Executive Summary: Durango Fire & Rescue Authority Strategic Plan

The executive summary provides an overview of the DFRA (Durango Fire and Rescue Authority) Strategic Plan. The purpose of this executive summary is to summarize the key points of the document for readers, saving the reader time, and an organizer for the reader.

Purpose and Report Conventions

This report reviews the emergency response system of the Durango Fire and Rescue Authority (DFRA), including all elements comprising the organization, management, and operation. Analysis is provided using various authority data, including (for example) emergency response, finance, training, staffing, demographics, and the strategic characteristics of DFRA and communities it protects. Throughout, short- and mid-term recommendations are provided that are designed to improve the efficiency of the organization and its programs. In addition, the analysis of the strategic elements of the organization and the protected area leads to long-term initiatives intended to guide DFRA policymakers in maintaining and improving emergency service in the future.

Report Outline

The report document is divided in two main parts: 1) an organizational analysis of DFRA (Durango Fire and Rescue Authority), and 2) a section outlining service models designed to assure the continued quality of fire and emergency medical service in the future. Attachments include a discussion of how and when to determine the need for new fire facilities and apparatus, a survey of comparable fire protection organizations, and a summary compilation of short- and mid-term recommendations.

Section I – DFRA Organizational Analysis

There are ten objective areas in Section I of the report:

1. Organization & Management Overview
2. Organizational Planning
3. Risk Management
4. Personnel Management
5. Staffing
6. Financial Profile
7. Capital Assets
8. Delivery of Emergency Service
9. Emergency Services Training Program
10. Fire Prevention and Life Safety Services

The Durango Fire and Rescue Authority (DFRA) resulted from a merger of Animas Fire Protection District, Hermosa Cliff Fire Protection District, the City of Durango Fire Department, and Mercy Paramedics on January 1, 2002. DFRA responds to emergencies within a 325-square mile area of La Plata County from 16 fire stations strategically located throughout the jurisdiction. At the time of this survey, an estimated 30,000 persons reside in the DFRA service area.

In November 2006, voters authorized the creation of the Durango Fire District, but failed to approve funding; consequently, the elected seven-member board exists but has no ability to govern fire and rescue service in the region.

The existing organizational structure of the fire authority is the result of four predecessor organizations. Of the four, one provided EMS services exclusively while the other three were fire agencies that also involved in EMS but to a lesser degree. Since the creation of the fire authority and the merger of the four entities, an organizational division between fire and EMS has become evident.

Local elected officials and the personnel of the DFRA have begun the development of their master (strategic) plan by undertaking this process. With the adoption of a master plan, an organization is not ending but inaugurating a process. The master plan should be reviewed and updated regularly (normally during the annual budget process), examining and evaluating changes to the emergency service needs of the community and region.

Workers' compensation insurance coverage for DFRA is provided through an insurance pool established by the Special District Association; known as the *Colorado Special Districts Property & Liability Pool.* A fire department with a mod rate of 1.0 is experiencing claims, losses, and worker time loss at an expected rate; an employer with a rate above 1.0, more losses: and a rate under 1.0, less.[1] DFRA has a mod rate of 0.88 applied to its premium.

The human resource management (HRM) function is responsible for policies and procedures among a myriad of other roles. Written policies are in place in the form of a policy manual that was last updated and approved by the governing body in 2007.

DFRA uses a combination of career and volunteer staffing to carry out its functions. Career employees receive compensation in accordance with the policies of the fire authority. A need to monitor the regional cost of living and employment rates as these issues may play into the department's ability to recruit and retain career and volunteer personnel in the future. Appendix: B includes an in depth comparison of similar fire departments in Colorado.

Fire and emergency medical service organizations must provide adequate staffing in three key areas: operations, administration, and support services. ESCi surveyed DFRA to determine if a reasonable balance between the three areas is maintained, given the realities of available local resources. DFRA is operating with one less senior command staff in the current budget year (2008) than in the previous year. DFRA has a slightly fewer number of career firefighters for every 1,000 population than the median of other fire agencies in the west.

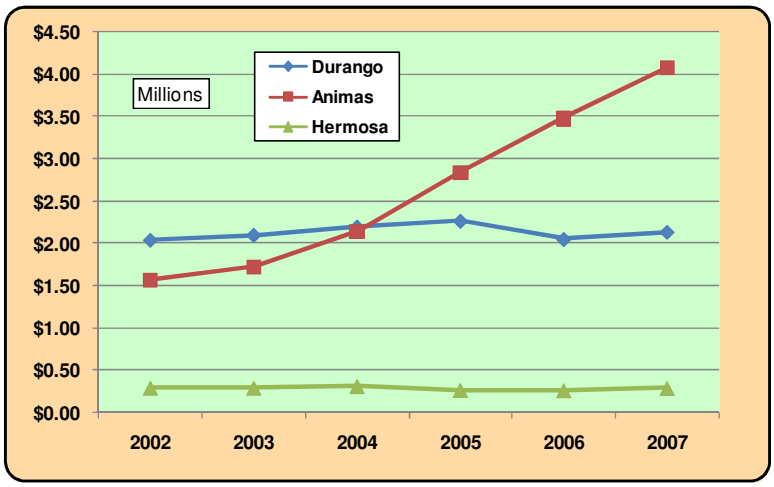
The fire authority conducts an audit of its financial affairs each year. The most recent audit and Comprehensive Annual Financial Report (CAFR) for the fiscal year ending December 31, 2006 was presented as in conformity with generally accepted accounting principles (GAAP). That report includes a certificate of achievement issued by the Government Finance Officers Association of the United States and Canada (GFOA) for the authority's fiscal 2005 CAFR.

DFRA's foundational revenue is obtained from three local government sources — the City of Durango, Animas Fire Protection District, and Hermosa Cliff Fire Protection District. In years 2005 and 2006, local government accounted for 52.78 percent and 67.31 percent of the fire authority's revenue (respectively) excluding beginning cash balances. Other sources of revenue include ambulance income, grants, impact fees, wildland fires, investment interest, the Williams Field Services Company contract, and miscellaneous income.

The following chart provides a summary of annual operating subsidy from each of the three local government entities. The contribution amount does not include the annual payments to the volunteer pension program.

[1] Mod rate is a measure used when determining the premium for workers compensation insurance. A modification factor or mod rate is an adjustment made in the premium that is calculated by an advisory organization (also known as rating bureaus) applied to the premium rate.

Figure 1: Annual Contribution by Agency, 2002 – 2007



Often, fire departments operate from multiple budgetary funds in addition to the general fund. These funds are dedicated cost recovery or revenue accounts that are funded from services like ambulance transport and fire safety inspection fees. DFRA is actively involved in cost recovery.

Figure 2: Fees for Service, 2002 – 2007

The highest year of revenue from fees (2002) is attributable to a single wildland fire event and is considered an anomaly. Excluding the wildland fire of 2002, revenue from fees has increased moderately over the reporting period (28.89 percent). Ambulance transport fees generate significant non-tax operating revenue. From a sampling of nearly 2,600 patient transports, over 28 percent were non-residents. A potential for increased EMS revenue would be to charge non-residents a higher rate; higher rates that factor the value of the EMS system currently paid for by property tax dollars.

Impact fees are used to avoid charging existing residents and businesses for the increased governmental infrastructure required to support new homes and businesses. Without an impact fee, DFRA, would need to use existing revenue or borrow by using the agency's authority to issue general obligation bonds — and then paying off the bonds (plus interest) using revenue streams created by the newly developed property.

The fire authority collects impact fees in three areas — Durango Mountain Resort, Edgemont Ranch, and Three Springs Development. The fees are treated as restricted funds used only for capital purchases. Between years 2004 and 2007, DFRA collected a total of $458,500 in revenue from impact fees. It is recommended that DFRA develop, maintain, and execute a district-wide impact fee to aid in capital purchases and/or projects.

DFRA is a fiscal agent for regional grants and has been successful in securing a number of grants. In a three-year period from 2004 to 2006, the authority received $3,870,543 in state grants. DFRA acts as a fiscal agent of the state and disperses the majority of funds and retains only a portion.

Fire and emergency medical services currently cost the equivalent of a property tax levy of about 6.346 mills, equivalent to $6.35 for every $1,000 of assessed value. Expressing fire protection cost in this manner is favored because it equitably represents the policy balance between cost of service and the property at risk; and, when expressed in terms of a tax on property, it is more easily comparable with the costs of other entities. A mill equals a tenth of one cent, consequently an advalorem tax rate expressed in mills means that one dollar of tax revenue is generated for every $1,000 of assessed value. The assessed value of DFRA is calculated to be slightly less than $1.4 billion. Given that assessed value, we estimate that a universal levy of about 6.35 mills is necessary to fund DFRA in year 2008. Securing a mill levy for DFRA should be considered a priority.

DFRA currently maintains no financing debt or encumbrance. On the other hand, the Animas FPD and the Hermosa Cliff FPD both service general obligation debt acquired before the creation of DFRA. Animas originally bonded approximately $7.7 million to finance the acquisition of fire stations and fire apparatus; approximately $4.6 million of that debt remains and is scheduled to be retired in year 2015. Hermosa Cliff sold about $1.6 million in general obligation bonds to purchase equipment and emergency apparatus, of which $1.025 million remains to be retired. Hermosa will service bonded debt through year 2017. Of the original Animas debt, a total of $4,598,700 in principal and interest remains to be paid. Of the Hermosa debt, a total of $1,359,562 in principal and interest remains.

The estimated population for Durango is 15,614 and the 2005-estimated County population is 47,936 persons.[2] Based on these figures the city accounts for approximately 32.5 percent of La Plata County's population. Tourism plays a very significant role in the economy of the City of Durango and La Plata County. The number of people who reside even briefly in the region due to tourism varies with the seasons of the year and contributes to the overall workload of DFRA. We assume that the tourists who are drawn to the national icons (Durango and Silverton Railroad, Mesa Verde National Park) also naturally visit the Town of Durango; consequently, we think it safe to assume that the effective population of La Plata County is subjected to the same up and down seasonal cycles.

Given the importance of tourism to Durango and the county, the cost of fuel, and the likelihood that tourism will lag in the short term, DFRA should take this into consideration during financial planning and the annual budget cycle. With a significant portion of service demand created by tourists, it would appear there would be a parallel to the number of requests for emergency services. A change in the number of tourists could also influence the agency's ability to sustain funding in the short term.

La Plata County fares well when compared with the national and state unemployment rates.[3] Data from the Bureau of Labor Statistics indicate an unemployment rate of 2.9 percent for La Plata County in November 2007 — well below that of the nation and the state.

Each year, the DFRA management submits a request for funding to the elected officials of Animas Fire District, Hermosa Cliff Fire District, and the City of Durango. The outcome of the operating revenue requests depend largely on board and council makeup at that time and/or the current issues within each organization. The unpredictability and the volatility of this system make it difficult to plan the financial course of the authority with any degree of certainty, which can ultimately affect the quality of emergency service in the protected communities. At some point in the analysis of the fire authority's financial profile, the issue of secure and stable public safety funding must be considered.

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[2] Population estimate for 2005 is from the U.S. Census Bureau.
[3] La Plata County's Quarter 3, 2007 ECONOMY, A Publication of the Fort Lewis College School of Business Administration.

The notion that DFRA can continue in the long term to operate under the financial policies of multiple governing bodies could be considered inefficient and inappropriate.

ESCi recommends that DFRA develop and execute a strategy for obtaining permanent funding. The sustainability of operating revenue of the fire authority should be of paramount concern. ESCi recommends the development and execution of a strategy for obtaining permanent funding and management for the sustained operation of fire and emergency medical services within the jurisdictional boundaries of DFRA. Design of the agreement should be long term (ten-year), with provisions for automatic annual renewal.

Prior to discussing alternative assessments, fees, or other increases to the current revenue stream, the governing boards of DFRA should clearly define the level of community emergency service in measurable terms (commonly referred to as standards of cover). Standards of cover are similar to the pizza delivery guarantee of hot pizza on your doorstep within 30 minutes, only in terms of fire protection and/or emergency medical service. For example, standards of cover specify the service (fire protection), the quantity (a fire pumper and four firefighters), the quality (within six minutes of dispatch), and the accuracy (85 percent of the time). Once service is defined in specific and measurable terms, the tasks of determining cost and the consideration of funding alternatives become more focused.

Potential DFRA funding alternatives can be grouped into two general categories: untapped revenues and redirected funds. Untapped revenue is represented by existing funding alternatives that are not fully used, like a tax increase or the implementation of a new tax and by the identification of fees that do not fully recoup service cost. Redirected funds are existing revenue identified as not contributing toward the essential goals of the organization and, therefore, may be more efficiently allocated to other programs or functions.

There are essentially three methods that can be used to redirect public funding: 1) proving that money could be spent more effectively, 2) showing that a population or area is not receiving its fair share of service, and 3) changing a policy so that a program can access a funding stream that currently exists.[4]

Colorado counties maintain varying sales tax rates in addition to the state's general sales tax of 2.9 percent. House Bill 1344 (passed during the last legislative session) authorizes counties (after approval by the voters) to charge a maximum of 2 percent above the state's sales tax cap for the purpose of funding public safety. The tax applies to all transactions that are subject to the state sales tax. Montrose County of central western Colorado was the first county to approve a public safety sales tax (0.75 percent with no exclusions) to fund public safety improvements.[5] The tax is a county sales tax and is combined with the county sales tax rate.

According to the La Plata County Finance Department, the county collected $13,536,798 in sales tax during 2007. Based on that information, each 1 percent of additional sales tax collected generates new revenue amounting to about $6,768,399. Each 1 percent of sales tax would absorb about 97 percent of DFRA's 2008 estimated funding by local government ($7,005,139).

Local governments provide services (such as fire protection) based on an assumption of public interest rather than the need for profitability, as in the private sector. Consequently, the limiting market forces of supply, demand, and price are not typically found at the forefront of policy decisions concerning fire protection. While elected officials may spend significant time and effort debating the overall cost of fire protection, it is very unusual that the point of service price is considered. In this

[4] *Sustainable Funding for Program Strategies*, Lessons Learned from an Ambitious Community Change Effort, June 2005, Urban Health Initiative, Seattle, WA.
[5] The levy does include a service fee deduction of 3.33 percent for returns filed in a timely manner.

light, it is not surprising that local governments find it difficult to establish a fair market price for essential services when entering into partnerships similar to the one that exists with the City of Durango, Animas FPD, and Hermosa Cliff FPD.

A listing of system variables that can be used (singly or in combination) to allocate cost between allied fire departments includes:

- Area – cost of emergency service is apportioned based on the geographic area served relative to the whole
- Assessed Value – AV is used to apportion cost of shared service by applying the percentage of each partner's AV to the whole
- Deployment – payment for service based on the cost of meeting specific deployment goals
- Emergencies – emergencies may be used as an expression of the workload of a fire department or geographical area
- Fixed Rate – fixed fees or rates (such as a percentage) to calculate allocation of shared cost
- Population – based on the proportion of residential population to a given service area
- Multiple Variable Allocation – apportioning cost over a number of variables

A method preferred in our experience is to use a multiple variable allocation for fixing the contribution amount. However, for the three agencies that participate financially in the DFRA, ESCi believes that allocating costs on assessed valuation is the most equitable.

A comprehensive capital improvement and replacement program is important to the long-term financial stability of any fire and emergency medical service organization. Such programs provide systematic development and renewal of the physical plants of the agency. ESCi recommends the development and implementation of a long-range facilities management plan.

A total of over $8 million should be accumulated now to fund apparatus as they approach their useful life expectancy. Thereafter, approximately $883,783 should be placed in an apparatus replacement plan each year.

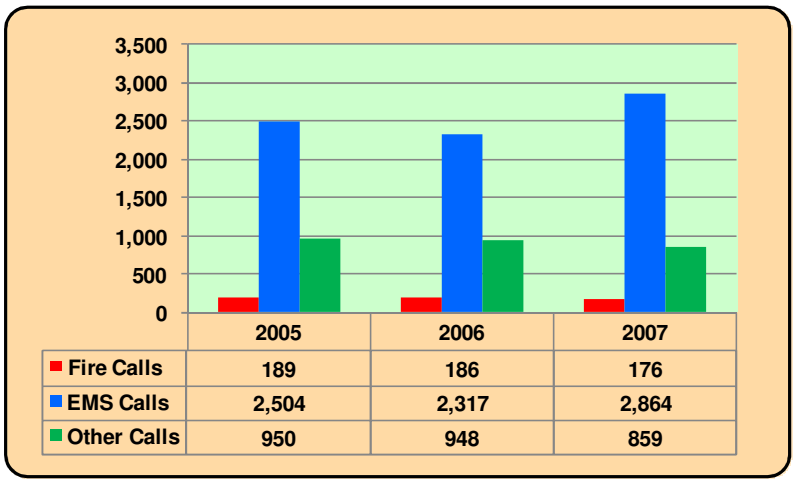
Capital purchases include new fire stations, apparatus, and durable equipment (radios, SCBA, compressors, etc). ESCi recommends that funding for capital items be allocated between the three DFRA participating agencies using a formula based on assessed valuation.

Emergency response is central to what fire departments do. The delivery of fire suppression and rescue services is no more effective than the sum of its parts, requiring efficient notification of an emergency and rapid response by appropriate apparatus from well-located facilities staffed with sufficient emergency workers who follow an established plan of action.

DFRA has informally adopted a seven-minute response time standard within the City of Durango. The territory comprised by the city is considered as urban, but the majority of the remainder of the fire authority's area is judged as rural. A response time standard is not established for the rural area.

Data from 2005 through 2007 from DFRA's NFRIS database is compiled in the following chart. It illustrates the change in volume and incident categories over the reporting period.

Figure 3: Historical Response Data, 2005 – 2007



For the 2005 through 2007 period, DFRA responses increased over 7 percent. The highest service demand is located in areas of high residential population density located between the college and the hospital. The majority of structural fires occur near the populated areas and within proximity of the fire stations.

ESCi examined DFRA calls for 2006 to find the frequency that the department is handling multiple calls at the same time. This is important because calls occurring simultaneously will deplete resources and lengthen response times. As in most communities, the majority of emergencies happen singly. However, more than 27 percent of the time, DFRA will be responding to more than one call at a time.

Figure 4: Call Concurrency Table

12 Months	Single	2	3	4	5	6	7	8	9	10
All Calls	72.53%	20.66%	4.83%	1.08%	0.44%	0.17%	0.03%	0.06%	0.00%	0.03%
Fire	92.31%	4.20%	2.10%	0.70%	0.70%					
Medical	77.45%	18.96%	2.96%	0.42%	0.08%	0.04%	0.04%	0.00%	0.00%	0.00%
Other	91.79%	7.02%	0.76%	0.11%	0.11%	0.22%				

The average response of all DFRA emergency calls is calculated to be 9 minutes 28 seconds. Ninety percent of all DFRA calls are answered within 16 minutes 25 seconds.

The following table shows the average number of personnel responding by incident type in 2006.

Figure 5: Number of Personnel by Incident Type, 2006

Incident Type	Average No. of Fire Personnel	Average No. of EMS Personnel	Average No. of Other Personnel	Average No. of All Personnel
Fire	5.44	1.24	1.41	8.09
Medical	0.80	3.24	0.28	4.32
Other	2.93	1.17	0.32	4.42
Average All Calls	1.64	2.57	0.35	4.56

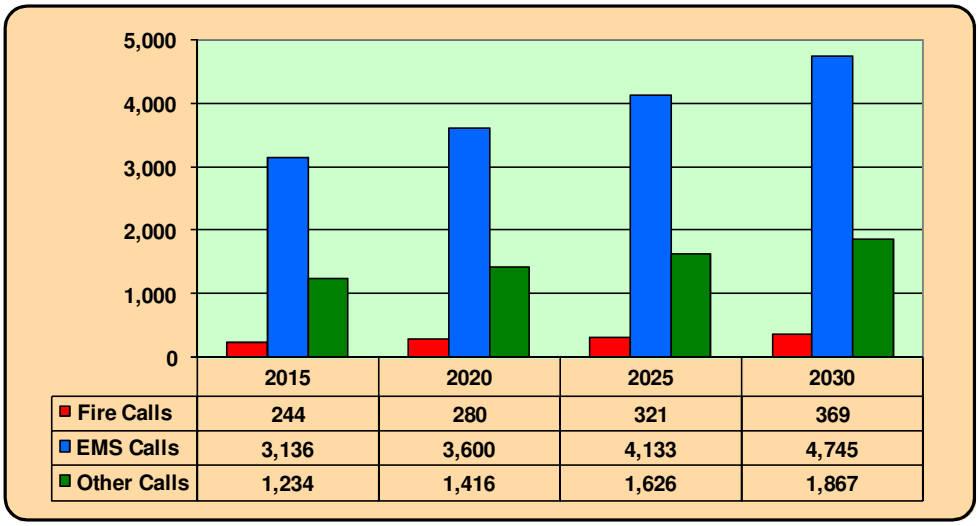
The risk to life and property posed by fire is evaluated based on a number of factors. One of the primary determinates of risk is the character of the structures that make up the community. Structures with high risk of fire and/or loss of life often require more resources (firefighters and apparatus) to mitigate an emergency. Widely dispersed buildings with few occupants usually represent a lower level of risk overall. Therefore, staffing and deployment decisions should be made after consideration of the level of risk that is represented within the geographic sub-areas of the community.

Overall, the DFRA community includes mostly low-risk properties. The predominance of high risk is located in downtown Durango, and in certain non-residential developments along Highway 550 and Highway 160. These properties include industrial, heavy commercial, mid-rise, mixed-use, institutional, and multi-family occupancies.

Since we know that the demand for emergency service is based almost entirely on human activity, it is important to have a population-based projection of the future size of the community. According to the Colorado State Demography Office, the population of La Plata County is expected to grow to 80,921 persons by year 2030, which equates to an annual population growth of 2.8 percent. DFRA population is likely to reach over 60,000 by year 2030.

For purposes of this study, we used the population projections presented earlier and multiplied these by modifiers derived from incident rates per capita to identify workload potential through the year 2030. The results of the analysis are shown, by year and type of call, in the following chart and table.

Figure 6: Workload Projection by Type and Year



	2015	2020	2025	2030
Fire Calls	244	280	321	369
EMS Calls	3,136	3,600	4,133	4,745
Other Calls	1,234	1,416	1,626	1,867

DFRA maintains no specialized training facilities but offices and classroom facilities are provided. Since DFRA does not have a training facility, personnel must travel about 70 miles to Farmington, New Mexico, to participate in live fire training. DFRA maintains a recently signed memorandum of understanding (MOU) with Upper Pine River Fire Protection District to jointly design and eventually build a training facility. DFRA and Upper Pine are working to acquire a site for the facility from XTO Energy; however, agreements with the Colorado Department of Transportation for access still require finalization. The training facility has received preliminary approval of La Plata County Planning and the La Plata County Commission. The plan is scheduled to go before both parties again for the Class II final approval. ESCi recommends that DFRA continue to pursue the development of a regional training facility.

Section II – Service Models

A fire protection master plan intention is to provide long-term strategies designed to answer the most pressing issues the agency faces now and in the future. Section I of the report included the trends inherent to the community and an examination of the fire department; in particular, growth, demographics, risk, service demand, resources, and finance. In some cases, it is possible to forecast how the community and requirements for emergency service may change in the ensuing years. Section II used the knowledge gained in Section I to help determine if alternatives exist that may improve the efficiency or the effectiveness of community fire and emergency medical services.

Providing emergency services within the jurisdictional boundaries of DFRA is challenging because of the rural expansiveness of the community outside of the City of Durango. Eleven of the 16 DFRA fire

stations are situated on or very near arterial roadways. This allows greater coverage per station and (at times) assuring service from more than one station to certain neighborhoods. This can be very important in rural areas with few roads or in residential developments designed with limited access. On the other hand, street grids such as downtown Durango generally provide more options for connectivity except when encountering physical barriers like the river, railway, and limited access highways.

Certain stations, such as Fire Stations 8, 9 10, 11, and 13, are situated in neighborhood communities. Station 1 is located nearly a mile from a protected highway access. While undoubtedly these areas (neighborhoods and industrial zones) also require emergency services, the lower speed capability of local streets limits the coverage area for these stations, and can result in a need for more stations than would otherwise be necessary.

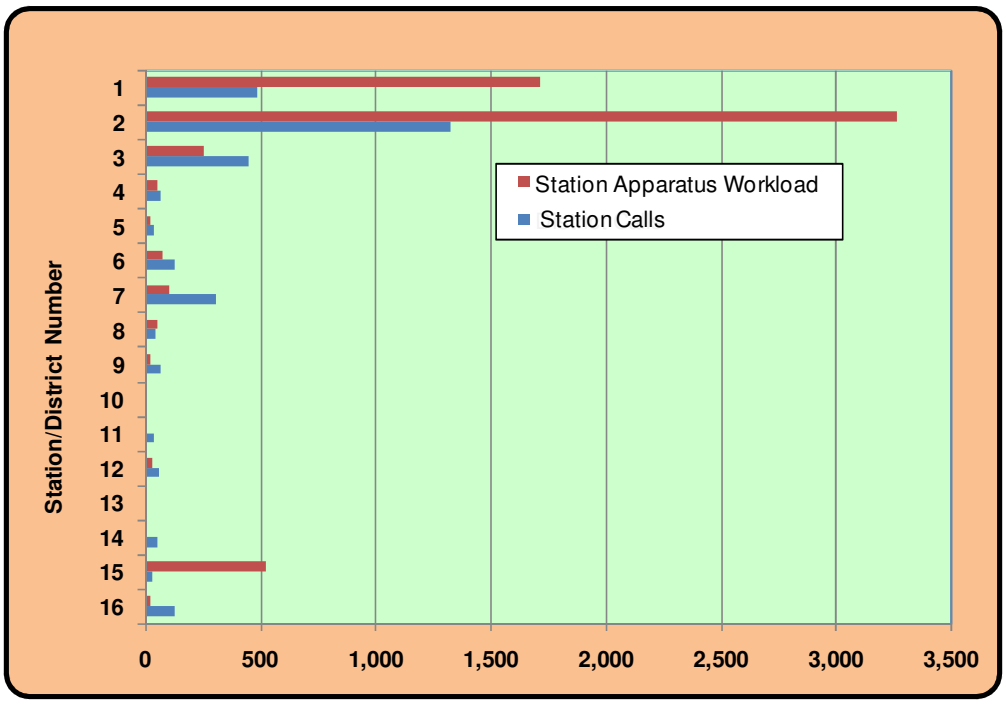
Closure of fire stations may affect DFRA's ISO class. Prior to any decision on closing facilities: an analysis (calculation) determining cost savings to benefit ratio between station closure and fire insurance savings should be conducted. Weighted in the decision are the perceptions of benefit of the facilities by the public and political implications of closing a fire station(s).

The 16 stations of DFRA provide 97 percent coverage of the entire authority's current service demand within nine minutes of travel.[6] The agency also provides over 98 percent of coverage within the City of Durango within a five-minute travel time. DFRA has adopted a goal of a seven-minute response time within the City of Durango; consequently, this would allow for two minutes of turnout time for firefighters in Fire Stations 1, 2, and 3. No formal response objective has been established for the remainder of the fire authority.

While this coverage is impressive, it assumes that the availability of volunteer staffing is sufficient, that the closest apparatus responds to the emergency, and that the cost of operating all of these facilities is efficiently feasible. This is apparently not the case when station workload (area) is compared to each station's apparatus workload.

[6] Travel time is the time from the beginning of travel until arrival at the emergency scene. This does not include the time between dispatch and the beginning of travel (turnout time).

Figure 7: Station Reliability



Each station's apparatus workload should at least match the station workload unless it is an area with higher service demand and a greater likelihood of concurrent calls. Although career-staffed stations may be dispatched to other areas to assist (because of unknown volunteer availability or long turnout time), it appears that many volunteer stations fail to answer calls within their own district. A review of the personnel roster indicates that *some* stations have little to no staffing assigned to them; hence, the necessity for response from nearby stations or from career-staffed stations. This tends to reduce the readiness of other response zones especially within the City of Durango, where the likelihood for concurrent emergencies as well as property with higher community risk exists.

DFRA serves three distinct types of communities: 1) densely developed/populated urban areas, 2) a growing suburban area, and 3) an expanse of rural or remote territory. These varying types of response zones present divergent relative fire risks, as well as different levels of service demand, which suggests the need for alternative fire protection and emergency service delivery models. Were such a community to attempt to achieve the same levels of response performance and resources within the rural area as in the urban area, costs would likely increase due to fewer taxpayers and lower relative assessed values of the rural area. This why many communities choose to deliver tiered levels of service that more closely match risk and demand, as well as the expectations of the citizens living there.

Currently, nearly 70 percent of demand for emergency service occurs within the city limits of Durango. Community growth within DFRA is expected to be most concentrated in and around the City of Durango due to planned infrastructure, employment, and commercial services.

Although five DFRA fire stations can access the city planning area, only two (Station 1 and 2) are required to provide service within a five-minute travel time at least 90 percent of the time.[7] Projected service demand of future land use based on historical ratios of calls by zoning suggests that four stations will be needed to approach 90 percent coverage; otherwise, five-minute response would slip to 83 percent in the planning area. Therefore, we recommend that Station 7 and 3 remain in

[7] This allows a turnout time of two minutes to reach the seven-minute service goal.

operation, as the deployment of those facilities covers nearly 90 percent of projected demand within the five-minute travel goal. The following table illustrates the coverage detail based on fire station deployment in the urban planning area.

Figure 8: Urban Planning Area Fire Station Deployment Coverage

Service Demand	Stations 1, 2, 3, & 7	Stations 1, 2, 3	Stations 1, 2, 7	Stations 1 & 2
Current	96%	93%	94%	90%
Projected	88%	85%	86%	83%

Alternate locations for fire stations within the urban service area were explored to find the strategic locations without significant change in current or projected coverage or a reduction in the number of stations in operation. Station 3 is located on a collector roadway near areas of high service demand on the north side of the city and the neighborhood east of the river. This location also gives emergency apparatus access to the east side of the college. Station 2's location is ideal, situated in the center of the city and along a major arterial route; however, unless the building can be renovated to accommodate the needs of the fire department, other nearby available property should be considered.

Apparatus responding from Station 1 must now traverse nearly a mile of secondary streets before reaching a major roadway with a traffic control device. Parcels located closer to the highway would improve the coverage of those units. Travel models using alternate station locations on Highway 160 and Highway 550 validate this but do not reduce the number of stations necessary to achieve the desired results. Station 7 is located much closer to the highway; therefore, this aspect of distance to an arterial is not an issue needing improvement. Station 7 also provides important coverage to response zones outside of the urban planning area.

The following table details the recommended (Scenario A) apparatus deployment for the current stations in the urban planning area with consideration of community risk, roadway access, and station apparatus capacity.

Figure 9: Urban Response Planning Area Apparatus Deployment – Scenario A

Fire Station No.	Engine	Truck	Medic	Rescue	Brush	Tender
Fire Station No. 1	X	X	X		X	X
Fire Station No. 2	X	X	X	X	X	
Fire Station No. 3	X		X			
Fire Station No. 7	X		X	X	X	X

The DFRA jurisdictional area outside of the urban response zone is classed as primarily rural.[8] NFPA 1720 establishes a response time goal of 14 minutes at the 80th percentile for rural areas.[9] In addition to the four urban service area fire stations (Fire Station No. 1, 2, 3, and 7); that also reach areas of the rural zone within nine minutes of travel, five additional fire stations would provide the NFPA 1720 rural response goal at least 83 percent of the time. The rural fire stations are primarily staffed by volunteers and as such, are allotted five minutes to assemble at the station before beginning travel to the emergency.

Station 15 and 6 provide much of the coverage along Highway 550; including the resort area at the northernmost extent of DFRA. On the east side, Station 5 extends service to areas not accessible by Station 2 or 3. The western service demand is slightly higher for Station 9 than Station 8, as is the

[8] NFPA 1720, 2004 ed, Table 4.3.2 Staffing and Response Time. Rural demand zones include areas of fewer than 500 persons per square mile.
[9] NFPA 1720, *Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer fire Departments*. 2004 edition, page 1720-6.

available staff. Station 9 enjoys better roadway access than Station 8 (although this could be improved if the facility was moved nearer a highway). However, street connectivity between Station 9 and Station 8 is judged as poor, which allows Station 2 to reach into this area via a longer travel time than Station 9. Consideration for improved street connectivity should be explored; otherwise, it is advisable to keep Station 8 operational until this issue can be rectified.

Station 10, 11, 12, 13, 14, and 16 would be removed from service under this scenario. The combined volunteer staff of nine from those fire stations can be absorbed (for the most part) by nearby fire stations, thereby buoying the staff availability of those resources. Although Station 11's facilities are considered better than those of Station 4, greater service coverage and volunteer availability make this fire station the better choice for retention.

The table details the recommended apparatus deployment in the rural response zone fire stations considering: community risk, roadway access, and station apparatus capacity.

Figure 10: Rural Response Zone Apparatus Deployment – Scenario A

Fire Station No.	Bays	Engine	Truck	Medic	Rescue	Brush	Tender
Station 4	2	X					X
Station 5	2	X					X
Station 6	4	X			X	X	X
Station 8	3	X				X	X
Station 9	2	X					X
Station 15	2	X		X	X	X	X

Appendices

Appendix: A – Response Time Thresholds and Triggers

The appendix provides a process for pre-determining when a new fire station, apparatus, and personnel would be required based on community-determined levels of service.

The threshold for construction to provide a new fire station into any zone in the city or jurisdiction that has more than 35 to 50 percent of its parcels developed. Some of the secondary measures currently being used are 300 to 500 calls for service for any individual fire company or a service population of 10,000 to justify a full-time paid company. The following criterion grid illustrates a series of measures that may be useful deciding when a new fire station should be deployed within a city. Similar grids could be developed to help establish triggers for the deployment of additional emergency equipment and personnel.

Figure 11: Criterion Table to Determine When a New Fire Station is Needed

Criterion Grid to Determine When a New Fire Station is Needed				
Action Choices	**Travel Distance**	**Criterion**		
		Response Time Parameter	**Out of Area Calls**	**Building/Risk Inventory**
Maintain status quo	Enter local information	**1st due company** Enter local response time	Enter existing out of area calls	Enter local building/risk inventory
Temporary facilities and minimal staffing	Risks 1.5 to 3.0 miles from existing station	**1st due company** Exceeds 5-minutes travel time 10% of the time, but never exceeds 8 minutes.	More than 10% of calls are in adjacent area	New area has 25% of same risk distribution as in initial area
Permanent station needed	Risk locations exceeding 4.0 miles from the station	**1st due company** Exceeds 5-minutes travel time 20-25% of the time. Some calls < 8 m.	More than 20-25% of calls are in outlying area	New area has 35% of same risk distribution as in initial area of coverage
Permanent station essential	Outlying risk locations exceeding 5.0 miles from the 1st station	**1st due company** Exceeds 5-minutes travel time 30% of the time. Some calls <10 minutes.	More than 30% of calls are in outlying area	New area has 50% of same risk distribution as in initial area

Appendix: B – Durango Fire and Rescue Authority: Comparables

The information included in this appendix was designed to compare staffing, workload, resources, services provided, personnel costs, and a myriad of aspects of DFRA to comparable fire agencies in Western Colorado. A survey tool was sent to 12 similar fire agencies. Five of the 12 fire departments ultimately responded to the request for information. Those departments were Eagle River, Lake Dillon, Montrose, Parker, and Union Colony. We are grateful and appreciate their participation.[10]

Appendix: C – Summary of Short- and Mid-Term Organizational Guidance

This appendix is a summarized compilation of recommendations and strategies designed to improve the efficiency and/or effectiveness of the fire district during the short- to mid-term.[11] The suggestions offered by ESCi was derived from our analysis of the existing emergency system.

[10] Since the beginning of this study, comparable data became available for Boulder Rural FPD, Longmont FD, and Mountain View FPD. This supplementary information is included.
[11] In this context, short and mid-term projects are considered as those executed within an immediate to five-year window.