

# Colorado Springs Fire Department



## Standards of Cover 2012

## INTRODUCTION

The following report serves as the Colorado Springs Fire Department (CSFD) Standards of Cover document. The Commission on Fire Accreditation International (CFAI) defines the process, known as “deployment analysis,” as written procedure which determines the distribution and concentration of fixed and mobile resources of an organization. The purpose for completing such a document is to assist the agency in ensuring a safe and effective response force for fire suppression, emergency medical services, and specialty response situations. This document conforms to the 5<sup>th</sup> edition of the CFAI Standards of Cover guidelines.

Creating a Standards of Cover requires that a number of areas be researched, studied, and evaluated. The following report will begin with an overview of both the community and the Department. Following this overview, the agency will discuss areas such as risk assessment, critical task analysis, agency service level objectives, and distribution and concentration measures. The agency will provide documentation of reliability studies and historical performance through charts and graphs. The report will conclude with policy recommendations.

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## EXECUTIVE SUMMARY

The purpose of the Standards of Cover (SOC) is to define and measure the appropriate level of service based on a comprehensive study of the Department's historical performance, deployment strategies and community risk factors in order to determine the capability of its response system. This process uses a systems approach to evaluate data in the records management system and set standards based on that data. The Department will then be able to match community needs (risks and expectations) with appropriate levels of service to operate in a safe, efficient and effective manner.

This document describes our service area, the risks that must be protected and reduced within the community, our capabilities, and our performance objectives and measures. This information will allow the Department to identify risks in the community, analyze and establish levels of response service to respond to those risks, and evaluate the Department's performance. Benchmark response times have been established that the Department strives to meet. These response time goals will contribute to our commitment to continually improve how we deliver our services.

First-due response companies are expected to arrive on the scene of any emergency within eight minutes 90% of the time. Effective firefighting force is expected to arrive within 12 minutes 90% of the time. The efficient geographic dispersion and placement of resources near service delivery points will lead to maximum effectiveness when responding to the greatest number and types of risk.

In conclusion, this Standards of Cover is a dynamic document that reflects the changing needs of the Colorado Springs Fire Department and serves as a mechanism for constantly seeking opportunities for improvement. It is a key element in our plan to reduce risk to our residents and visitors. We are committed to providing the most effective services in a fiscally responsible manner and to continually evaluate our performance in the constant pursuit of improvement.

## **Section 1 - Description of Community Served**

### **Legal Basis for Existence**

The City of Colorado Springs was chartered on May 11, 1909, pursuant to the home rule provisions of Article XX of the Colorado State Constitution. Chapter 8, Article 2 of the Charter of the City of Colorado Springs established the Colorado Springs Fire Department (CSFD), granting the authority to protect the city against fire. Specific services stated in the code are fire suppression, fire investigations, hazardous materials response, fire prevention, fire code enforcement, public education, and medical control at the scene of an accident or emergency. The CSFD has grown to provide other services, including emergency medical services, technical rescue, and wildland fire suppression.

### **Department History and Major Milestones**

The City of Colorado Springs marked its beginning on July 31, 1871, when the first stake was driven at what is now the southeast corner of Cascade and Pikes Peak Avenues. Fire prevention and protection activities began not long after, first with a volunteer department and later a paid department.

Bucket brigades were the first methods of firefighting. There were very few natural water sources in the town, therefore, most water was supplied by wells. The El Paso Canal was completed in early 1872, which took its water from Fountain Creek and provided another source of water. It is believed that pressure was put on the city government to furnish fire protection very early on.

On October 10, 1872, Ordinance Number 4 was enacted that provided for the election of a fire warden. The fire warden was charged with making inspections to reduce fire hazards, and leveling fines against those with unsafe chimneys or other conditions conducive to fire. Those who dumped live ashes in the street, or who burned combustibles on a windy day could be punished with a fine of \$5.00.

Several local fires motivated interested citizens to meet on December 27, 1872, where they promptly organized with over thirty active members. They named themselves Colorado Springs Hook and Ladder Company No. 1. Since this name implied they had a ladder truck (which they did not), on February 4, 1873, they changed the name to The Colorado Springs Fire Company. On May 7, 1873, they took delivery of a Babcock No. 1, which can be described as a fire extinguisher on wheels.

A second fire company, The Hook and Ladder Company, was formed on January 29, 1875. The hook and ladder truck arrived on May 11, 1875. It was a hand-drawn, four-wheeled wagon carrying about half a dozen ladders. There was some initial animosity between these two fire companies, but they quickly became friendly and began to work together.

Ground was broken on October 12, 1878, for the city's first pipe line. Water would be carried from a reservoir on the mesa northwest of town to a system of water mains in town. This system included 20 fire hydrants. A purchase was made of 1,000 feet of cable cotton hose and two hose carts. On December 4, 1878, organization was completed of the Matt France Hose Company No. 1. Matt France was a prominent citizen who had been mayor and a county commissioner. Five days later, the W.S. Jackson Hose Company No. 2 was organized.

The first fire chief was appointed in February, 1879. Benjamin F. Crowell was a prominent citizen who had served as a county treasurer, county commissioner, and later was one of the incorporators of the streetcar line on Tejon Street. Over the next fifteen years, many other volunteer companies were formed to provide fire protection in other areas of town.

It wasn't until January, 1894, that the city council voted to organize a paid fire department and disband the volunteers. The new fire chief, J.G. Johnson from Minneapolis, was paid \$100 a month, and the men each received \$70 a month. The new department was housed in the remodeled lower level of city hall. The horse stalls were at the back, and the former city council

chambers became the sleeping quarters. The Colorado Springs Fire Department went into service on February 12, 1894.

The first motorized apparatus was put into service in October, 1910. It was a Gramm chassis with a four-cylinder, forty horsepower engine, with a top speed of thirty miles per hour. It cost \$2,476.50. A test run took it two and a half minutes to reach Glockner Sanitarium (now Penrose Hospital) from Station 2, where the horse-drawn wagon had taken twenty-five minutes. More motorized apparatus soon followed and the use of horses was slowly eliminated.

Intensive training for the firefighters began in 1931. Prior to that time, the fire department had been expected to respond to an alarm, pour on plenty of water, make sure the fire was out, then return to quarters to await the next alarm. Now, emphasis was put on salvage work to help reduce loss. In July of the same year, ten firefighters were given training by the U.S. Bureau of Mines in the use of self-contained oxygen breathing apparatus. In March of 1932, the use of civil service examinations was used to fill officer positions on the department.

A progressive step occurred in the early 1960's, when Chief Gus Cummings established company inspections. This included schools, hospitals, nursing homes, high rise building, hotels, and other high-risk buildings. The purpose was for the crews to familiarize themselves with the structures, as well as to draw a plan of each building, showing exits, stairways, sprinklers, utility shutoffs and special hazards.

Another step made by Chief Cummings was construction of a new training facility. Up to that point, training had been done on a dilapidated tower behind Fire Station #1. The new tower would be a five story masonry tower, in which controlled fires could be started. Another feature was a water pit from which pumpers could be tested at draft.

Paramedic service began on December 31, 1979, when two Type III Triple K ambulances were put into service at Fire Stations #3 and #7. Fourteen men took the 1,000 hour paramedic

course at St. Anthony's in Denver. A federal grant of \$250,000 funded the training, communication systems, and equipment.

Response to hazardous materials incidents began in April, 1981. State Senate Bill #55 mandated that local authority was responsible for control and containment of hazardous material, and the city council assigned this responsibility to the Colorado Springs Fire Department. Engine #6 was assigned these duties. By August, 1983, thirty men had received training in hazardous materials response.

A computerized fire inspection program began July 20, 1981. Commercial buildings were ranked as to how often they should be inspected, and then entered into the program. Another phase involved dividing the city into 1,000 zones, called Fire Demand Zones, or FDZs, which are still used today.

The Colorado Springs Fire Department has continued to grow in size and has progressed in many different disciplines of rescue. There are currently twenty fire stations, with two more planned in the growing north and northeast portions of the city. The department provides the citizens of Colorado Springs a wide variety of services besides fire suppression to ensure their safety.

## **Funding Sources and Restrictions**

Funding for the Colorado Springs Fire Department is provided primarily through city general fund allocations, which accounts for 75% of the total CSFD budget. The primary source of revenue for the general fund is sales and use tax. Another 20% of the CSFD budget comes from the public safety sales tax, which is a revenue source exclusively for the fire and police departments. Both of these funding sources are reliant on the economy as sales tax revenues fluctuate based on consumer spending. The CSFD also receives a small amount of funding in the form of federal grants primarily in the area of emergency management and fuels mitigation, and hazmat.

Under a 1992 amendment to the Colorado Constitution, revenue is restricted for all levels of government. Local governments cannot spend revenues collected under existing tax rates without voter approval if revenues grow faster than the rate of inflation and population growth. During an economic recession when tax revenues decline, spending growth can be interrupted resulting in budget and service cuts.

## Topography

The City of Colorado Springs is located in south-central Colorado between the foothills of the Rocky Mountains and the eastern plains of Colorado. The city is 194.68 square miles, which makes it Colorado's largest city in area. The elevation is 6,035 feet, although some areas of the city are significantly higher. Portions of the western half of the city exist in a wildland interface area of steep slopes adjacent to the Pike National Forest. Large portions of the eastern half of the city consist of flat grasslands. The north side of the city is bordered by the Palmer Divide, a ridge that runs perpendicular to the mountains. Colorado Springs sits in several different ecological zones and has a wide variety of vegetation, including grasses, scrub oak, and a multitude of coniferous and deciduous trees.

The two largest waterways in Colorado Springs are Fountain Creek and Monument Creek. Monument Creek flows south and enters the city near the Air Force Academy. Fountain Creek flows east and enters the city just east of Manitou Springs. Monument Creek empties into Fountain Creek near the intersection of I-25 and Highway 24 just west of downtown. Once Monument Creek reaches this confluence the combined creek becomes Fountain Creek. It then flows south to Pueblo. There are other smaller drainages within the city.

## Climate

The City of Colorado Springs is in a semi-arid climate. There are an average of 127 sunny days per year (not including partly sunny or partly cloudy days). Average annual precipitation is 16.2 inches, with the highest precipitation in August. Average snowfall is approximately 42.7 inches per year, which primarily falls between October and April.

The warmest month is July, with an average high temperature of 84 degrees, and an average of eight days above 90 degrees. In 2012, however, there were a total of 18 days in July with temperatures of 90 degrees and higher. The coldest month is January, with an average high temperature of 28 degrees and an average low temperature of 16 degrees. Temperatures can fluctuate drastically in Colorado Springs, sometimes as much as 50 degrees in one day. Although the city has a relatively mild climate, there are periods of extreme cold or heat that are far outside the average.

Common natural weather events in Colorado Springs include winter storms, thunderstorms, lightning, hail, windstorms, and flash flooding. Tornadoes are less likely, but are capable of happening on a weak magnitude.

Typical aspects of winter storms in the city include snow, ice, and extreme cold. They are frequently accompanied by strong winds, creating blizzard conditions, severe drifting, and dangerous wind chill temperatures. The severity of these storms varies depending on the location within the city, with higher elevations to the north and west typically receiving more snow, and stronger winds on the north and east sides of the city. It is common for the roads to ice over quickly, causing extremely hazardous driving conditions.

Thunderstorms occur frequently during the monsoon season of mid-July through August. These storms produce a large amount of rain in a short period of time, and are often accompanied by lightning, high winds and hail. Heavy rain typically leads to flash flooding of the multiple waterways in the city. Ground lightning strikes are very common during these storms.

Spring in Colorado Springs is hail season, which typically occurs from April through June. The city is particularly vulnerable because it sits against the front range of the Rocky Mountains where hail-producing storms are more likely to develop. There have been occurrences where major roadways have been covered with several inches of hail. This is also the time of year

when tornadoes occur. Although they more commonly form on the plains east of the city, tornadoes have occurred within the city limits. More common during this season are microbursts, which are strong sudden windstorms not as powerful as tornadoes, but capable of causing significant damage. These typically cause downed power lines and structural damage to buildings, and can cause serious danger for airport traffic.

## Population

The City of Colorado Springs is the second largest municipality in the state. According to the 2010 United States Census, Colorado Springs has a population of 416,427 with a distribution of 51% female and 49% male residents. The following is a breakdown by race:

- White 78.8%
- African American 6.3%
- Hispanic/Latino 16.1%
- Asian 3.0%
- American Indian/Alaskan Native 1.0%
- Persons reporting two or more races 5.1%

The service area is largely developed, with an average population density of 2,140.6 persons per square mile. The CFAI Standards of Cover, 5th Ed., designates metropolitan areas as those with populations of over 200,000 in total and/or population density over 3,000 people per square mile. Colorado Springs, with over 400,000 in population, qualifies as a metropolitan area, but its population density lies within the CFAI definition of urban areas.

The southeast area of the City has several areas that are home to socially and economically disadvantaged residents that place a higher demand on emergency services. Also in this area is the City's highest concentration of apartment complexes, leading to higher population densities. More citizens per square mile increase the demand for service in this part of the City. In response to the increase of incidents in this area, the CSFD relocated Fire Station 8 in January, 2008, to approximately .39 miles east of its previous location and also created a new medical squad, Squad 108 (referenced in Department data as P081), to better serve the residents in the area.

## Development Within the Service Area

Several observations can be made regarding development categories and age in various sections of the City. The downtown area consists mainly of masonry constructed business and governmental office buildings. In most downtown areas the daytime population exceeds the nighttime population. While this generally holds true, there are several very popular nightclubs in the downtown area that concentrate high populations in a relatively small area. Age of the downtown structures varies from older, historic buildings to new construction and modern renovations.

The areas surrounding the downtown contain mostly older wood-frame residences, which include a sizable number of balloon-type construction. The western areas of the City have a large number of smaller and older structures of various construction types. Industrial areas are few in Colorado Springs and they vary from small companies to a large tool manufacturer. These areas are located throughout the city.

Retail business complexes can be found in all areas of the City. Newer residential areas, including many light-weight constructed homes, are mostly concentrated in the northeastern areas of the City. These new residential developments are served by strip mall complexes built of the same light-weight construction material. Hotels in Colorado Springs are located throughout the community with some concentration near the airport on the City's southeast side, and near the sports arena on the southwest side of the City. However, a large hotel resides in the downtown area and several more can be found on the north end of town. The City is also home to several parks, golf courses, open space areas, and a network of recreational pathways that are dispersed throughout the community.

## Layout of the Service Area

The City is bisected by Interstate 25 that runs north and south along the front range of the Rocky Mountains. U.S. Highway 24 is a smaller thoroughfare that runs through the City east to west. There are several railways that pass through the City, and which presently do not include any passenger train traffic. The rail lines also parallel Interstate 25, traveling north and south.

The City has few standing bodies of water, lakes and ponds that, according to the 2010 Census, account for nearly half a square mile of area. Fountain Creek also parallels Interstate 25 through the City, and while it and other waterways are usually very quiet, they can become torrents during thunderstorms that frequent the City on summer afternoons.

The City is home to the Colorado Springs Municipal Airport, which is situated on its southeastern border. The airport primarily serves passenger traffic, with some cargo flights. Most significant about the airport is that it shares runways and taxiways with Peterson Air Force Base. The Peterson Air Force Base Fire Department is responsible for aircraft fires and other emergencies on the airport property, while the CSFD responds to medical incidents in and around the terminal areas. On any large scale incidents, the two departments work together in a unified command structure.

There is an extensive wildland urban interface in the City that encompasses 28,800 acres and 36,485 homes. This area includes the western foothills from the northern edge of the city limits to the southern edge, as well as several large parks in the central part of the City.

## **Section 2 - Review of the Services Provided**

The Colorado Springs Fire Department is a full service, all risk department capable of responding to any type of fire, EMS, rescue, hazardous materials, or wildland fire call. The department maintains a modern fleet of well-equipped apparatus distributed throughout the service area and staffed with highly trained employees.

### **Fire Suppression**

The Colorado Springs Fire Department (CSFD) responded to 2,892 fire incidents (including false alarms) in 2011, which is approximately 5.9% of all calls. The Department operates out of 20 fire stations with equipment consisting of 20 engines, six trucks, and one heavy rescue vehicle. Engines carry 500 gallons of water, 1,500 feet of supply hose, 700 feet of attack hose in varying diameters, and a pump capable of delivering 1,500 gallons per minute. Trucks are equipped with hydraulic elevating ladders, as well as hydraulic, pneumatic and electric heavy rescue tools. The heavy rescue vehicle, besides its rescue tools, is equipped with a full complement of ground ladders.

The typical first alarm configuration consists of two engines, one truck, and one battalion chief. All engines, trucks and the heavy rescue vehicle are staffed with four firefighters. All CSFD firefighters are certified to the Firefighter II level, at a minimum.

### **Emergency Medical Services (EMS)**

The CSFD assumes medical control at the scene of all emergency medical calls in its jurisdiction. The CSFD responded to 34,995 medical calls in 2011, or approximately 66% of all calls. All firefighters maintain a minimum certification of Emergency Medical Technician-Basic (EMT-B) and are capable of providing basic level medical care including cardiopulmonary resuscitation (CPR), automatic external defibrillation (AED), and first aid for injuries.

The Department is approved to have 83 promoted Firefighter Paramedics, who are certified to Emergency Medical Technician-Paramedic (EMT-P) and are able to provide more highly advanced care including heart monitoring, intravenous drug therapies, and some surgical interventions for critical victims of trauma or medical emergencies. This allows the CSFD to respond with advanced life support (ALS) capability on all 20 engines and two medical squads. The total number of ALS certified personnel is currently 129, which also allows the Department to often respond ALS on truck companies and speciality vehicles.

The Department has a Tactical Emergency Medical Services (TEMS) team that is located at Station 2. Team members have received training from both the Colorado Springs Police Department's Tactical Enforcement Unit and the El Paso County Sheriff's SWAT team. These firefighters respond to tactical situations requiring medical assistance.

### **Hazardous Materials Response**

The Hazardous Materials Response Team (HMRT) works in a cooperative effort with city, county, state, and federal governments on environmental regulations and code compliance issues as well as response to and mitigation of hazardous materials spills/releases. The CSFD is the Designated Emergency Response Agency (DERA) for incidents occurring within the city limits. The CSFD has mutual aid response agreements with all surrounding fire departments and military installations.

The HMRT responds to spills/releases of all types of hazardous materials including radioactive shipments, such as transuranic waste traveling along the I-25 corridor, as part of the Waste Isolation Pilot Plant (WIPP) program. The HMRT takes an active role in the annual Hazardous Waste Collection Days, held biannually to provide an opportunity for individuals and businesses to dispose of waste chemicals, insecticides, paint, tires, oil, and batteries.

All CSFD firefighters are certified to the Hazardous Materials Response Operations level. The members of the HMRT are trained to the Technician level and respond out of three different

fire stations. The hazmat vehicle, the reserve hazmat vehicle, and the decontamination unit are cross-staffed by HMRT personnel. Hazmat 14 and the decontamination unit are regional assets for the Department of Homeland Security South Central Region of Colorado.

## **Wildland Fire Suppression**

Wildland fire suppression is one of the Department's highest priorities. All 20 Type I engines are equipped with wildland hose, nozzles, and clamps, as well as wildland helmets and fire shelters. Six fire stations, all located in the wildland urban interface area, are assigned to the Wildfire Suppression Program. In addition to the Type I engine, two of these stations are equipped with Type 3 wildland engines, which are outfitted exclusively with equipment and tools specific to wildland firefighting. Additionally, 14 of the 20 fire stations have brush trucks (Type 6 engines), which are deployed with the engines on all calls during periods of high fire danger. All firefighters are trained in operational level wildfire skills and the members of the Wildfire Suppression Program maintain certification via the National Wildfire Coordinating Group (NWCG). Members of the program are frequently deployed to wildfires around the country because of their high level of expertise.

## **Technical Rescue Services**

The Heavy Rescue Program is housed at Station 17 and provides the majority of technical rescue services. The heavy rescue vehicle is staffed full time and deployed with four firefighters. Members of this program are trained to the Technician level in many disciplines of rescue, including swift water, dive, ice, trench, confined space, extrication, high angle, and structural collapse. The heavy rescue vehicle is equipped with specialized equipment for all of these disciplines, along with a supplemental trailer pulled by a utility truck.

The High Angle Program is housed at Stations 5 and 13, which are in close proximity to areas where such rescues frequently occur. Members of this program are trained to Technician level in high angle rescue and are highly familiarized with the local recreational climbing areas.

Station 13 also has four off-road motorcycles used to rapidly respond into areas where heavy fire apparatus cannot, and Station 5 has two motorcycles.

### Assets, Physical Resources and Staffing

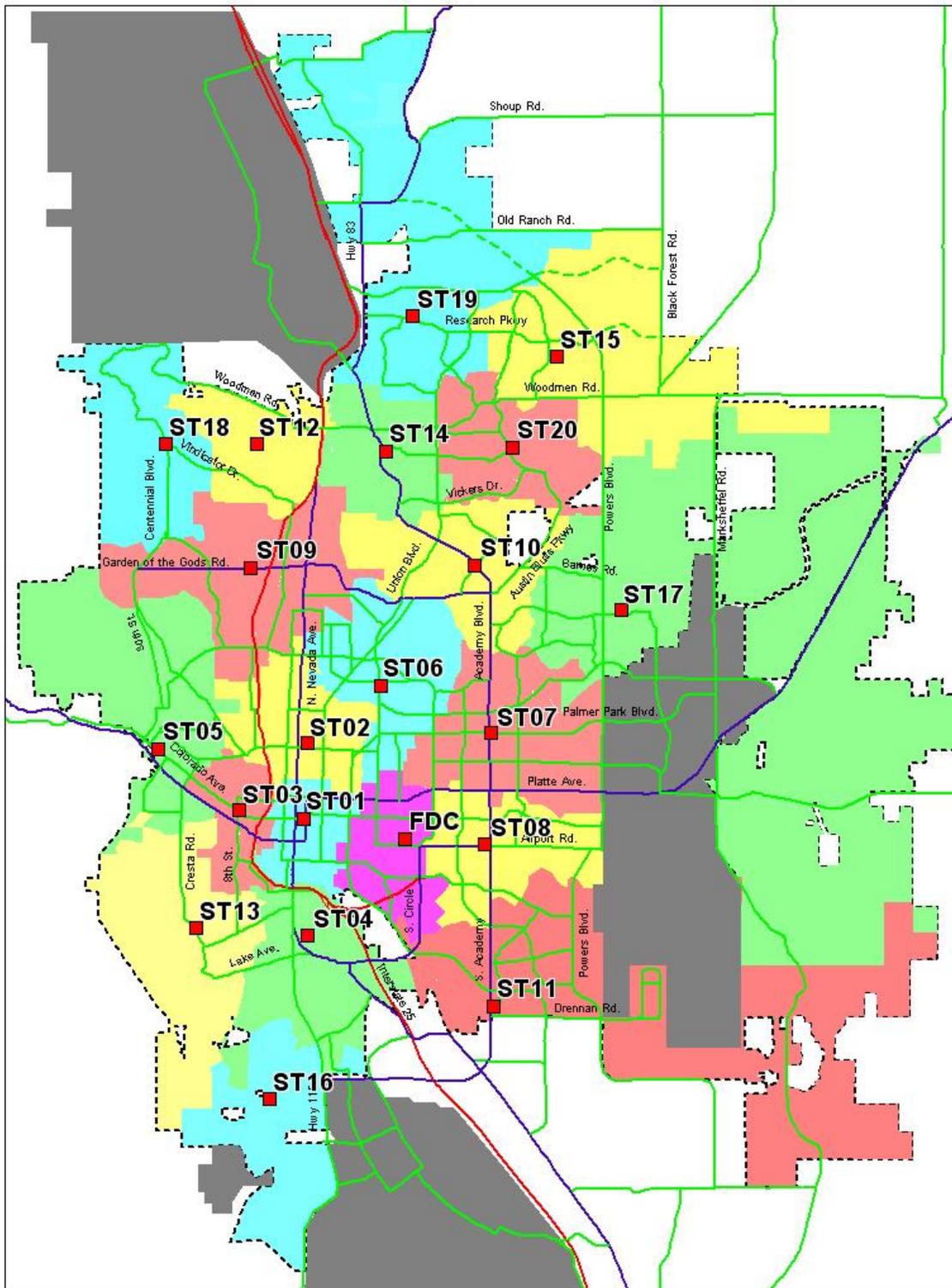
The Department has a minimum daily staffing of 115. The “Berkeley Schedule” is the current platoon schedule used by the Department, which consists of three shifts (A, B and C) each working a nine-day work cycle.

All engines, trucks, hazmat and the heavy rescue vehicle maintain a minimum of four personnel. Units occasionally respond with three personnel due to training, officer meetings, or when a paramedic has ridden in with a patient. All medical squads are staffed with one paramedic and one firefighter. The Department maintains assets and physical resources as listed in Figure 1. Station locations and their first due response areas are shown in Figure 2. Truck districts are shown in Figure 3. It should be noted that although there are six aerial trucks, the heavy rescue apparatus is also deployed with ladder capabilities and is, therefore, considered a truck district.

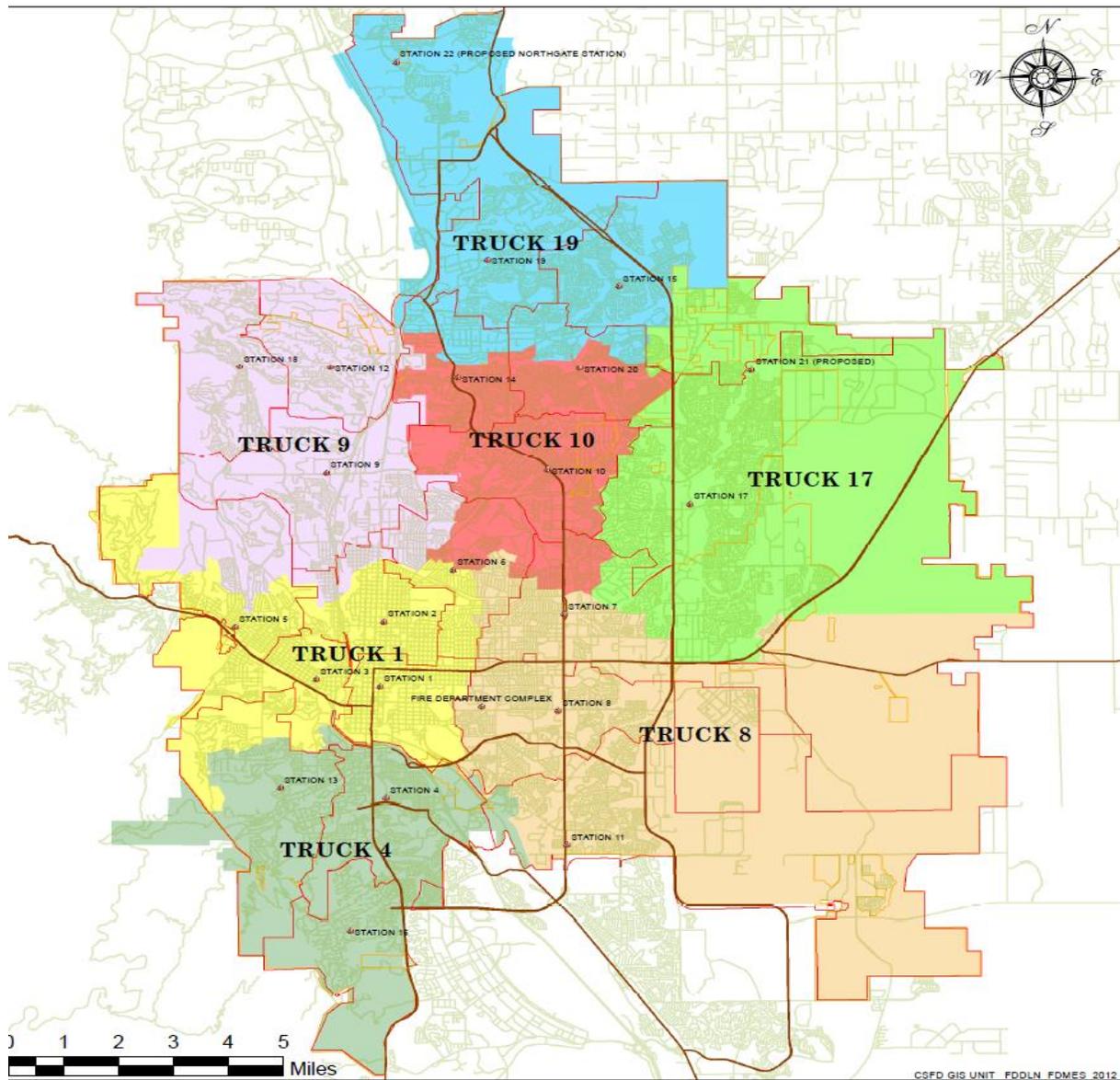
<b>Apparatus</b>	<b>Quantity</b>	<b># of Personnel</b>
Engines	20	<b>80</b>
Trucks	6	<b>24</b>
Heavy Rescue	1	<b>4</b>
Medical Squads	2	<b>4</b>
District Chiefs	3	<b>3</b>
<b>TOTAL</b>		<b>115</b>

Station	Address	Apparatus	Minimum Staffing	Specialty
1	29 S. Weber St.	Engine 1 Truck 1 District 1	4 4 1	Customer Service cache
2	314 E. San Miguel St.	Engine 2	4	TEMS
3	922 W. Colorado Ave.	Engine 3	4	Mapping
4	2280 Southgate Rd.	Engine 4 Truck 4 Wildland 4	4 4 4	Wildfire Suppression
5	2830 W. Colorado Ave.	Engine 5	4	High Angle Rescue/ Motorcycles
6	2430 N. Union Ave.	Engine 6 Hazmat 6	4 4	Hazmat
7	3901 Palmer Park Blvd.	Engine 7 Squad 7	4 2	Special Events
8	3737 Airport Rd.	Engine 8 Truck 8 District 2	4 4 1	Truck Ops TIC
(FDC)	375 Printers Pkwy.	Squad 108	2	
9	622 W. Garden of the Gods Rd.	Engine 9 Truck 9 Wildland 9	4 4 4	Wildfire Suppression
10	3730 Meadowland Blvd.	Engine 10 Truck 10	4 4	
11	3810 Jet Wing Dr.	Engine 11	4	Hose
12	445 W. Rockrimmon Blvd.	Engine 12	4	Target Hazards
13	1475 Cresta Rd.	Engine 13	4	High Angle Rescue/ Motorcycles
14	1875 Dublin Blvd.	Engine 14 Hazmat 14	4 4	Hazmat
15	4770 Scarlet Dr.	Engine 15 Air 15	4 4	Air
16	4980 Farthing Dr.	Engine 16	4	Wildland Mitigation
17	3750 Tutt Blvd.	Engine 17 Heavy Rescue 17	4 4	Heavy Rescue
18	6830 Hadler View	Engine 18	4	PPE
19	2490 Research Pkwy.	Engine 19 Truck 19 District 3	4 4 1	Staffing
20	6755 Rangewood Dr.	Engine 20 Decon 20	4	Hazmat Decon

**Figure 1**



**Figure 2**



# CSFD TRUCK DISTRICTS

**Figure 3**

## Partnering Agencies

The CSFD has agreements in place with emergency response agencies throughout El Paso County and beyond. These agreements are in the form of Memorandums of Understanding (MOU) and Intergovernmental Agreements (IGA) and provide for mutual aid coverage between jurisdictions. While each agreement is an individual contract between the Colorado Springs Fire Department and the other agency named on the agreement, they have the common purpose of supporting public safety within each agency's jurisdiction.

<b>Agency</b>	<b>Agreement Type</b>
Big Sandy FPD/Simla FD	IGA
Black Forest FPD	IGA
Broadmoor Fire Rescue	IGA
Calhan FPD	IGA
Cascade FPD	IGA
Cheyenne Mountain Air Force Station FD (DOD)	IGA
Cimarron Hills FPD	IGA
City of Fountain FD	IGA
City of Manitou Springs FD	IGA
Colorado Metropolitan District	IGA
Colorado State Forest Service	MOU
Donald Wescott FPD	IGA
El Paso County Health Department	MOU
El Paso County Search and Rescue	MOU
El Paso County Sheriff Hazmat Team	IGA
Falcon FPD	MOU
Fort Carson FD (DOD)	MOU
Green Mountain Falls/Chipita Park FD	IGA
Manitou Springs Fire Department	IGA
Peterson Air Force Base FD (DOD)	IGA
Pikes Peak Regional Communications Network	IGA
Schriever Air Force Base FD (DOD)	IGA
Security FD	IGA
Southwest Hwy 115 FD	IGA
United States Air Force Academy FD (DOD)	IGA
Woodmen Valley FPD	IGA

## Community Baselines

To determine the level of compliance with existing standards, a review of historical data has been completed and community baselines established. This has provided response times that will assist the Department in reviewing performance. The data in the following tables cover the period 1/1/04 through 11/23/11; thus the data shown for 2011 covers roughly 10 ¾ months rather than a full year.<sup>1</sup>

### First Unit Arrival on Any Type of Call

Total Response Time Coverage (%)							
Year	0-4 min	0-5 min	0-6 min	0-7 min	0-8 min	0-9 min	0-10 min
2004	21.8	44.7	65.4	80.1	88.8	93.6	96.2
2005	22.5	46.0	67.7	82.2	90.0	94.4	96.6
2006	22.7	46.9	68.1	82.1	89.9	94.1	96.3
2007	22.5	46.2	67.9	82.0	90.0	94.5	96.8
2008	21.6	45.8	68.0	82.5	90.6	94.8	97.1
2009	20.2	43.4	65.9	81.2	89.9	94.6	97.0
2010	19.7	42.7	65.3	80.9	89.5	94.4	96.8
2011	19.0	41.4	64.5	80.4	89.5	94.4	97.0

### First EMS Unit Arrival (BLS and/or ALS) on EMS and Rescue Calls

Total Response Time Coverage (%)							
Year	0-4 min	0-5 min	0-6 min	0-7 min	0-8 min	0-9 min	0-10 min
2004	22.6	46.2	67.0	81.3	89.7	94.3	96.7
2005	23.7	47.6	69.4	83.4	90.9	95.1	97.0
2006	24.2	48.8	70.0	83.5	91.0	94.8	96.8
2007	23.8	48.0	69.6	83.2	90.9	95.1	97.2
2008	22.7	47.9	69.9	83.8	91.5	95.2	97.5
2009	21.2	44.7	67.2	82.1	90.5	94.9	97.2
2010	20.8	44.1	66.7	82.1	90.3	94.8	97.1
2011	20.2	43.3	66.4	81.8	90.5	95.1	97.4

<sup>1</sup> The Principal Analyst who provided statistical analysis for this report retired in late 2011.

### First Structure Fire Unit Arrival on Fire Calls

Year	Total Response Time Coverage (%)						
	0-4 min	0-5 min	0-6 min	0-7 min	0-8 min	0-9 min	0-10 min
2004	17.3	38.0	59.4	75.2	84.7	90.6	93.5
2005	13.6	34.2	59.0	75.1	84.3	89.2	92.1
2006	13.8	33.2	55.8	74.0	83.9	89.1	92.0
2007	15.6	38.6	61.8	77.7	87.7	93.1	94.9
2008	14.1	35.0	57.9	76.0	86.4	91.8	94.9
2009	11.1	30.7	55.4	73.0	84.3	91.1	94.0
2010	12.0	30.2	52.4	73.0	83.8	90.5	93.3
2011	10.0	27.2	53.8	71.5	83.5	89.8	93.8

### First Ladder/Rescue Unit Arrival on Rescue and Fire Calls

Year	Total Response Time Coverage (%)						
	0-8 min	0-9 min	0-10 min	0-11 min	0-12 min	0-13 min	0-14 min
2004	58.9	66.7	75.6	81.5	86.3	88.1	90.0
2005	54.9	65.1	73.2	78.5	82.7	87.0	88.4
2006	55.6	63.4	73.3	79.2	83.2	85.1	86.6
2007	60.7	70.1	78.2	83.8	88.3	89.9	91.6
2008	51.2	62.3	70.6	78.9	81.7	83.7	86.9
2009	55.3	68.0	77.7	82.7	88.0	90.0	91.3
2010	63.2	73.4	82.9	88.0	89.5	91.9	93.1
2011	59.9	71.6	78.9	84.6	87.6	88.3	89.6

### First Chief Officer Arrival on Rescue, Hazmat and Fire Calls

Year	Total Response Time Coverage (%)						
	0-8 min	0-9 min	0-10 min	0-11 min	0-12 min	0-13 min	0-14 min
2004	30.0	35.8	42.6	46.3	50.0	55.8	60.5
2005	20.8	28.3	35.8	43.8	51.3	56.7	62.9
2006	26.2	33.5	39.5	45.1	52.8	58.4	63.9
2007	24.9	34.9	41.0	45.9	52.0	58.1	62.0
2008	24.1	33.0	38.8	45.1	52.7	56.7	62.9
2009	25.2	32.7	38.8	49.5	54.2	60.7	66.4
2010	24.1	34.0	41.1	49.8	56.5	60.5	66.0
2011	27.4	32.7	41.9	47.2	55.2	59.3	65.7

### Initial Attack Force (2 in/2 out) on Fire Calls

Year	Total Response Time Coverage (%)						
	0-8 min	0-9 min	0-10 min	0-11 min	0-12 min	0-13 min	0-14 min
2004	59.4	73.1	84.5	89.5	92.3	94.0	95.8
2005	65.0	77.2	85.2	90.8	94.4	95.4	97.2
2006	64.4	76.4	84.0	89.1	92.9	95.3	96.7
2007	65.2	80.5	89.2	93.0	96.2	97.8	98.7
2008	67.8	78.6	86.0	89.5	93.3	94.0	95.8
2009	64.5	79.5	86.5	90.6	91.9	94.3	95.6
2010	61.4	74.6	82.5	89.3	92.3	94.7	95.5
2011	60.1	73.8	84.6	88.5	92.3	94.2	95.4

### Effective Response Force (ERF) on All Types of Calls

Year	Total Response Time Coverage (%)						
	0-8 min	0-9 min	0-10 min	0-11 min	0-12 min	0-13 min	0-14 min
2004	87.2	92.3	95.1	96.6	97.6	98.3	98.7
2005	88.5	93.2	95.6	97.0	97.9	98.4	98.8
2006	88.5	92.8	95.4	96.9	97.7	98.3	98.7
2007	88.6	93.4	95.9	97.3	98.2	98.7	99.0
2008	89.3	93.6	96.2	97.6	98.3	98.8	99.2
2009	88.7	93.6	96.2	97.6	98.5	99.0	99.3
2010	88.2	93.3	95.9	97.4	98.2	98.8	99.2
2011	88.0	93.2	96.0	97.4	98.3	98.8	99.2

## Section 3 - Review of Community Expectations and Performance Goals

The goal of the Colorado Springs Fire Department is to provide sufficient resources to the scene of an emergency and to take effective action to minimize the impact of the emergency. This applies to any emergency situation to which the Department responds. Understanding the expectations of the community is important to providing effective service delivery, and the CSFD is committed to providing consistent service based on those expectations. Although no formal community input was solicited during the development of this document, this is a process that will be included in future planning efforts.

The expectations that have been established are defined in a City Council Resolution, dated August 10, 1999:

“Now, therefore, be it resolved by the City Council of the City of Colorado Springs:

That the following standards be established for the purpose of planning for the delivery of fire service in Colorado Springs:

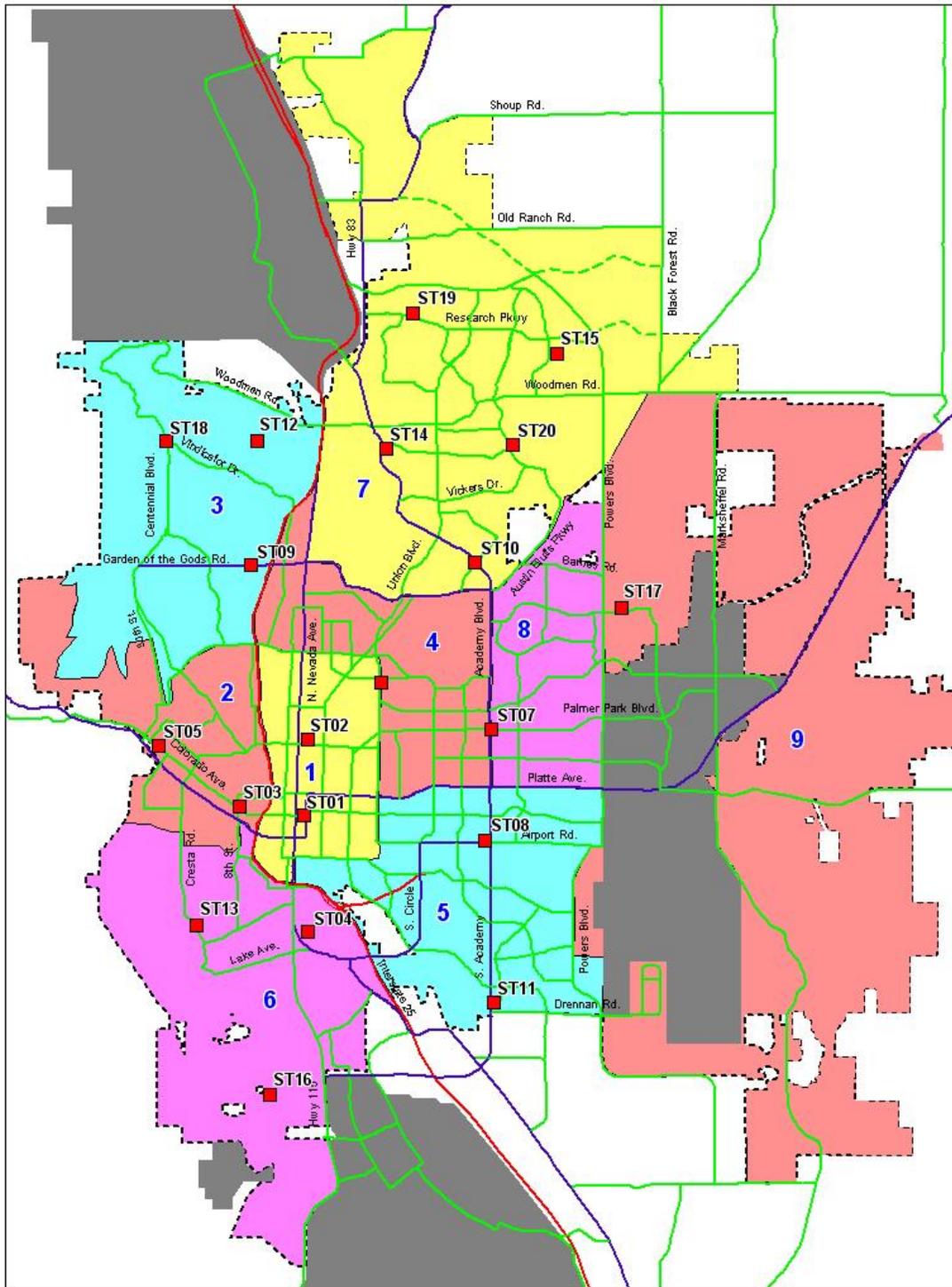
- Fire Department response times for the first arriving fire company, defined as the time elapsed from when the call is received at the Communications Center until the first unit arrives on scene, shall be 8 minutes or less for 90% of the incidents annually in each of the 9 Planning Evaluation Zones.
- The Fire Department will strive to achieve a goal of 6 minutes or less response time in 90% of incidents within 5 years.
- Fire Department response times for the minimum effective fire fighting force, defined as the time elapsed from when the call is received at the Communications Center until two engines and a ladder truck have arrived on the scene, shall be 12 minutes or less for 90% of the incidents involving such an effective force annually in each of the 9 Planning Zones.”

## Section 4 - Overview of the Community Risk Assessment

The Colorado Springs Fire Department, along with the Colorado Springs Office of Emergency Management, practices an all hazards approach to emergency management and planning. Risk is defined locally as the likelihood of emergency incident occurrence, the potential for life or property loss, local impact, and monetary replacement cost. Additional factors considered when assessing are occupancy type and construction type. Risk is then identified by using historical data, hazard classification, and a district analysis of occupancies performed by station captains. Fire protection system data also plays a role in risk assessment with engineered fire prevention reducing the risk in new and renovated structures. These factors combine to allow the CSFD to identify and prepare for incidents that have a potential to occur within its jurisdiction, with an emphasis placed upon the likelihood of occurrence.

The response area of the Colorado Springs Fire Department is broken down into geographic zones through three different methods:

1. Nine Planning Evaluation Zones (PEZ) for overall macro-level planning and analysis purposes. (Figure 4)
2. 20 fire station still districts for station-specific analysis purposes. (Figure 2)
3. 2,172 Fire Demand Zones (FDZ) for micro-level planning and analysis purposes.



**Figure 4**

## Geospatial Characteristics

### Political Boundaries

The City of Colorado Springs lies within El Paso County. Incidents that occur outside city limits and within the county, but not in a specific fire district, are the responsibility of the El Paso County Sheriff's Office (EPSO). Also included are various enclaves within city limits that are not incorporated into the city. The EPSO does have a designated Fire Marshal, but does not have full-time emergency response personnel, thus the Colorado Springs Fire Department is frequently called to incidents in the county area. This requires that the CSFD work within the guidelines as specified by the EPSO.

There are several fire districts that lie either within or in close proximity to the city. Response by the CSFD to calls in these areas requires effective communication with those agencies to ensure compliance with their guidelines, as well as those of the CSFD.

### Growth Boundaries

The City of Colorado Springs continues to grow and increase its boundaries. Areas to the north and northeast and along the entire eastern portion of the city are gradually being developed and will require service in the future. A large portion of the east side of the city was slated for residential development and would have required numerous new fire stations; however, 18,000 acres of this area was purchased in late 2011 by Ultra Resources for the purpose of oil and natural gas exploration. Whether or not residential development will occur on this land in the future depends on the findings of the exploration.

## **Construction Limitations**

Construction in the city is robust and includes a wide variety of residential and commercial structures. Limitations on the size, height and complexity of new development is restricted by current zoning, building and fire codes.

## **Infrastructure Limitations**

The city's lack of funding has resulted in a critical shortfall in necessary maintenance and repairs. This was highlighted in June, 2012, when a massive thunderstorm hit the city and caused several major intersections to be flooded because the drainage system could not handle the heavy flow of rain. This resulted in numerous rescues by the Colorado Springs Fire Department, as well as days of clean up afterward.

## **Topography**

### **Response Barriers**

There are two specific locations within the Department's response area that are not easily accessed. One is the Colorado Centre Metropolitan District, a residential area that is outside the city limits to the southeast, but to which CSFD responds through an intergovernmental agreement. The nearest CSFD fire station is seven miles away and travel time is approximately 12 minutes. The second location is Cedar Heights, an affluent gated residential area in the foothills on the west side of the city. Access is restricted to a single point of entry approximately three miles from the nearest fire station.

### **Elevation Changes**

The Cedar Heights neighborhood is on a hillside with national forest on the north and west sides and the Garden of the Gods park on the east side. Elevation changes go from 6,400 feet at the entrance gate up to 7,600 feet at the top of the neighborhood. The road has a number of switchback turns that require slower driving speeds.

Station 16 is located in the southwest foothills of the city and is situated at approximately 6,400 feet. The response area ranges from an elevation of 6,000 feet up to 7,000 feet.

## **Transportation Network**

### **Roads**

There are 7,431 lane miles of paved roadways maintained by the City of Colorado Springs. Several hundred intersections exceed 15,000 vehicles on a daily basis, with the major intersections handling between 30,000 and 50,000 vehicles per day. Examples are North Academy Boulevard at Briargate Boulevard, Garden of the Gods Road at Interstate 25, and Powers Boulevard at Airport Road. Interstate 25 and U.S. Highway 24 are major thoroughfares for both residents and non-residents with each handling over 100,000 vehicles per day.

### **Rail Lines**

The main rail lines through Colorado Springs are parallel to Interstate 25 and travel north and south, with one major spur to the Drake Power Plant. Rail line traffic does not include any passenger trains.

### **Airports**

The Colorado Springs Airport is situated on the city's southeast side. It hosts five major commercial airlines and sees more than 2 million passengers annually. Runways and taxiways are shared with the adjacent Peterson Air Force Base.

### **Waterways**

The two main waterways in Colorado Springs are Fountain Creek and Monument Creek, as well as numerous other streams in the city that may pose a risk. The city has a long documented history of flooding events dating as far back as 1864.

## Climatic Impact

The climate of Colorado Springs is relatively mild and dry, but many of the common weather events can be extreme. Summers are marked by frequent afternoon thunderstorms that often include heavy rain, lightning, hail and high winds. Calls for emergency response during these events include fires caused by lightning strikes, and swift-water rescues.

Recent drought conditions and extreme high summer temperatures have become an issue, as witnessed by the recent Waldo Canyon Fire in the summer of 2012. A combination of very low humidity, record high temperatures and high winds caused a relatively small wildland fire to quickly ignite the dried out terrain into a massive wall of flames that spread into the city, causing two deaths, destroying 346 homes, and damaging another 45 homes.

Winter storms do not occur often but are typically severe when they do happen. Snow, ice, extreme cold and high winds create blizzard conditions, severe drifting and dangerously low wind chill temperatures. During these storms it is common for roads to ice over quickly, causing extremely hazardous driving conditions. This not only results in a high number of traffic accidents, but also slows down response by emergency vehicles. Such weather conditions may cause localized power and phone outages, closures of streets, highways, public transportation, schools, businesses, and non-essential government operations. People may be stranded in vehicles or other locations not suited to sheltering operations or isolated from essential services. The extreme temperatures increase the likelihood of frozen pipes and the subsequent thawing may produce broken pipes and flooding causing an increase in alarms for the Department.

## Disaster Exposure

The potential risks from natural and weather-related disasters have been summarized in the City of Colorado Springs Pre-Disaster Mitigation Plan. The highest perceived threats are from wildland fires, blizzards and floods, and the lowest are from earthquakes and landslides.

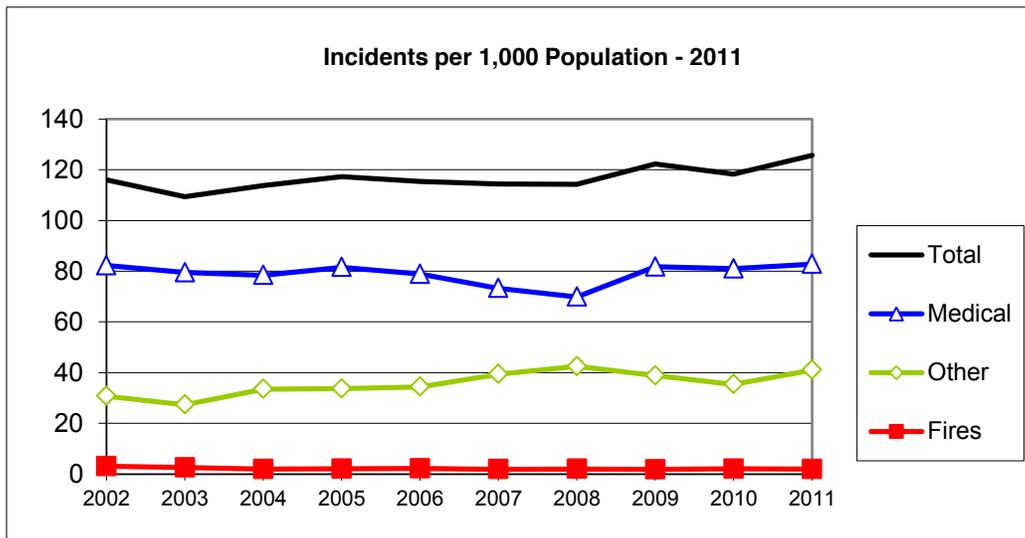
## Physical Assets Protected

There are many physical assets that are critical to the functionality of the City of Colorado Springs. This includes government buildings, fire and police facilities, hospitals, schools, bridges, power plants, and water and wastewater treatment plants. There are also numerous facilities where there are large populations of people, such as retail centers, sports, recreation and entertainment facilities, places of worship, medical buildings, universities/colleges and high density housing. Additionally, there are 72 structures listed in national and state historic registries and many cultural resources within the city. A comprehensive description is included in Section 4.15 of the City of Colorado Springs Pre-Disaster Mitigation Plan Update 2010.

## Development and Population Growth

According to the 2010 U.S. Census, the total population of Colorado Springs is 416,247. This qualifies it as a metropolitan area, per CFAI standards; however, the average population density is 2,140.6 per square mile, which falls under the definition of an urban area. The areas that have a density of more than 3,000 people per square mile fall geographically in the center of the city.

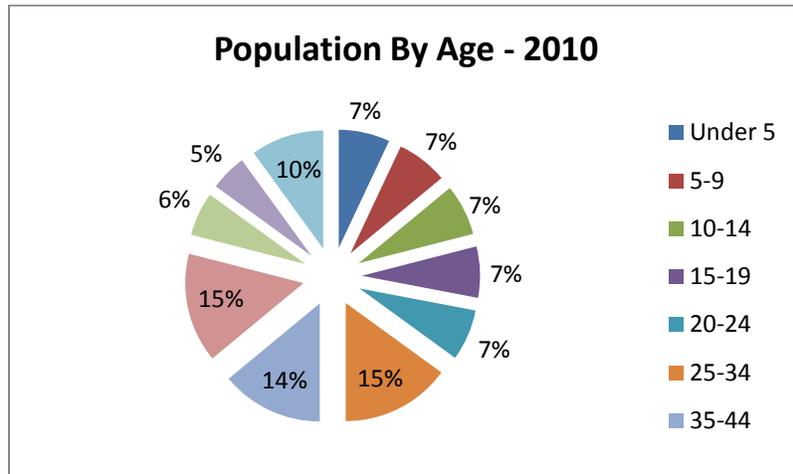
The Colorado Springs Fire Department in 2012 had 1.09 personnel per 1,000 residents. Over the past five years, the estimated annual increase in population is 1.6%, and fire service incidents have increased at an average annual rate of 3.3%. On a population-adjusted basis, requests for fire services continue rising. The rate of fire service incidents per 1,000 residents was 118.3 in 2010. For 2011, the rate of incidents per 1,000 residents was 124.1. (Figure 5)



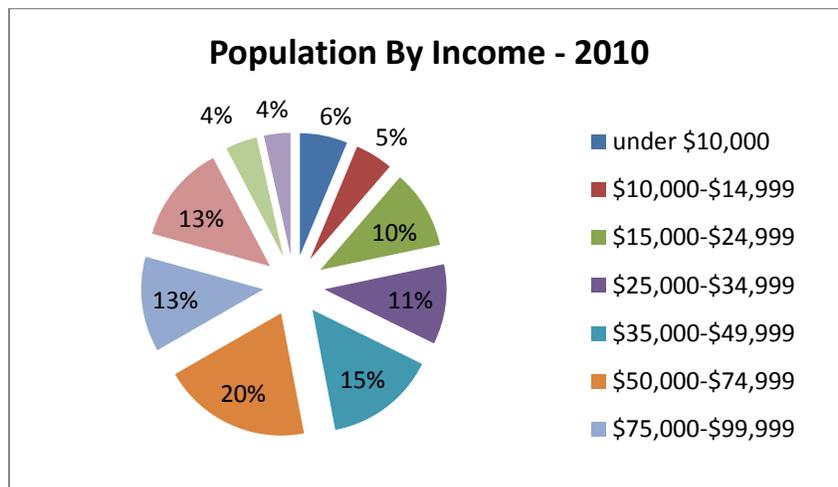
**Figure 5**



Approximately 10% of the population is over the age of 65 years old and 7% is under the age of 5 years old, placing a total of 17% of the population in the age groups at highest risk for residential fire fatalities.<sup>2</sup>



It is well-documented that low-income households have a higher risk of residential structure fires.<sup>3</sup> The poverty rate in Colorado is \$23,050 for a family of four, and \$11,170 for individuals. In Colorado Springs, approximately 21% of the population earns less than \$25,000.



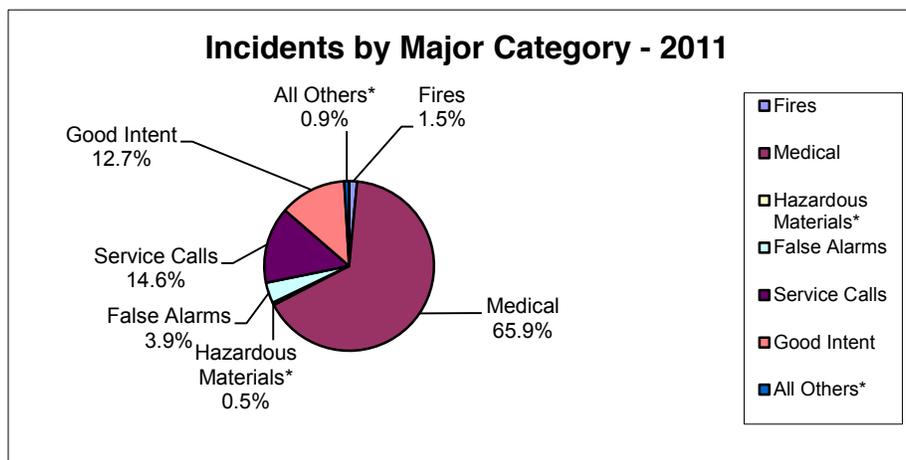
<sup>2</sup> NFPA Demographic and Other Characteristics Related to Fire Deaths or Injuries, March 2010.

<sup>3</sup> USFA Socioeconomic Factors and the Incidence of Fire, June 1997

## Service Demand

The Colorado Springs Fire Department analyzes its workload in many different ways and a wide variety of data is published in its annual statistical abstract document. The total number of incidents the CSFD responded to in 2011 was 53,138, representing a 7.8% rise over the prior year. The largest percentage increase was service calls, which increased by 27% in 2011. Good intent calls also increased significantly with a 14.3% rise over 2010.

Fire incidents in 2011 declined slightly from 2010. However, 2011 fire incidents exceeded the average rate for the past 5 years. Medical incidents increased by 3.8% in 2011. Some of this can be attributed to the rise in population. The estimated rise in population was 1.5%, which is significantly smaller than the rate of increase in medical incidents.



### Emergency Incident Trend by Situation Found

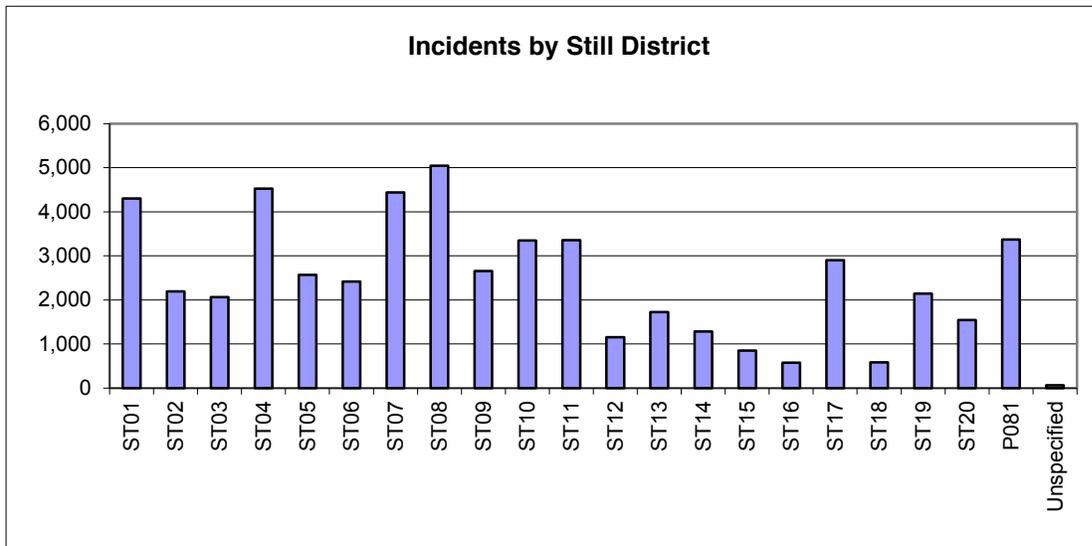
Incident Category	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Fires	1,127	959	731	779	849	726	786	729	844	802
Medical	30,731	29,976	29,830	31,414	30,825	28,867	28,039	33,323	33,708	34,995
Hazardous Materials*	629	522	364	299	281	314	256	250	248	269
False Alarms	2,470	2,293	2,032	1,932	2,062	2,222	1,962	2,166	2,047	2,090
Service Calls	5,015	4,531	5,762	5,836	5,910	5,927	5,758	6,405	6,094	7,739
Good Intent	2,548	2,285	3,955	4,406	4,657	6,608	8,667	6,617	5,914	6,757
All Others*	829	685	630	503	520	439	392	393	422	486
<b>Total</b>	<b>43,349</b>	<b>41,251</b>	<b>43,304</b>	<b>45,169</b>	<b>45,104</b>	<b>45,103</b>	<b>45,859</b>	<b>49,883</b>	<b>49,277</b>	<b>53,138</b>



### Incidents by PEZ

PEZ	2006	2007	2008	2009	2010	2011	5-Yr CAGR (%)
1	6,374	6,125	6,013	6,740	6,801	7,346	2.9
2	3,860	3,943	4,006	4,607	4,610	4,969	5.2
3	2,647	2,773	2,771	2,865	2,808	3,195	3.8
4	5,793	5,767	5,703	5,977	5,933	6,205	1.4
5	9,248	9,298	9,647	10,318	10,117	10,914	3.4
6	4,994	5,221	5,303	5,972	6,132	6,489	5.4
7	6,847	6,630	6,791	7,279	6,908	7,412	1.6
8	3,437	3,397	3,497	3,780	3,665	4,156	3.9
9	1,806	1,821	1,985	2,191	2,150	2,332	5.2
N/A	98	128	143	154	153	120	4.1
<b>Total</b>	<b>45,104</b>	<b>45,103</b>	<b>45,859</b>	<b>49,883</b>	<b>49,277</b>	<b>53,138</b>	<b>3.3</b>

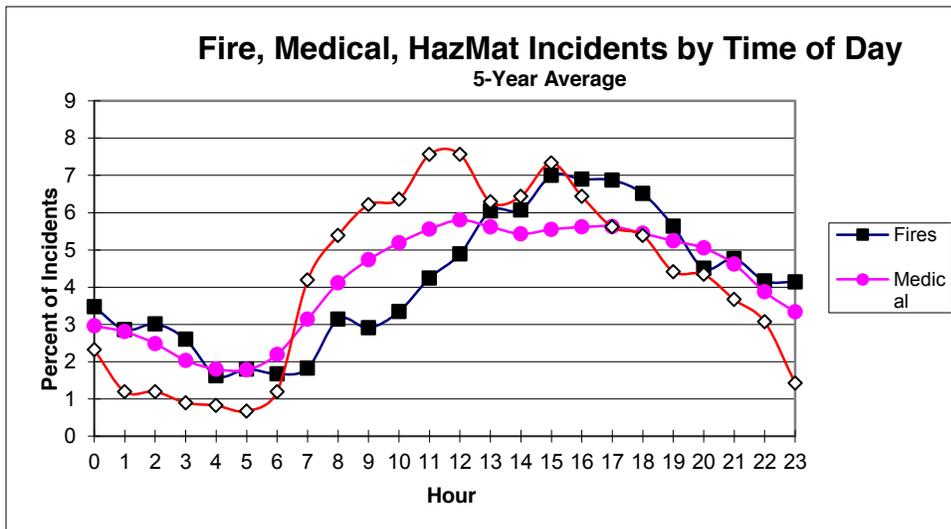
### Annual Incidents by Still District



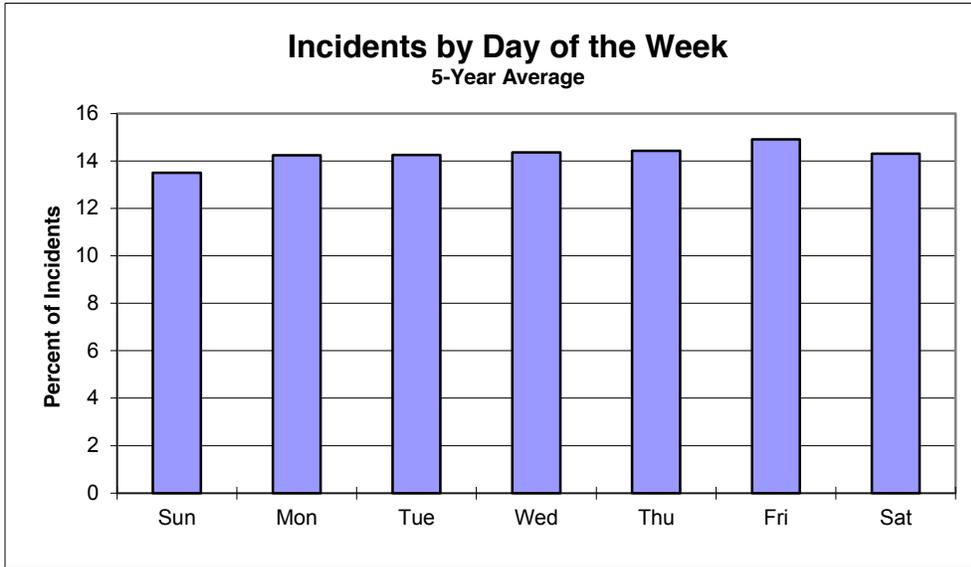
### Incidents by Still District Trend

	2006	2007	2008	2009	2010	2011	Annual Change (%)	5 Year CAGR (%)
ST01	4,693	4,344	3,479	3,957	3,732	4,304	15.33	-1.72
ST02	2,053	2,034	1,943	2,126	2,137	2,196	2.76	1.36
ST03	1,531	1,606	1,557	2,035	2,129	2,064	-3.05	6.16
ST04	3,365	3,614	3,761	4,089	4,102	4,527	10.36	6.11
ST05	2,011	2,085	2,102	2,316	2,399	2,570	7.13	5.03
ST06	2,454	2,533	2,327	2,386	2,319	2,416	4.18	-0.31
ST07	4,167	4,111	4,034	4,245	4,186	4,442	6.12	1.29
ST08	5,965	5,832	4,351	4,851	4,670	5,042	7.97	-3.31
ST09	2,174	2,088	2,260	2,314	2,251	2,656	17.99	4.09
ST10	2,630	2,590	2,727	3,041	3,070	3,351	9.15	4.96
ST11	2,868	2,896	2,747	3,088	3,152	3,356	6.47	3.19
ST12	936	992	985	997	966	1,156	19.67	4.31
ST13	1,523	1,518	1,576	1,608	1,671	1,723	3.11	2.50
ST14	1,187	1,238	1,246	1,366	1,202	1,287	7.07	1.63
ST15	908	814	810	796	799	851	6.51	-1.29
ST16	389	399	386	507	488	578	18.44	8.24
ST17	2,263	2,281	2,436	2,708	2,609	2,900	11.15	5.09
ST18	600	594	594	660	605	588	-2.81	-0.40
ST19	1,867	1,863	1,967	2,053	2,049	2,147	4.78	2.83
ST20	1,377	1,336	1,374	1,531	1,308	1,548	18.35	2.37
P081	N/A	224	3,123	3,163	3,387	3,374	-0.38	N/A
Unspecified	143	111	74	46	46	62	N/A	N/A
Other	0	0	0	0	0	0	N/A	N/A
Total	45,104	45,103	45,859	49,883	49,277	53,138	7.84	3.33

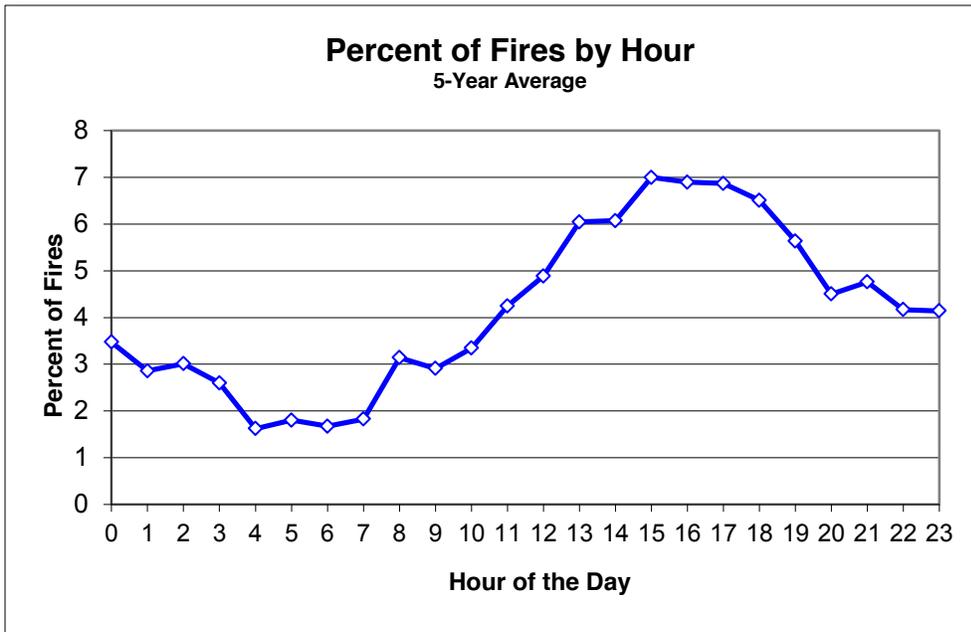
### Fire, Medical, and HazMat Incidents by Time of Day



### Emergency Incidents by Day of the Week



### Percent of Fires by Hour



## Risk Classifications

The CSFD currently defines different hazard classifications for structure fire response. Fire incidents are categorized into the following hazard classifications: Typical, Life/Conflagration, Industrial, Hazardous Materials (Hazmat), and High Rise. These hazard classifications are assigned based on the construction of the structure and the occupancy type.

Typical Hazards include occupancies with low population and relatively low monetary value. Occupancies in the Typical Hazard classifications include, but are not limited to, single family dwellings, multiple residence properties with six or fewer units, modern public schools, restaurants, and strip malls.

Life/Conflagration Hazards include any occupancy which has the potential to exceed control of an initial two engine and one truck structure fire response. These occupancies have a high population of residents, visitors, or employees, or are structures that are configured in such a way that rapid fire spread to exposed property can be anticipated. Examples of this hazard classification include, but are not limited to, multiple residence properties with seven or greater units, low-rise hospitals, shopping malls, auditoriums, low-rise retirement centers, and lumber yards.

Occupancies in the industrial hazard classification include occupancies which manufacture products, store large quantities of compressed or liquid fuel, and/or generate energy. These occupancies include, but are not limited to, electronics manufacturing, power plants, tool manufacturing, liquid fuel storage areas, and liquefied petroleum gas distribution locations.

Hazmat classified occupancies include occupancies which, under fire conditions, may result in the release of hazardous materials. Occupancies in the hazmat hazard classification include, but are not limited to, service stations, chemical storage facilities, and metal plating operations.

High Rise classified occupancies include occupancies which are seventy-five feet or taller, or are four or more stories in height. Occupancies in the high-rise hazard classification include, but are not limited to, high-rise hospitals, nursing homes or retirement centers, large hotels, apartments, condominiums, and office buildings.

All of these definitions have been codified in policy 100.19 Occupancy Hazard Classification in the Department’s Tactical Operations Manual. The response model for each hazard type is listed in policy 300.01 Structure Fire Response in the Department’s Tactical Operations Manual.

### Fire Risk Evaluation

A representative structure was identified in each PEZ and evaluated for fire flow and resources required. These structures were chosen not because they are typical of each PEZ, but because they represent the “worst-case” scenario. This could be because of their size, contents, or potential for loss of life. Fire flow requirements and fire hydrant distribution for any new structures are established using the 2009 International Fire Code (IFC). The appropriate responding resources are then identified and stated in the run cards. The City of Colorado Springs has an excellent water supply and the need for additional water is minimal. Actual fire flow reports for these representative structures are retained in the Division of the Fire Marshal.

<i>PEZ</i>	<i>Building</i>	<i>Address</i>	<i>Size</i>	<i>Construction Type</i>	<i>Fire Flow</i>	<i>Hydrants</i>	<i># Engines</i>
1	Memorial Hospital Womens/Children Wing	1400 E. Boulder St.	293,844	I-FR (I-A)	5750	6	4
2	Rudy’s Texas BBQ	315 S. 31 <sup>st</sup> St.	7,294	V-B	1500	1	1
3	Hewlett Packard Data Center	311 Rockrimmon Blvd.	251,206	II-B	4000	4	3
4	Sportsmans Warehouse	555 Chelton Rd.	61,305	III-B	2750	3	2
5	Value Place Hotel	555 Airport Creek Pt.	42,984	V-A	2750	3	2
6	Broadmoor Event Center	1 Lake Ave.	461,951	I-FR	6000	6	4
7	Progressive Data Center	650 Sybilla Ln.	118,681	II-1 HR	5000	5	4
8	Lowe’s	701 N. Academy Blvd.	150,184	II-B	4000	4	3
9	Ace Hardware Distribution Center	5520 Astrozon Blvd.	725,000	II-N	4000	4	3

## Critical Task Analysis

Success at the scene of any emergency is measured by what occurs after the fire department arrives. The success of a fire attack in a single-family residence is dependent upon deliberate, coordinated and well-planned placement of resources. A successful outcome includes: the fire does not extend, there are no civilian injuries, there are no firefighter injuries, smoke, heat and water damage are kept to a minimum, the cause is determined and the scene is deemed to be safe/stable prior to the fire department leaving.

Life safety is the top priority during initial fire emergency operations, in which first arriving units must structure initial operations for search and rescue. The Department's goal is to prevent fire from reaching the flashover stage by extinguishing or controlling the fire before that stage. After life safety has been considered, the remaining priorities in order of importance include exposure protection, control and containment, ventilation, control, extinguishment, salvage (property conservation), overhaul, and investigation.

Company	Basic/Minimum Tasks	Minimum # of Personnel Required
<b><i>Single Family Residential Structure Fire – Non-Target Hazard</i></b>		
1 <sup>st</sup> Engine	Establish command, size up	1
	Pump operator	1
	Attack hoseline	2
2 <sup>nd</sup> Engine	Back-up hoseline	2
	Interim Rapid Intervention Crew (IRIC)	2
Truck	Forcible entry, ventilation	2
	Primary search	2
District Chief	Receive command, incident safety officer	1
	<b>TOTAL</b>	<b>13</b>
<b><i>Structure Fire – Life/Conflagration Target Hazard</i></b>		
1 <sup>st</sup> Engine	Establish command, size up	1
	Pump operator	1
	Attack hoseline	2
2 <sup>nd</sup> Engine	Secondary hoseline	2
	Interim Rapid Intervention Crew (IRIC)	2
3 <sup>rd</sup> Engine	Support first two engines	4
1 <sup>st</sup> Truck	Forcible entry, ventilation	2
	Life rescue	2
2 <sup>nd</sup> Truck	Forcible entry, ventilation	2
	Life rescue	2
District Chief	Assume command	1
	<b>TOTAL</b>	<b>21</b>
<b><i>Structure Fire – Industrial Target Hazard</i></b>		
1 <sup>st</sup> Engine	Establish command, size up	1
	Fire Attack Group 1; recon, hoseline, standpipe operations	3
2 <sup>nd</sup> Engine	Fire panel	1
	Water supply FDC	1
	Fire Attack Group 1; recon, hoseline, standpipe operations	2
3 <sup>rd</sup> Engine	Fire Attack Group 2; recon, hoseline, standpipe operations	3
	Fire Attack Group 2 Supervisor	1
1 <sup>st</sup> Truck	Fire Attack Group 1; recon, search & rescue	2
	Fire Attack Group 1; forcible entry & ventilation	2
2 <sup>nd</sup> Truck	Fire Attack Group 2; recon, search & rescue	2
	Fire Attack Group 2; forcible entry & ventilation	2

HazMat	Size-up/assess hazmat threat	2
	Safety	1
	Accountability	1
District Chief	Assume command	1
	<b>TOTAL</b>	<b>25</b>
<b><i>Structure Fire – High-rise Target Hazard</i></b>		
1 <sup>st</sup> Engine	Establish command, size up	1
	Fire Attack Group 1 (fire floor); recon, hoseline, standpipe operations	3
2 <sup>nd</sup> Engine	Lobby control/supervision	1
	Water supply to FDC	1
	Fire Attack Group 1	2
3 <sup>rd</sup> Engine	Fire Attack Group 2 (floor above fire floor) Supervisor	1
	Fire Attack Group 2; recon, hoseline, standpipe operations	3
4 <sup>th</sup> Engine	Fire Attack Group 2; second attack line, support hose operations	4
1 <sup>st</sup> Truck	Fire Attack Group 1; recon, search & rescue	2
	Fire Attack Group 1; forcible entry & ventilation	2
2 <sup>nd</sup> Truck	Fire Attack Group 2; recon, search & rescue	2
	Fire Attack Group 2; forcible entry & ventilation	2
3 <sup>rd</sup> Truck	RIC (floor below fire floor)	4
1 <sup>st</sup> District Chief	Assume command	1
2 <sup>nd</sup> District Chief	Division Supervisor on fire floor or assist command	1
Fire Protection Engineer	Building systems management, assigned to Lobby Control	1-2
	<b>TOTAL</b>	<b>32</b>
<b><i>Medical Incident</i></b>		
1 <sup>st</sup> Engine	ALS Intervention, if necessary	1
	Patient information	1
	Vital signs, airway management, IV set up, oxygen	2
	<b>TOTAL</b>	<b>4</b>
<b><i>Hazmat Incident – Small Scale</i></b>		
1 <sup>st</sup> Engine	Establish command, perform size-up	1
	Hazard mitigation	2
	Emergency decon/safety	1
Hazmat Unit	Operations	1
	Research	1
	Hazard mitigation	2
	<b>TOTAL</b>	<b>8</b>

<b>Hazmat Incident – Large Scale</b>		
1 <sup>st</sup> Engine	Establish command, perform size-up	1
	Hazard mitigation/rescue	2
	Emergency decon/safety	1
2 <sup>nd</sup> Engine	Interim Rapid Intervention Crew (IRIC) team	4
Hazmat Unit	Operations	1
	Entry team – hazard mitigation	2
	Research	1
Decon Unit	Technical decon	3
	Medical monitoring	1
Hazmat Engine 6	Rapid Intervention Crew (RIC) team	2
	Safety officer	1
	Accountability	1
Squad 108	Rehab	2
District Chief	Assume command	1
	<b>TOTAL</b>	<b>23</b>
<b>Wildland Fire Incident – LOW fire danger, Urban Level 3</b>		
1 <sup>st</sup> Engine	Size up, identify anchor point, safety zone, escape route	1
	Pump operator	1
	Attack hoseline or hand tools	2
	<b>TOTAL</b>	<b>4</b>
<b>Wildland Fire Incident – EXTREME fire danger, Wildland Urban Interface Level 1</b>		
1 <sup>st</sup> Engine	Establish command, size up; identify anchor point, LCES	1
1 <sup>st</sup> Brush Truck	Pump operator, establish water supply	1
	Attack hot flank	2
2 <sup>nd</sup> Engine	Pump operator, establish water supply	1
2 <sup>nd</sup> Brush Truck	Attack cold flank, identify LCES	3
3 <sup>rd</sup> Engine	Identify structure protection or fire attack, identify LCES	4
3 <sup>rd</sup> Brush Truck		
4 <sup>th</sup> Engine	Assist with structure protection or fire attack, identify LCES	4
4 <sup>th</sup> Brush Truck		
1 <sup>st</sup> Wildland Engine	Division Supervisor or Task Force Leader	1
	Assist with fire attack or structure protection, identify LCES	3
2 <sup>nd</sup> Wildland Engine	Division Supervisor or Task Force Leader	1
	Assist with fire attack or structure protection, identify LCES	3
1 <sup>st</sup> District Chief	Assume command	1
2 <sup>nd</sup> District Chief	Division Supervisor	1
	<b>TOTAL</b>	<b>26</b>

<b><i>High Angle Rescue Incident</i></b>		
High Angle Unit	Establish command, perform size-up	1
	Establish perimeter	1
	Victim/patient rescue	2
	<b>TOTAL</b>	<b>4</b>
<b><i>Trench/Collapse Rescue Incident</i></b>		
Heavy Rescue Unit	Establish command, perform size-up	1
	Establish safety zone	1
	Rescue operations	2
Utility w/trailer	Rescue operations	2
	Establish Rapid Intervention Crew (RIC)	2
	<b>TOTAL</b>	<b>8</b>
<b><i>Confined Space Rescue Incident</i></b>		
Heavy Rescue Unit	Establish command, perform size-up	1
	Establish safety zone	1
	Rescue operations	2
Utility w/trailer	Rescue operations	2
	Establish Rapid Intervention Crew (RIC)	2
	<b>TOTAL</b>	<b>8</b>
<b><i>Swift Water Rescue Incident</i></b>		
Heavy Rescue Unit	Establish command, perform size-up	1
	Establish safety zone	1
	Rescue operations	2
Utility w/trailer	Rescue operations	2
	Establish Rapid Intervention Crew (RIC)	2
	<b>TOTAL</b>	<b>8</b>
<b><i>Dive/Recovery Rescue Incident</i></b>		
Heavy Rescue Unit	Establish command, perform size-up	1
	Establish safety zone	1
	Rescue operations	2
Utility w/trailer	Rescue operations	2
	Establish Rapid Intervention Crew (RIC)	2
	<b>TOTAL</b>	<b>8</b>

## Section 5 – Historical Perspective and System Performance

The Colorado Springs Fire Department (CSFD) has maintained historical emergency response performance statistics since 1993. A wide range of metrics are published in an annual abstract document and includes call types, turnout, travel and response times, incidents by month, day, and time of day, cardiac arrests and fire service costs. The measurement of system performance includes such factors as distribution of resources, concentration of resources and the reliability of resources.

### Distribution

The CSFD strives for an equitable level of service to everyone in the community, regardless of the emergency. This is accomplished by distributing its resources proportionately to the population and by historical trends in calls for service. This results in providing the same service to every area of the city. There are specialized resources that are not practical to have in every fire station, and these are placed according to historical and/or potential needs. One example is the Department's wildland resources, which are placed in stations in the wildland urban interface (WUI), where they are more likely to be needed.

The Department staffs 20 fire stations with 115 personnel on duty each day. Staffing is spread amongst 20 engine companies, six truck companies, two medical squads, one heavy rescue vehicle, and three battalion chiefs.

The newest station, Fire Station 21, is currently under construction in the northeast portion of the city. Fire Station 22, in the north end of the city, is anticipated to also begin construction in 2012. These two stations will provide service delivery to areas that have historically lower response times due to the distance from their first due stations.

## Station District Physical Characteristics

The physical characteristics of each first due response area widely varies. The smallest district, Station 3, is 2.66 square miles and is mostly residential with the smallest population. The largest district, Station 17, is 46.97 square miles. This district is heavily populated with a mixture of both residential and commercial occupancies, while also having a large area of open space that is characteristic of the east side of the city.

	<i>Population (2010)</i>	<i>Square miles</i>	<i>Road miles</i>
Station 1	10270	4.18	73.60
Station 2	16647	4.59	74.37
Station 3	6553	2.66	42.4
Station 4	23304	7.28	101.75
Station 5	15092	11.45	103.42
Station 6	19946	5.92	98.55
Station 7	28854	9.14	124.71
Station 8	39241	7.39	114.35
Station 9	15149	8.70	81.10
Station 10	28907	6.80	93.82
Station 11	31095	23.26	130.47
Station 12	10862	6.21	59.35
Station 13	12466	9.07	89.90
Station 14	14454	4.81	71.32
Station 15	24421	12.30	118.89
Station 16	6982	6.35	46.81
Station 17	69087	46.97	287.06
Station 18	14643	6.38	68.23
Station 19	25911	16.08	136.57
Station 20	26524	5.48	97.80

## System-wide performance

The CSFD performance objective for first unit turnout time is 90 seconds. According to the table below using 2011 data, this objective was met 80% of the time. The performance objective for first unit arrival on scene is eight minutes for 90% of all calls. According to the table, this objective was met.

<b>PERFORMANCE INDICATORS</b>	<b>90%</b>	<b>80%</b>	<b>70%</b>	<b>60%</b>	<b>50%</b>
Call processing	01:33	01:12	01:00	00:52	00:45
First unit turnout	01:39	01:27	01:19	01:12	01:05
First unit travel	06:30	05:17	04:33	04:01	03:34
First engine dispatch to on-scene	07:41	06:27	05:43	05:09	04:29
Second engine dispatch to on-scene	11:23	09:15	07:57	07:18	06:29
Third engine dispatch to on-scene	20:47	14:30	11:35	09:37	07:54
First truck dispatch to on-scene	08:45	07:17	06:24	05:39	04:49

## First-Due Unit Response

Analysis of response times shows that first-due units arrived first for approximately 87% of calls. The most common reason for first-due units not being first on scene is due to being assigned to another call in their district.

Region	First-Due Units	Calls Where First-Due Units Arrive First	Percent Served Initially by First-Due Units	First-Due Unit Arrives within 8 Minutes	Percent with First-Due Arrival within 8 Minutes
Station 1	E1, T1	3676	90.4	3439	93.6
Station 2	E2	1729	82.5	1655	95.7
Station 3	E3	1741	85.6	1672	96.0
Station 4	E4, T4	3999	92.5	3599	90.0
Station 5	E5	1958	80.2	1706	87.1
Station 6	E6	1909	80.5	1770	92.7
Station 7	S7, E7	3962	93.5	3643	91.9
Station 8	E8, T8	4238	91.4	3590	84.7
Station 9	E9, T9	2380	93.5	2059	86.5
Station 10	E10, T10	2992	93.9	2587	86.5
Station 11	E11	2593	83.1	2007	77.4
Station 12	E12	1006	89.9	915	91.0
Station 13	E13	1320	79.4	1118	84.7
Station 14	E14, H14	1048	84.5	943	90.0
Station 15	E15	698	87.4	579	83.0
Station 16	E16	489	89.4	362	74.0
Station 17	E17, HR17	2562	92.8	2032	79.3
Station 18	E18	518	90.6	432	83.4
Station 19	E19	1935	94.1	1297	67.0
Station 20	E20	1266	86.2	1121	88.5
P081	S108	2148	68.5	1905	88.7
		<b>Average</b>	87.1		86.3

## Concentration

Concentration is having enough of the right equipment and staffing arriving in a timeframe to stop the progress of the emergency. The placement of fire stations is based on covering every area of the city in a consistent manner. While stations are located rather uniformly across the geographic area, several have a higher call load than others. By reviewing the percentage of total calls handled by each station and planning evaluation zone in the tables below, the areas of increased risk can be more readily identified.

### Percentage of calls by station

	<i># of calls 2011</i>	<i>% of total calls</i>
Station 1	4304	8.1%
Station 2	2196	4.1%
Station 3	2064	3.9%
Station 4	4527	8.5%
Station 5	2570	4.8%
Station 6	2416	4.5%
Station 7	4442	8.4%
Station 8	5042	9.5%
Station 9	2656	5.0%
Station 10	3351	6.3%
Station 11	3356	6.3%
Station 12	1156	2.2%
Station 13	1723	3.2%
Station 14	1287	2.4%
Station 15	851	1.6%
Station 16	578	1.1%
Station 17	2900	5.5%
Station 18	588	1.1%
Station 19	2147	4.0%
Station 20	1548	2.9%
P081 (Squad 108)	3374	6.3%
Unspecified	62	0.1%
<b>TOTAL</b>	<b>53138</b>	<b>100%</b>

### Percentage of calls by PEZ

	<i># of calls 2011</i>	<i>% of total calls</i>
PEZ 1	7346	13.8%
PEZ 2	4969	9.4%
PEZ 3	3195	6.0%
PEZ 4	6205	11.7%
PEZ 5	10914	20.5%
PEZ 6	6489	12.2%
PEZ 7	7412	13.9%
PEZ 8	4156	7.8%
PEZ 9	2332	4.4%
N/A	120	0.2%
<b>TOTAL</b>	<b>53138</b>	<b>100%</b>



## Reliability

Reliability is the availability and capability of resources to respond to emergency incidents. A reliability study analyzes the the Department’s ability to meet performance expectations even if resources are committed on an existing call, as well as how often a resource did not handle a call in its first due area.

### First-Due Analysis

The following table contains the proportion of calls for service by first-due area serviced by units assigned to the associated fire station (posting location) and the proportion serviced by units from other fire stations. The table also provides the proportion of incidents in each of these categories with initial response times within 8 minutes, i.e. the proportion meeting the Department’s first company response objective.

First-due	From First-due Station			From Other Station			Total		
	Incidents	Covers 8	Coverage (%)	Incidents	Covers 8	Coverage (%)	Incidents	Covers 8	Coverage (%)
P081	1063	1000	94.1	629	542	86.2	1692	1542	91.1
ST01	2185	2114	96.8	193	174	90.2	2378	2288	96.2
ST02	1437	1406	97.8	252	224	88.9	1689	1630	96.5
ST03	1105	1081	97.8	188	168	89.4	1293	1249	96.6
ST04	2809	2671	95.1	186	115	61.8	2995	2786	93.0
ST05	1422	1294	91.0	282	200	70.9	1704	1494	87.7
ST06	1275	1222	95.8	302	259	85.8	1577	1481	93.9
ST07	2585	2473	95.7	158	110	69.6	2743	2583	94.2
ST08	2503	2270	90.7	234	180	76.9	2737	2450	89.5
ST09	1790	1630	91.1	86	62	72.1	1876	1692	90.2
ST10	2021	1878	92.9	140	100	71.4	2161	1978	91.5
ST11	1465	1220	83.3	304	173	56.9	1769	1393	78.7
ST12	793	738	93.1	68	42	61.8	861	780	90.6
ST13	1024	914	89.3	190	129	67.9	1214	1043	85.9
ST14	770	726	94.3	148	104	70.3	918	830	90.4
ST15	533	459	86.1	63	44	69.8	596	503	84.4
ST16	316	251	79.4	41	21	51.2	357	272	76.2
ST17	2047	1732	84.6	145	81	55.9	2192	1813	82.7
ST18	301	253	84.1	34	22	64.7	335	275	82.1
ST19	1451	1070	73.7	76	44	57.9	1527	1114	73.0
ST20	985	892	90.6	139	109	78.4	1124	1001	89.1
Citywide	29880	27294	91.3	3858	2903	75.2	33738	30197	89.5

## Section 6 - Performance Objectives and Performance Measures

The Colorado Springs Fire Department has established benchmarks based on expectations defined by the City Council Resolution, as stated in Section 3 of the Standards of Cover. This states that the first company shall arrive in eight minutes or less for 90% of all calls, and effective firefighting force shall arrive in 12 minutes or less for 90% of calls requiring such a response.

### Benchmark Performance

Benchmark Performance Objectives		Structure Fires	EMS	Wildland Fires	HazMat	Technical Rescue
Alarm Handling	Alarm Time to 1 <sup>st</sup> Cpy Dispatched	00:45	00:45	00:45	00:45	00:45
Turnout Time	Turnout Time for 1 <sup>st</sup> Cpy to Arrive on Scene	01:30	01:30	01:30	01:30	01:30
Travel Time	Travel Time for 1 <sup>st</sup> Cpy to Arrive on Scene	05:45	05:45	05:45	05:45	05:45
	Effective Fire Force (EFF)* Max Travel Time	09:45	09:45	09:45	09:45	09:45
Total Response Time	For 1 <sup>st</sup> Cpy to Arrive on Scene (Alarm time to 1 <sup>st</sup> Cpy arrived)	08:00	08:00	08:00	08:00	08:00
	Effective Fire Force (EFF)* Total Response Time (Alarm time to last of the EFF Cyps to arrive on scene)	12:00	12:00	12:00	12:00	12:00

## Baseline Performance

### Structure Fires

The Department's baseline statements reflect actual performance from 2009 through 2011.

The Department does not rely on the use of automatic aid or mutual aid from neighboring fire districts to provide its effective response force complement of personnel. Actual baseline service level performance is as follows:

- For 90 percent of all structure fires, the total response time for the arrival of the first-due unit, staffed with a minimum of 4 firefighters, is 08:04. The first-due unit shall be staffed with a minimum of 4 firefighters and shall be capable of establishing command, sizing up the incident, utilizing safe operational procedures outlined in the SOPs, developing an initial incident action plan, extending appropriate hose line, and beginning initial fire attack or rescue. These operations are done in accordance with Department standard operating procedures while providing for the safety of the general public and responders.
- For 90 percent of all structure fires, the total response time for the arrival of the effective fire force (EFF), staffed with 13 firefighters is 13:12. The EFF is capable of establishing command, providing an uninterrupted water supply, advancing an attack line and a backup line for fire control, two in-two out, completing forcible entry, searching and rescuing at-risk victims, ventilating the structure, controlling utilities, performing salvage and overhaul, and placing elevated streams into service from aerial ladders. These operations are done in accordance with departmental standard operating procedures while providing for the safety of the general public and responders.

<b>Structure Fires – 90<sup>th</sup> Percentile Times</b>		<b>2009 – 2011 (mins:secs)</b>	<b>2011 (mins: secs)</b>	<b>2010 (mins: secs)</b>	<b>2009 (mins: secs)</b>
Alarm Handling	Alarm Time to 1 <sup>st</sup> Cpy Dispatched	1:42	1:45	1:41	1:41
Turnout Time	Turnout Time for 1 <sup>st</sup> Cpy to Arrive on Scene	1:46	1:49	1:48	1:39
Travel Time	Travel Time for 1 <sup>st</sup> Cpy to Arrive on Scene	5:21	5:10	5:22	5:27
	Effective Fire Force (EFF)* Max Travel Time	10:06	10:14	9:59	9:42
Total Response Time	For 1 <sup>st</sup> Cpy to Arrive on Scene (Alarm time to 1 <sup>st</sup> Cpy arrived)	8:04	7:59	8:04	8:06
	Effective Fire Force (EFF)* Total Response Time (Alarm time to last of the EFF Cyps to arrive on scene)	13:12	13:32	13:11	12:48

\*Effective Fire Force (EFF): A minimum of 2 engines and 1 truck company must arrive on scene. EFF calculations are based on the first 2 engines and truck companies to arrive on scene.

## Emergency Medical Services (EMS)

First due unit is considered the effective response force of all first due units having ALS capabilities. This includes four-person engine companies or two-person medical squads. Actual baseline service level performance is as follows:

- For 90 percent of all emergency medical services, the total response time for the arrival of the first-due ALS unit, staffed with 2 or 4 firefighters, is 8:33. The first arriving unit is capable of establishing command, sizing up the incident, utilizing safe operational procedures outlined in the SOPs, developing an initial incident action plan, beginning ALS patient care, and assisting with transportation. These operations are done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

<b>Medical – 90<sup>th</sup> Percentile Times</b>		2009 – 2011 (mins:secs)	2011 (mins: secs)	2010 (mins: secs)	2009 (mins: secs)
Alarm Handling	Alarm Time to 1 <sup>st</sup> Cpy Dispatched	1:26	1:28	1:26	1:23
Turnout Time	Turnout Time for 1 <sup>st</sup> Cpy to Arrive on Scene	1:31	1:38	1:31	1:23
Travel Time	Travel Time for 1 <sup>st</sup> Cpy to Arrive on Scene	6:26	6:22	6:27	6:32
Total Response Time	For 1 <sup>st</sup> Cpy to Arrive on Scene (Alarm time to 1 <sup>st</sup> Cpy arrived)	8:33	8:36	8:34	8:29

## Wildland Fires

Wildland fires include all grass and brush fires for reporting purposes. Actual baseline service level performance is as follows:

- For 90 percent of all wildland fires, the total response time for the arrival of the first-due unit, staffed with 4 firefighters, is 11:06. The first arriving company is capable of establishing command, sizing up the incident, utilizing safe operational procedures outlined in the SOPs, developing an initial incident action plan, extending appropriate hose line and providing either mobile attack or progressive hose lays, and extinguishing fire. These operations are done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

<b>Grass/Brush Fires – 90<sup>th</sup> Percentile Times</b>		2009 – 2011 (mins:secs)	2011 (mins: secs)	2010 (mins: secs)	2009 (mins: secs)
Alarm Handling	Alarm Time to 1 <sup>st</sup> Cpy Dispatched	2:05	2:04	2:01	2:15
Turnout Time	Turnout Time for 1 <sup>st</sup> Cpy to Arrive on Scene	1:54	2:00	1:53	1:45
Travel Time	Travel Time for 1 <sup>st</sup> Cpy to Arrive on Scene	7:46	8:36	7:32	7:36
Total Response Time	For 1 <sup>st</sup> Cpy to Arrive on Scene (Alarm time to 1 <sup>st</sup> Cpy arrived)	11:06	11:32	10:59	10:43

## Hazmat

The Hazardous Materials Response Team (HMRT) cross-staffs an engine and the hazmat vehicle. Actual baseline service level performance is as follows:

- For 90 percent of all hazardous materials, the total response time for the arrival of the first-due unit, staffed with 4 firefighters, is 10:47. The first arriving unit is capable of establishing command, sizing up the incident, utilizing safe operational procedures outlined in the SOPs, developing an initial incident action plan, calling for resources as needed, isolating site, and denying entry. These operations are done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

<b>Hazmat – 90<sup>th</sup> Percentile Times</b>		2009 – 2011 (mins:secs)	2011 (mins: secs)	2010 (mins: secs)	2009 (mins: secs)
Alarm Handling	Alarm Time to 1 <sup>st</sup> Cpy Dispatched	2:14	2:14	2:13	2:15
Turnout Time	Turnout Time for 1 <sup>st</sup> Cpy to Arrive on Scene	1:40	1:50	1:38	1:24
Travel Time	Travel Time for 1 <sup>st</sup> Cpy to Arrive on Scene	7:42	8:24	7:27	7:37
Total Response Time	For 1 <sup>st</sup> Cpy to Arrive on Scene (Alarm time to 1 <sup>st</sup> Cpy arrived)	10:47	11:47	10:41	10:21

## Technical Rescue

All companies are capable of some form of technical rescue; however, only one specialized unit (Heavy Rescue) is highly trained and capable of all rescues. Baseline performance numbers include rescues performed by all companies. Actual baseline service level performance is as follows:

- For 90 percent of all technical rescues, the total response time for the arrival of the first-due unit, staffed with 4 firefighters, is 10:48. The first-due unit is capable of establishing command, sizing up to determine if a technical rescue response is required, requesting additional resources, and providing basic life support to any victim without endangering response personnel. These operations are done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

<b>Rescues (excludes traffic accidents) – 90<sup>th</sup> Percentile Times</b>		2009 – 2011 (mins:secs)	2011 (mins: secs)	2010 (mins: secs)	2009 (mins: secs)
Alarm Handling	Alarm Time to 1 <sup>st</sup> Cpy Dispatched	2:08	2:21	1:58	2:09
Turnout Time	Turnout Time for 1 <sup>st</sup> Cpy to Arrive on Scene	1:28	1:38	1:28	1:16
Travel Time	Travel Time for 1 <sup>st</sup> Cpy to Arrive on Scene	8:28	8:43	8:25	8:05
Total Response Time	For 1 <sup>st</sup> Cpy to Arrive on Scene (Alarm time to 1 <sup>st</sup> Cpy arrived)	10:48	12:11	10:49	10:25

## Section 7 - Compliance Methodology

Compliance methodology requires that performance objectives and measures are evaluated and efforts are made to reach or maintain the established levels. Maintenance of efforts refers to the resources and energy put forth to ensure any benefits derived from the Standards of Cover (SOC) process are maintained. To ensure the Department is meeting current service level objectives, continuous monitoring of service level baselines must be conducted on a regular basis.

### Compliance Model

Compliance is best achieved through a systematic approach. The Department has identified the following seven-step compliance model:

#### **Step 1 - Update Data**

The SOC will be updated with the previous year's data.

#### **Step 2 - Review Performance Measures**

A review of the performance measures will be conducted. Review and validate:

- Risk Assessment
- Standard of Cover
- Services level objectives
- Performance objectives and measures

#### **Step 3 - Evaluate Performance**

Performance measures are applied to actual service provided:

- Activity and performance by unit
- Activity and performance by shift
- Activity and performance by planning zone
- Overall performance by population category (urban/suburban/rural)
- Overall performance by incident category
- Overall performance by special team

#### **Step 4 - Develop Compliance Strategies**

Determine issues and opportunities:

- Determine what needs to be done to address any gaps
- Determine if resources can be/should be reallocated
- Seek alternative methods to provide service at desired level
- Develop budget estimates as necessary

#### **Step 5 - Communicate Expectations to Organization**

Communicate expectations:

- Explain method of measuring compliance to personnel who are expected to perform the services
- Provide feedback mechanisms

Train personnel:

- Provide appropriate levels of training/direction for all affected personnel
- Modify (remediate) response processes, application systems, and technical infrastructure as necessary to comply

#### **Step 6 - Revalidate Compliance**

- Review of performance with senior staff and chief officers to ensure revalidation of SOC.
- Determine whether independent validation and verification techniques will be used to measure the performance.
- Solicit external assistance as necessary.

#### **Step 7 - Make Adjustments/Repeat Process**

- Review changes to ensure that service levels have been maintained or improved.
- Develop and implement a review program to ensure ongoing compliance:
  - Annual review and evaluation
  - Five year update of standards to ensure Department is prepared for reaccreditation

## Section 8 - Overall Evaluation and Recommendations

### Evaluation

The Colorado Springs Fire Department (CSFD) is an organization of committed personnel working with modern and well maintained apparatus and equipment. In addition to structure fire protection, it offers advanced life support, hazardous materials response, specialized technical rescue, and wildfire suppression. It has a dedicated support services staff and an overall positive public image.

The City of Colorado Springs is spread out over a large area that continues to experience growth in both population and new construction. This stretches the existing resources in an effort to provide quality services to a continuously growing community. The addition of two new fire stations in the north and northeast portions of the city will help improve response times to those areas.

Overall response times have slowly eroded over the past five years as the demand for services has increased while daily staffing has decreased. The Department will not be able to increase its workforce or daily staffing due to the city's current financial position and services will continue to be provided at the same level unless other funding sources become available.

The Department does not conform to response times defined in NFPA 1710, and does not expect to with current resources. The existing 8- and 12-minute response time standards, as defined by City Council resolution, serve as the benchmark.

## Recommendations

The Department recognizes that opportunities for improvement do exist. The following recommendations are meant to be improvements to the process of developing the standards of cover, not necessarily to Department operations. It is expected that improvements to this process will result in improvements to the overall delivery of services.

1. **Develop service level objectives for all major services provided.** The Department currently uses one benchmark which applies to all emergencies. Variations in the types of emergencies and the corresponding response should translate into different service level objectives. Benchmarks and baselines should be developed for emergency medical services, wildland fires, hazmat, and technical rescue. This will help these programs better define their services and analyze the efficacy of service delivery.
2. **Conduct a thorough and organized risk assessment.** The Department's current process for defining and evaluating risk is average and it is not an organized effort. Target hazards are identified by stations captains in a subjective and inconsistent manner and the results are entered into a spreadsheet. The Division of the Fire Marshal (DFM) identifies additional risks through the plan review and inspection process. The efforts of both are not combined or compared. The overall process should be more centralized to create a consistent and objective product, and the process needs to include all aspects of identifying and evaluating risk.
3. **Review and validate critical tasks.** Critical tasking is not currently specifically stated in Department policy; however, the CSFD Tactical Operations Manual (Tac Ops) does define the roles of firefighters on scene for all emergencies to which the Department responds. Critical tasks were identified for this current standards of cover document based on these definitions. Effective critical tasking will demonstrate the reliability of system performance. The Department needs to validate critical tasking to ensure they are providing the most effective service delivery.

4. **Develop and implement a formal annual appraisal process for all programs.** The current method by which the Department evaluates programs is inconsistent. A wide variety of factors are used to evaluate the effectiveness of programs. A formal process needs to be developed and implemented that will provide a uniform outcome for planning purposes.
  
5. **Use a consistent method for analyzing data.** The Department has three different ways to evaluate data by geographic areas: planning evaluation zones (PEZ), fire demand zones (FDZ), and fire station still districts. The annual statistical abstract provides many different data sets; however, they are not all provided by the same planning area. Some are given by PEZ, and some are given by fire station still district. Data is not provided, at least in the statistical abstract, by FDZ. One type of planning area should be identified and data reported consistently through that method or, if two are deemed necessary, the same data should be reported through both methods.
  
6. **Conduct a community input process.** Soliciting feedback from the community is vital to understanding the expectations of what services we provide and how we provide them. A survey of city-wide services was last done in 2007, in which the CSFD received a high rating in overall performance; however, that was the only question applicable to the Department. Citizens need to be queried about specific services and expectations and the results need to be used for planning purposes.
  
7. **Integrate the accreditation process into the standards of cover and strategic planning.** The accreditation process of system-wide self assessment goes hand in hand with the development of both the standards of cover and the strategic plan. The accreditation process provides a framework for completing these important documents and each process should run concurrently, or at a minimum be coordinated, to determine the most effective method of planning and service delivery.