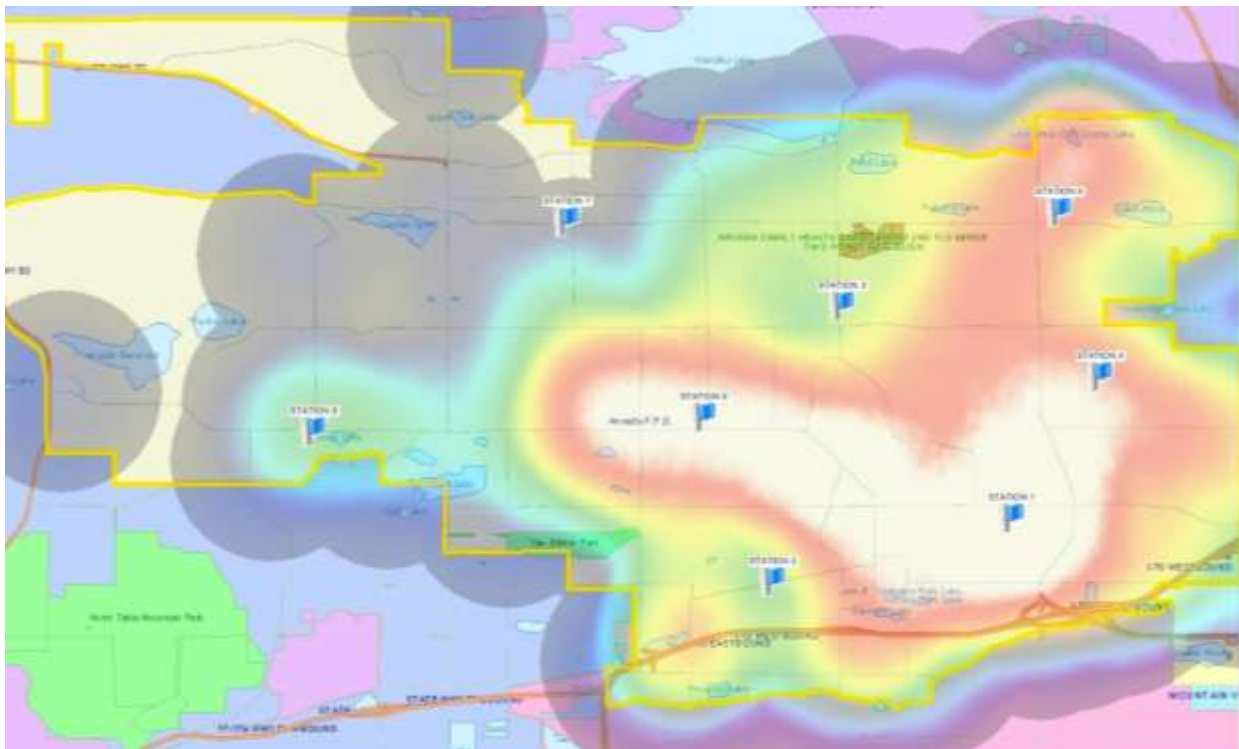
User opinion in any service industry matters. Fire and EMS delivery systems are no different. The Arvada Fire Protection District currently utilizes a “Sixty Second Critique” survey to solicit feedback from the constituents that have needed to utilize our services. This program will be expanded to allow for the public to give feedback that they can be confident will be taken to heart and utilized to improve our EMS system.



Details of Proposal

Deployment Locations and Staffing Model

In order to meet the progressive response time goals that we have set forth in this proposal we must carefully consider the deployment of emergency ALS response resources. The physical location of ambulances is critical to ensuring adequate coverage to all areas within the District. The final deployment plan for our ambulances will be the product of a lot of scientific data and some anecdotal organizational knowledge. We have taken into account historical call volume data, daily traffic patterns, and the likelihood of call concurrency in various geographic areas within the District. We have utilized a module of our CommCAD software as one tool to evaluate the most efficient placement of our ALS resources. The following image is a representation of our historical call volume generated by the Zoll CommCAD software.



While certain aspects of our research are still in progress we are tentatively proposing to position District ambulances staffed with one Paramedic and one EMT capable of responding to medical calls in the following existing stations.

- Station One – 7900 W 57th Ave
- Station Three – 7300 Kipling St
- Station Six – 6503 Simms St
- Station Five – 8100 Vance Dr.

The District ALS response system will be supplemented by positioning ALS Engines to ensure that the District is adequately staffed with ALS resources. These engines would be placed at the following stations:

- Station One – 7900 W 57th Ave
- Station Two – 12195 W 52nd Ave
- Station Seven – 8027 Alkire St (Backup ambulance located here)
- Station Eight – 6385 Quaker St (Backup ambulance located here)

Communications/ IT

In order to provide the highest quality patient care and ensure best practices, there are a number of communication tools that are essential to fulfill the expectations of the patient, medical direction, dispatchers, and response personnel.

Arvada Fire Protection District's communication center is prepared to handle the dispatching of ambulances. We have used the National Association of Emergency Medical Dispatch (NAEMD) priority dispatch system for call prioritization for approximately ten years. This is a proven medical dispatch program that will provide accurate caller information to the ambulances and determine the most appropriate response. Dr. Jeff, Beckman, the District's Medical Director will continue to oversee the response configuration so that patient care is in line with state mandates and best practices.

We are not anticipating an increase in call volume or workload in the Dispatch center as we currently dispatch all emergency medical incidents occurring within the District. Additional training will be provided to the communication center technicians as to the specific challenges associated with dispatching ambulances.



One of the major benefits of bringing this transport system in house is the ability to keep more accurate data which can be queried as needed to develop new procedures and evaluate current practices regarding the deployment and response of ambulances and the training of our personnel. Frequent demand analysis will be done to ensure that our deployment is still meeting the needs of historical and predicted call volume.

Another piece of technology that our Communications Center has access to and will expand their use of if this recommendation is followed is EMSystems. This web-based interoperability system has been widely used throughout the state. We have implemented it and it is accessible online for our dispatchers to access metro area hospitals divert and advisory statuses as well as their Mass Casualty Incidents (MCI) capabilities. EMSystems makes it possible for our Communications Technicians to relay up to the minute information to our field personnel in order to assist them in making an informed destination decision which meets both the needs of the patient and the system as whole.

Ambulance Equipment

We are recommending the purchase of six type I ambulances. These ambulances will be customized to meet the needs of a modern fire-based transport system. They will be equipped with four wheel drive systems in order to more adequately be prepared for Colorado winters. Type I ambulances are larger than the current vehicles in use by Rural Metro in our District today. The ambulances contain storage space adequate to carry all necessary firefighting equipment for the cross-trained personnel staffing them. All ambulances will be equipped with modern medical equipment in accordance with the requirements and restrictions levied by the Jefferson County Ambulance Licensure process, State of Colorado Paramedic Acts allowed, our Medical Director as well as maintain compliance with all National guidelines for Ambulance construction in order to ensure the safety of our staff.

Equipment Servicing and Maintenance Credentials

Due to the nature of emergency response apparatus and equipment, there are extensive requirements regarding its maintenance and repair. Reliability of this equipment is critical. All of the District's current maintenance staff is credentialed as Emergency Vehicle Technicians (EVT) for fire apparatus. Maintenance personnel currently employed will have the certifications necessary to keep most of the maintenance of the ambulances in house at least six months prior to implementation of the transport service. In addition, the proposal calls for the hiring of one additional mechanic and the requirement for EVT certification for that individual.

Maintenance of the other medical equipment will be completed by technicians trained on the specific piece of equipment.



Specialized life safety equipment shall be validated as to the equipment's serviceability by a certified testing authority based upon the manufacturer's recommendations.

Equipment Replacement Program – Ambulances

All ambulances and other apparatus used for the delivery of EMS shall be entered into the District's existing equipment replacement program, which is fully funded by the annual contributions to the program based on the anticipated life cycle of an ambulance which we are estimating to be approximately six years.

Public Education and Outreach for EMS

Part of any successful EMS system is a robust public education and safety outreach program. The Fire District has a well-established and active public education department that will be augmented by the addition of this new service as well as the new district personnel. In addition, we will continue to engage the community through outreach offered through public appearance requests, community preparedness efforts, child health efforts and community emergency response training.

Cost to the End User

The current contract EMS service provider uses a pass-through system tied to a user fee schedule that bundles items and services rendered for care. Part of the infrastructure of the AFD EMS delivery system already exists; therefore, the cost to the end user can potentially be reduced. Nationally the vast majority of transport agencies bill for services. All of the agencies surveyed for this report along the Front Range bill for their services. Currently patients who require basic treatment, but not transport can receive a bill for the response. We recommend providing this service at no charge in certain cases. If this recommendation is approved and we are directed to implement it, extensive consultation with our contracted billing service will help to finalize the most appropriate way to handle billing for the new transport service. Other items that we would not charge for are misdemeanor blood draws which are currently billed to the Arvada Police Department.



Ongoing Expenditures

Personnel	2011	2012	2013	2014	2015
Salaries (Paramedics) 15 @ \$51,327 ea.	\$ 769,905	\$ 785,303	\$ 801,009	\$ 817,029	\$ 833,370
Salaries Ff/ EMT B 6 @ \$45,327 ea.	\$ 271,962	\$ 277,401	\$ 282,949	\$ 288,608	\$ 294,380
EMS Chief	\$ 100,043	\$ 102,044	\$ 104,085	\$ 106,166	\$ 108,290
EMS Captain	\$ 89,877	\$ 91,675	\$ 93,508	\$ 95,378	\$ 97,286
Mechanic	\$ 70,783	\$ 72,199	\$ 73,643	\$ 75,115	\$ 76,618
Health, Vision and Dental Insurance	\$ 168,000	\$ 171,360	\$ 174,787	\$ 178,283	\$ 181,849
Life Insurance	\$ 10,000	\$ 10,200	\$ 10,404	\$ 10,612	\$ 10,824
Long Term Disability (2.6% FPPA & 1.42% non FPPA)	\$ 33,867	\$ 34,544	\$ 35,235	\$ 35,940	\$ 36,659
AD&D	\$ 1,000	\$ 1,020	\$ 1,040	\$ 1,061	\$ 1,082
Medicare	\$ 18,887	\$ 19,265	\$ 19,650	\$ 20,043	\$ 20,444
Pension	\$ 130,257	\$ 132,862	\$ 135,519	\$ 138,230	\$ 140,994
Unemployment	\$ 3,908	\$ 3,986	\$ 4,066	\$ 4,147	\$ 4,230
Unscheduled Overtime for Special Events	\$ 10,000	\$ 10,200	\$ 10,404	\$ 10,612	\$ 10,824
Worker's Comp	\$ 20,000	\$ 20,400	\$ 20,808	\$ 21,224	\$ 21,649
Employee Development	\$ 10,000	\$ 10,200	\$ 10,404	\$ 10,612	\$ 10,824
Total	\$1,708,489	\$1,742,659	\$ 1,777,512	\$1,813,062	\$1,849,323

Equipment and Vehicles					
Medical Suplies/ Oxygen	\$ 100,000	\$ 102,000	\$ 104,040	\$ 106,121	\$ 108,243
Equipment Replacement	\$ 15,000	\$ 15,300	\$ 15,606	\$ 15,918	\$ 16,236
Fuel	\$ 50,000	\$ 51,000	\$ 52,020	\$ 53,060	\$ 54,122
Vehicle Maintenance	\$ 25,000	\$ 25,500	\$ 26,010	\$ 26,530	\$ 27,061
Reserve for Future Ambulance and Equipment Purchase	\$ 165,000	\$ 168,300	\$ 171,666	\$ 175,099	\$ 178,601
Repayment to reserve fund for one time expenditures- 15 yr. amortization	\$ 131,333	\$ 131,333	\$ 131,333	\$ 131,333	\$ 131,333
Misc Expenses (printing, etc.)	\$ 2,000	\$ 2,040	\$ 2,081	\$ 2,122	\$ 2,165
Total	\$ 488,333	\$ 495,473	\$ 502,756	\$ 510,184	\$ 517,761

Services					
Insurance- Vehicle	\$ 6,000	\$ 6,120	\$ 6,242	\$ 6,367	\$ 6,495
Insurance- Liability	\$ 25,000	\$ 25,500	\$ 26,010	\$ 26,530	\$ 27,061
Licensing	\$ 2,000	\$ 2,040	\$ 2,081	\$ 2,122	\$ 2,165
Billing (8% of Collections)	\$ 196,400	\$ 200,328	\$ 204,335	\$ 208,421	\$ 212,590
Audit	\$ 4,000	\$ 4,080	\$ 4,162	\$ 4,245	\$ 4,330
Total	\$ 233,400	\$ 238,068	\$ 242,829	\$ 247,686	\$ 252,640

Grand Total	\$2,430,222	\$2,476,200	\$ 2,523,097	\$2,570,932	\$2,619,724
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One Time Expenditures

The recommended EMS delivery system will require an initial capital outlay to cover the cost of apparatus, equipment, facility renovations and the employment and training of new District personnel. The operational model indicates that the AFD will need six ambulances and we will need to undertake some fairly large renovations of existing stations.

Stations 1, 3 and 6 will house 24 hour dedicated ambulances. Station 5 will house a fourth ambulance which will be staffed by one Paramedic and an EMT/Firefighter from Engine 5. Two backup ambulances will be housed in stations 7 and 8 for use as needed. Medical equipment to outfit six ambulances will need to be ordered through our existing disposable and durable equipment vendors. One time capital expenditures to provide for the implementation of our plan are estimated in the following table:

One Time Expenses	
Remodel Station 6	\$ 50,000
Remodel Station 1	\$ 10,000
Remodel Station 5	\$ 500,000
Ambulance Purchase (6)	\$ 1,050,000
Staff Vehicles (2)	\$ 60,000
Equipment for Ambulance	\$ 300,000
Total	\$ 1,970,000



Projected Revenue

Revenue recovery and fiscal responsibility are key components to a sustainable EMS delivery system. Based on historical data provided by Pridemark and Rural Metro personnel we have some revenue projections which were used to develop this report. The delivery of EMS is an expensive proposition. Our goals going into this project were that it needed to be self-funding after the initial startup phase making it sustainable into the future. We believe we have developed a fiscally responsible plan with a modest profit margin significant enough to achieve these goals as well as pay down the startup costs over time. In the following table we have attached a five year revenue projection.

	Year				
	1 st	2 nd	3 rd	4 th	5 th
Gross Billed Costs	\$6,100,000	\$6,222,000	\$6,346,440	\$6,473,369	\$6,602,836
40% Receivables Rate	\$2,455,000	\$2,504,100	\$2,554,182	\$2,605,266	\$2,657,371

EMS Division Oversight

Diligent oversight of the EMS division is critical to the success of this project. This oversight will ensure that effective and efficient patient care is being promptly delivered to the citizens of the District and will ensure that fiscal decisions being made are sustainable. Our recommendation is to staff the administration of the EMS Division with an EMS Administrator overseeing all operational and administrative functions relating to EMS and an EMS Captain focused on clinical education and development. The EMS division administrative staff will work in concert with other members of the District's leadership team to ensure that we are all working towards the common goal of improving the capabilities of the District as whole.

Additional Staff

Staffing the proposed ALS resources will require the employment of 15 additional paramedics and six additional EMT-Basics. The addition of these personnel will allow the District to sustain, maintain and provide efficient ALS services with emphasis on prompt high quality patient care. Existing Firefighters with either Paramedic or EMT-B certifications will be used to backfill as employees take vacation or sick leave. They will also be utilized to rotate personnel from the ambulances to front line fire apparatus on a regular basis to prevent skill degradation. All 21 of these new employees will be trained as fire fighters and may be utilized as such on large scale incidents or during the course of their employment with the District as part of a regular rotation. The addition of six more vehicles to the fleet will require the addition of one mechanic to help with the increased need for maintenance.



Physician Oversight

Colorado law mandates that all pre-hospital providers operate under the guidance and direction of a physician. This physician is identified as the Medical Director and is an integral part of the EMS system. In Colorado a pre-hospital providers “acts allowed” are determined by the Medical Director and established through protocols. A group of physicians have defined a set of protocols referred to as the “Denver Metro Protocols” and Arvada Fire Protection District personnel will operate under a revised version of these protocols established by our Medical Director taking into account the specific needs of the District.

Medical direction is currently provided by Dr. Jeff Beckman based at Exempla Lutheran Medical Center. Dr. Beckman has been a supporter of our organization and assured us he will continue to support our organization with medical oversight, Continuous Quality Improvement and progressive medical advancement as we move the District’s medical response to the next level. Mr. Ron Quaife has been the AFD EMS Educator for over ten years working very closely with Dr. Beckman and District personnel to develop medical knowledge and skill proficiency. Mr. Quaife is on staff at Exempla Lutheran Medical Center and will remain as the AFD EMS Educator.

Continuous Quality Improvement (CQI) and QA/QI

Best practices indicate that a predictable process to review medical calls for patient assessment, differential diagnosis, protocol compliance, outcome and documentation is essential. The CQI system, which will be a state mandate in 2013, is already in place. AFD’s committee consists of Dr. Beckman, Mr. Quaife, and 3 EMS personnel from the District. Makeup of the committee as we move forward will be at the discretion of Dr. Beckman, the Fire Chief and the EMS Chief. CQI emphasizes the organization and systems. It focuses on “process” rather than the individual, it recognizes both internal and external customers and it promotes the need for objective data to analyze and improve processes.

Individual performance will be monitored by the EMS Captain through report review, customer and peer feedback, and through direct observation of patient contact. Having one person monitoring individual performance will give us consistent feedback and coaching for our personnel. We will develop a more robust QA/QI program immediately after receiving a blessing from the Board to proceed with our plan in an effort to get a head start on the development and training of our medically trained personnel to ensure that they are ready to be the primary pre-hospital care giver when we begin transporting patients.



Conclusion

The Chief and his staff are recommending that the Fire Board of the Arvada Fire Protection District help the District take a giant leap forward by approving this proposal to begin the process of building a fire-based medical transport system. Pre-hospital 911 emergency medical transport services is one of the essential public safety functions provided by municipalities and special districts in support of community health and it is time to bring this function in house. We have designed a plan that is efficient, effective and sustainable and if approved we will strive to build an EMS system that will be used as a model as other fire agencies follow in our footsteps. We will maintain a positive public/private partnership with Rural Metro Ambulance to provide the citizens of the District with a dynamic, flexible and multi-faceted EMS system.

The plan as presented will provide the following benefits to our citizens, without increasing their tax burden:

- Provide the Fire District with a publically controlled high quality EMS transport service;
- Lower the overall costs of emergency ambulance transport;
- Provide the residents of our District with improved continuity of care;
- Improve the administration of the EMS system through a clear administrative line of authority, a single quality improvement mechanism, fully integrated dispatch center, coordinated training and a single planning effort focused on a single set of values and organizational goals;
- Improve emergency response capabilities to all hazards by supplementing our staffing levels with no financial impact to the Fire District's budget;
- Increase the number of ambulances currently dedicated to the Fire District to four units. In addition, this plan allows for increased call surge capabilities by adding another two units that can be deployed during times of high call volume and concurrency.



The Arvada Fire Protection District is recommending that fire-based EMS begin in March of 2013. This allows for the current contract with Pridemark (Rural Metro) to terminate naturally. During that period of time we will:

- Finalize the implementation plan
- Acquire and train necessary EMS personnel
- Procure ambulances and associated equipment
- License ambulances
- Bid out and hire an EMS Billing Provider
- Renovate fire stations where ambulances will be stationed to allow for additional staff

This plan lays out the initial steps necessary to implement a fire based EMS transport system. Many more action items will be identified, discussed and finalized prior to implementation. Necessary resources will be devoted to provide the citizens with emergency medical care that is reliable, accessible, effective, continuously evaluated, and integrated into the overall health care system. If this recommendation is implemented we will stabilize this essential public safety function for this and future generations of residents and usher the Arvada Fire Protection District into the next phase of its existence.

