Central Jackson County Fire Protection District

Standards of Response Coverage & District Risk Assessment

805 NE Jefferson
Blue Springs, MO 64014
(816) 229-2522 fax: (816) 229-5110
www.CJCFPD.org
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Executive Summary

In 2006 the Central Jackson County Fire Protection District decided to pursue accreditation status from the Commission on Fire Accreditation International. This effort was decided upon to help the organization become more effective and efficient. In order to be effective, efficient and responsible to its citizens the District must analyze the risks associated within the jurisdiction and develop a Standards of Response Coverage policy to follow by.

This document is divided into seven sections: Introduction; Risk Assessment; Standards, Goals and Objectives; Critical Task Capability; Service Level Objectives; Reliability of Fire and EMS Companies; and Policy Recommendations. The completion of these sections establishes a Standards of Response Coverage policy to which an agency can use for guidance. Developing a Standards of Response Coverage is the responsibility of the District and paramount to the success of the organization.

Through this process a risk assessment was completed. This assessment divided the District into 66 grids and evaluated the risks associated within each grid. Understanding the associated risks allows a fire department to properly plan emergency response effectively and efficiently. The District should continually conduct a risk assessment as the environment of the jurisdiction constantly changes.

Another important aspect of the Standards of Response Coverage is the analysis of response times. Response times should be developed in order to reduce the amount of risk that was identified in the risk assessment. At the completion of this document the response time for all calls is to respond (travel time) to a structure fire within 6 minutes 80% of the time. The District is currently achieving this 89.8% of the time. In order to effectively fight a fire though a full effective response force must be on scene as well. This is the full-alarm assignment bringing the appropriate amount of firefighters to the scene to effectively
extinguish the fire, protect property, and save lives. The current benchmark for a full-alarm total reflex time is 15 minutes 80% of the time. The District is currently achieving this response time 83% of the time. Continual analysis and measurement of response times is key to understanding the response effectiveness of the District.

The process of completing the standard of response coverage has identified the need to review the policies and guidelines that the District utilizes. There were a number of policies and guidelines identified that were outdated or non-existent in today’s practice. The process has already begun to update all policies and guidelines to reflect current practice and contractual obligations.

Lastly, the Central Jackson County Fire Protection District has continued to be supported by its citizens and customers receiving an 83% satisfaction rating in 2006 from the citizens of Blue Springs, the highest rating in the city (Appendix 1.1). The department recorded nearly 6,000 combined personnel training hours in 2005. Upon completion of this document and the self-assessment process the Central Jackson County Fire Protection District will continue to strive to provide the best service possible to all of its customers.

Note: The following titles are interchangeable for the title of Central Jackson County Fire Protection District: The District, CJCFPD, and CJC.
Section I – Introduction, Purpose, and Community Baselines

Central Jackson County Fire Protection District:

Our Mission Statement:

The first and foremost mission of the Central Jackson County Fire Protection District is to prevent the loss of life or property from the ravages of fire or other immediate life and property threatening hazards. This is accomplished by providing a well-trained and well-equipped team of professionals who are able to mitigate all emergency incidents in an efficient and safe manner, thereby serving the best interests of the District’s constituents.

The Central Jackson County Fire Protection District (CJCFPD) was formed, by a vote of the citizens, in April 1961. The District was established not only to protect and serve, but also as an organization to grow with the communities within it. The District has not only grown but has also developed into a comprehensive and complete public safety organization. This document will be used to facilitate continued growth and to improve the overall safety of its citizens. This document provides an overview of the resources, deployment strategies, and operational elements of the Central Jackson County Fire Protection District of Jackson County, Missouri and the community risks to which it responds. The Standard of Response Coverage establishes response time objectives and standards for timely deployment of resources necessary to respond to emergency calls for service in the community. Based on this analysis, the report also offers a number of recommendations and future goals to maintain and improve the department’s response coverage, thereby maintaining and improving the safety of the community.

By definition, the Standards of Response Coverage addresses the emergency response resources and deployment strategies necessary to deliver a defined level of service. This document does not directly address the effectiveness or quality of fire or emergency medical services. While these are important
outcome measures, they are not standards of coverage. However, there is a strong relationship between the two and operational effectiveness will improve with more effective coverage.

**History of the District**

The Central Jackson County Fire Protection District was formed in 1961 after a vote of the people approved the creation of the District. The areas covered were the Blue Springs & Lake Tapawingo areas of Jackson County, MO. Station 1 was located on Main Street in Blue Springs and Station 2 was built in Lake Tapawingo. In 1970, the District moved Station 1 to its current location at 10th & U.S. 40 highway in Blue Springs, MO. Eventually a second story was added to facilitate the increase of manpower of the Fire District. In 1978 the District built another station in Grain Valley.

As CJC grew, Station 3 was added on North 7 Hwy in Blue Springs, and Station 2 was relocated to its current location at Kingsridge and Woods Chapel, in Blue Springs, MO. In 1996, the station, which was originally built in 1978, was relocated to its current location at 700 W. AA Hwy. in Grain Valley, MO and the old station was converted into the District’s Training and Maintenance Center. Also that year, Station 3 was relocated to its current location at 805 NE Jefferson in Blue Springs, MO, which is at the Adams Dairy Parkway exit off I-70. At that time, Headquarters was moved from Station 1 to Station 3. In 2004, Station 5 was opened at 2509 South Adams Dairy Parkway in Blue Springs. The Central Jackson County Fire Protection District is currently in negotiations with the Lake Lotawana Fire Protection District to consolidate both districts. The District is also planning for an additional station in the northeast to meet the increasing needs of the community.
ISO Rating:
The District is classified as a protection class 3. Most insurance companies recognize the District’s mobile water system in lieu of rural static hydrant support. This system is capable of delivering 1000 gallons per minute of fire flow through a mobile water shuttle agreement with our neighboring districts, Fort Osage Fire Protection District, Prairie Township Fire Protection District and Sni Valley Fire Protection District.

Purpose of the Standard of Response Coverage
While the Central Jackson County Fire Protection District has been dedicated to responding quickly and effectively, it had not developed and adopted a clearly defined standard of response coverage before this document was created.

The purpose of a “Standards of Coverage for Emergency Response” document is to provide the following:

- A baseline tool for defining emergency response performance standards and goals.
- A summary of community risk (life safety, economic, and environmental).
- An analysis of critical emergency scene tasks, which should assume maximum utilization of all personnel under a “worst case” scenario. This analysis should be consistent with the department’s risk analysis, staffing levels, and goals.
- A basis for continually measuring performance over time.
- Guidelines for short-term and long-term policy decisions dealing with resource procurement and allocation.
- Deployment options, matching the identified community risk, including the type of emergency response apparatus and staffing levels to provide an appropriate level of response for the various services provided by the department.
- Meeting the changing demands for service in various parts of the District’s service area brought about by shifting demographics.
The need for, and strategic placement of, future fire stations.

A Standards of Response Coverage document consists of those written guidelines that determine the distribution and concentration of the fixed and mobile resources of a fire and EMS organization. It is anticipated that this document will serve as a critical element of the accreditation process of the Commission on Fire Accreditation International (CFAI).

Standards of Response Coverage typically consists of four key elements:

- Risk assessment – an assessment of the inherent risks associated with the community within the jurisdiction.
- Distribution — the station and resource locations needed to assure rapid response deployment to minimize and terminate emergencies.
- Concentration — the spacing of multiple resources arranged so that an initial “effective response force” can arrive on scene within sufficient time frames to mobilize and likely stop the escalation of an emergency in a specific risk category.
- Staffing levels — these consist of the numbers of response-ready personnel and their assignments.

The Standards of Response Coverage are developed through the systematic evaluation of the department’s present policies, practices, and historical response data. The results of these analyses are then used to develop formal statements regarding the level of service the department can be expected to provide, along with recommendations to make changes in the way services are delivered for the purpose of improving the level of service to the community.

Overview of the Legal Jurisdiction
The Central Jackson County Fire Protection District was initially organized through an election held in 1961 as required by the Missouri Revised State Statutes (RSMo) Chapter XXI, Title 321 “Fire Protection Districts”. Currently,
there is a three-member board, each serving staggered six-year terms, governing
the agency. In 1992, the Central Jackson County Fire Protection District
assumed control over the Emergency Medical Services (EMS) from Blue Springs
EMS. The Emergency Medical Services remains a unique portion of the District.
The City of Blue Springs still holds the EMS license and supplies finances for the
services, five Emergency Medical Technicians, 13 paramedics, one billing clerk
and half of the assistant chief of EMS’ salary. However, the personnel and
apparatus are under the direct supervision of the District.

The Central Jackson County Fire Protection District is also under the legally
established Statewide Mutual Aid System (Appendix 1.2). This system allows
fire departments that are overwhelmed with an emergency(s) to ask for additional
assistance from neighboring and any department in the state. However, the
request cannot drop the minimum required amount of equipment and/or
personnel below the respective department’s minimum standards; however, the
Fire Chief of the department from which the resources have been requested may
grant permission to allow a drop in equipment and/or resources.

Current Levels of Service

Department Resources
Central Jackson County Fire Protection District’s entire primary response area is
63 square miles (not including EMS response areas outside the District). Four
gine-companies, one ladder-company, and three Advanced Life Support
ambulances serve the District. These companies are located throughout five
stations within the District housing 91 career firefighters working on rotating shifts
24 hours a day 7 days a week. Of the 91 career firefighters 42 are trained
paramedics while the other 49 are trained Emergency Medical technicians.
There are nine chiefs that administer the organization. Also under the
administration are one mechanic, one maintenance person, one office
manager/bookkeeper and four clerical staff. The chief positions consist of the
Chief Fire Executive, Deputy Chief, Assistant Chiefs of Fire Prevention, Training, EMS, EMS Training, and three Assistant Chief/Shift Commanders as outlined in the organizational chart (Appendix 1.3). The Assistant Chief/Fire Marshal of Fire Prevention oversees four 40-hour inspectors. The Assistant Chief of EMS also oversees the Communications division which staffs eight dispatchers and one dispatch supervisor. There are a total of 125 members within the District. The department is outfitted with some of the best tools available and strives to provide the customers with outstanding service.

The five fire stations are divided into five response districts. Each station represents a single response district with multiple alarm locations within each of them. Staffing minimums are shown below as the minimum number of personnel assigned to each company or unit per shift.

Table 1.1 Emergency Response Staffing

- **Station 1 – 1000 W. 40 Hwy, Blue Springs, MO 64015**
  - Ladder 1, 105 ft aerial ladder, 2000 GPM Engine
    - Minimum of three personal
  - Med 1, Paramedic Ambulance
    - Minimum two personal, one of which will be a paramedic
  - Heavy Rescue 1
    - Staffed as needed by the STAR Team
  - Squad 1
    - Heavy Rescue Support unit, staffed as needed
  - Med 4, Paramedic Ambulance
    - Reserve apparatus, staffed as needed including a paramedic
  - The Fire Prevention Unit and the Assistant Chief of Fire Prevention

- **Station 2 – 3412 Kingsridge Dr., Blue Springs, MO 64015**
  - Engine 2, 1750 GPM Engine
    - Minimum of three personal
  - Med 2, Paramedic Ambulance
    - Minimum two personal, one of which will be a paramedic
  - Engine 22, 1500 GPM Engine
    - Reserve apparatus, staffed as needed
• Station 3 – 805 NE Jefferson St., Blue Springs, MO 64014

- Engine 3, 2000 GPM Engine  
  - Minimum of three personal  
- Med 3, Paramedic Ambulance  
  - Minimum two personal, one of which will be a paramedic  
- Engine 33, 1500 GPM Engine  
  - Reserve apparatus, staffed as needed  
- Command 1  
  - Staffed by the Shift Commander  
- Command Reserve  
  - Staffed as needed  
- HazMat 1  
  - Staffed as needed by the Tri-District Hazmat Team  
- Ladder 11  
  - Reserve apparatus, staffed as needed  
- MMRS Trailer  
  - This is the Districts Headquarters Station  
  - All of the command staff is located here except the Assistant Chief of Fire Prevention.

• Station 4 – 700 W. AA Hwy, Grain Valley, MO 64029

- Engine 4, 1500 GPM Engine  
  - Minimum of three personal, including one paramedic  
- Brush 4  
  - Staffed by Engine 4’s crew as needed, on a call by call basis  
- Tanker 4  
  - Staffed by Engine 4’s crew as needed, on a call by call basis  
- Western Missouri Chiefs Mass Casualty Trailer

• Station 5 – 2590 SE Adams Dairy Pkwy. Blue Springs, MO 64014

- Engine 5, 2000 GPM Engine  
  - Minimum of three personal  
- Brush 5  
  - Staffed by Engine 5’s crew as needed, on a call by call basis  
- Tanker 5  
  - Staffed by Engine 5’s crew as needed, on a call by call basis  
- Med 5, Paramedic Ambulance  
  - Reserved Apparatus, staffed as needed including a paramedic
SECTION TWO: Risk Assessment

Overall community risk management consists of risk assessment and risk control. First, the District needs to identify the magnitude and scope of the risk of fire, rescue, and medical emergencies, or other hazards that threaten life, safety, property, or the environment. This analysis is based upon both actual and potential losses. The risk assessment analyzes two primary components: life safety and economic impact.

Community Profile:
The community profile is an analysis of the attributes of the community based on the unique mixture of demographics, socioeconomic factors, occupancy risk, demand zones, historical trends, and level of service currently being provided. Through a methodical analysis of the risk dynamics present in the community, a risk assessment makes it possible to develop logical resource deployment strategies to meet the identified needs. The goal of the risk assessment process is to determine the probability of an event occurring, as well as the potential consequences of that event. Decisions regarding resource deployment can then follow in a logical sequence.

Population
The U.S. Census data from 2000 indicates that the population within the Central Jackson County Fire Protection District is 66,318. Currently, CJCFPD responds to about 84 incidents per 1,000 residents in their overall workload. This is typically higher, comparatively, to other similar-sized communities. This can be attributed to the Emergency Medical Services CJCFPD provides with Advanced Life Support ambulances. However, the number of fires CJCFPD responds to is only slightly higher than other similar-sized communities. CJCFPD responds to about 4 fires per 1,000 residents\(^2\). These statistics, obviously, show the current demand is far greater for Emergency Medical Services. The chart below displays the populations for the communities that CJCFPD serves and the square mileage. The data is taken from the 2000 Census report. The chart does not
accurately display the current population as Blue Springs and Grain Valley have experienced substantial growth since 2000.

Table 2.1 Primary Service Area Statistics

<table>
<thead>
<tr>
<th>Legal Jurisdictions</th>
<th>Population</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Blue Springs</td>
<td>48,080</td>
<td>18.19</td>
</tr>
<tr>
<td>City of Grain Valley</td>
<td>5,160</td>
<td>4.8</td>
</tr>
<tr>
<td>City of lake Tapawingo</td>
<td>843</td>
<td>0.34</td>
</tr>
<tr>
<td>Unincorporated Jackson County w/n CJCFPD</td>
<td>12,235</td>
<td>39.67</td>
</tr>
<tr>
<td>TOTALS</td>
<td>66,318</td>
<td>63</td>
</tr>
</tbody>
</table>

*Information from the US Census Bureau 2000*

**Demographics**

In the year 2000, the Census Bureau studies indicated that the community is predominantly Caucasian with less then 6% of the population consisting of other ethnic backgrounds.

**Growth**

Population growth in the District increased at an average rate of 1500 patrons per year or 2.3% annually from the years 1990 to 2000. It is projected that this growth will continue at or near the 2% rate.

**Growth Trends**

The District and its communities are a suburb within the Kansas City Metropolitan area. The urban expansion within the District is growing at a 2% annual rate. Beginning in the 1970's the community of Blue Springs encountered tremendous expansion and subdivision development for residences. During the late 1990's the community of Grain Valley began significant expansion of residential areas as well. Along with the residential subdivision development, intense commercial
pocket development occurred to the corridors of Interstate-70, 7 Highway, AA Highway, Buckner-Tarsney Road, and the Adam's Dairy Parkway.

The City of Blue Springs and Grain Valley are annexing unincorporated Jackson County and the City of Blue Springs is annexing outside the borders of the CJCFPD response area. In order to move the boundaries of the District a vote is required of the citizens.

The southern and northern rural sections of the City of Grain Valley, the southern and northern rural sections of the Blue Springs are geographic areas experiencing municipal growth with voluntary land annexation.

**Historical Performance**

The District's population over the last twenty years has grown from 27,500 to approximately 67,000 residents. Over the last 13 years the annual fire and EMS call volume has grown from 1288 to more than 6000 per year (see appendix 6.2). This increase in the annual call volume is related to a dramatic demand for emergency medical services.

**Age of Structures**

It is estimated that 52.01% of the structures are 20 years old or younger and 87% of the structures are 30 years old or less. The age of structures within the District can provide information on the building construction quality and how well the structure will withstand fire conditions.
Protected Property
Since the 1970’s, modern building codes have been utilized and enforced. Most structures are designed with state of the art engineering, fire, and life safety features. The 1,540 commercial structures are inspected and compliance is achieved on 1 or 2-year cycles for life safety and fire code enforcement. Of the commercial structures 219 are protected by automatic sprinkler systems. All restaurants are equipped with hood and exhaust suppression systems and all buildings are equipped with alarm systems as specified in the code they were built under. Lake Tapawingo has adopted the International Fire Code 2000 edition and Blue Springs, Grain Valley, and the unincorporated parts of Jackson County, MO have adopted the International Fire Code 2003 edition.

Property Value
The assessed valuation in 1990 was $317,391,334 and the assessed valuation for fiscal year 2006 was $852,180,492. In 16 years the assessed valuation has increased 37%.

Population Density
The Population density is figured at 1,052.66 persons per square mile.

Age Groups
The mean age group is 33-34. Females outnumber males within the District, comprising nearly 51%. The age group of 35-44 is the largest making up nearly 17% of the District’s population.

Land Use
The District land use is defined as half rural and half urban. The total land use is estimated at 65% urban and 35% rural. There are a total of 20,128 dwellings within the District, which presents 319.5 dwellings per square mile. There are 1,540 commercial occupancies, which present 24.4 commercial occupants per square mile.
Transportation System and Networks
The streets, roads, and highways within the service area are the primary means of getting fire, rescue, and emergency medical resources to incident scenes. The main highways running through the District are Interstate-70, U.S. 40 Highway, and Missouri State 7 Highway. While these transportation routes are usually adequate for the volume of traffic they carry periods of “rush hour” congestion, which significantly slows traffic, including emergency response, along these and other routes. Within the rural areas served by CJCFPD, limited road networks, terrain contours, bridges unable to bear the weight of standard fire apparatus, as well as long, narrow, and winding private driveways, further impede response performance efforts. Absent or inadequate water supply systems in these areas cause additional fire suppression challenges to responders. CJCFPD also has a major railroad line running through the District. Along with this line there are multiple spurs off the main line used by local businesses.

Average Area Protected by Initial Response Companies
Central Jackson County Fire Protection District’s entire primary response area is 63 square miles. Four engine companies, one-ladder company, and three Advanced Life Support ambulances serve the community. The average area covered by each initial responding fire company is 12.6 square miles (The statistic is formulated by dividing the number of fire companies by the square mileage of the jurisdiction). Generally speaking, when the area protected by fire companies exceeds nine square miles, this would result in unacceptably extended response times. The average area covered by each initial responding ambulance is 21 square miles, also established by the previously mentioned equation. This Standard of Response Coverage will cover these response times in section V.
Risk Assessment Matrix:
The matrices below show the elements of consideration in risk assessment. They are combinations of the probability of an event occurring and the consequences should that event occur. This tool divides risk assessment into four quadrants. Each quadrant of the chart represents different requirements in the community for the commitment of emergency resources.
A community risk assessment may include defining the inherent differences between a single-family dwelling, a multiple-family dwelling, a large industrial occupancy or commercial campus, and a high-rise residential or commercial structure, and then assigning each to a different quadrant of the risk assessment matrix. Fire stations and emergency apparatus may be distributed uniformly throughout the community to provide prompt initial response to all types of incidents, or resources may be concentrated in high-consequence areas to enable a large-scale response to an unlikely but highly consequential event. Even when resources are distributed relatively evenly throughout the community, they may be deployed differently to different types of incidents based on the
response needs of each particular incident type or in response to seasonal changes, special situations or events.

The District has chosen to use the criteria for risk assessment that was formulated for the National Fire Academy course *Executive Analysis of Fire Service Operations in Emergency Management*. Using these criteria the District was broken down into 66 manageable grids and each grid was evaluated and given a vulnerability and risk score. Residential occupancies were broken down into single family, multi-family low density (i.e. duplex, fourplex), multi-family moderate density (i.e. garden-style apartments), and multi-family high density (high occupant load w/ three or more stories). Commercial occupancies were also evaluated based on occupancy type and hazards associated. Based on these scores the risk assessment was completed.

The vulnerability score was calculated using a battery of factors. These factors include: Danger/Destruction, Economic impact, Environmental impact, Social aspects, Political considerations and Planning, and Water Supply. For each factor a score was assessed with a score of one being the least and three being the most severe. The sum of these factors assigned a vulnerability score. The risk rating was computed using the probability multiplied by the danger/destruction factor. The results from the grid assessment were then compiled into run box overviews. What follows are the results from the risk assessment:
Map 2.1 Risk Assessment Grids with Box Numbers

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Table 2.2 – OVER VIEW OF GRID Results

<table>
<thead>
<tr>
<th>Grid</th>
<th>Scores</th>
<th>Vulnerability</th>
<th>Risk</th>
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</thead>
<tbody>
<tr>
<td>1E</td>
<td>7/L</td>
<td>VL</td>
<td></td>
</tr>
<tr>
<td>1F</td>
<td>7.66/L</td>
<td>VL</td>
<td></td>
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<tr>
<td>1G</td>
<td>7.5/L</td>
<td>VL</td>
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<tr>
<td>1H</td>
<td>7.5/L</td>
<td>VL</td>
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<tr>
<td>2D</td>
<td>7.5/L</td>
<td>VL</td>
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<td>6/L</td>
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<td>9/L</td>
<td>VL</td>
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<td>2I</td>
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District Box Profiles

CJCFPD Run Box – 101

Grids assessed within or partially within this box: 5B, 5C, 5D, 5E

Assigned Still Area: Ladder 1, Med 1

Next Due Companies: 2nd–Engine 2, 3rd–Engine 3, 4th–Engine 5, 5th–Engine 4

Overview

Box 101 is one of the more population and business dense areas in the District. This box includes the oldest buildings and the Blue Springs, MO downtown area. Many of the downtown buildings hold a lot of historical culture and are under future renewal by the City of Blue Springs, MO. This box also contains many of the specific hazard facilities within the District.

Most of the buildings within this box are single family residential and a few single-family low-density areas. Houses around the downtown area are some of the oldest houses within the District.

A large portion of this box includes commercial occupancies. Many of these commercial occupancies are located along U.S. 40 hwy and are mainly comprised of light to moderate retail. The downtown area is located between 15th and 10th to the east and west, respectively, and Walnut St. and Main St. to the north and south, respectively. This downtown area also is consists of light to moderate commercial retail. The Blue Springs, MO City Hall and Police Station are located in the downtown area. As of the fall of 2006 the downtown area is
undergoing a revitalization period, with plans of updating the water supply system in this area. Two of the District’s specific hazards are located near downtown on 10th St.

The Blue Springs, MO School District Administration building, Food Warehouse, and the Blue Springs Freshman Center are also located in box 101. The Blue Springs Freshman Center has a moderate sized school population and the building is protected by an automatic fire alarm and sprinkler system.

**Emergency Response Traffic Concerns**
U.S. 40 and Missouri 7 Highways are major thoroughfares in Blue Springs, MO and are frequently congested. These routes may pose a concern for emergency response personnel. In addition, many of the streets in the downtown areas are very narrow and may present concerns for placing emergency apparatus at a scene.

**Identified Specific Hazards**
Fike Metal and Liquid Soap are both located on 10th street and are specific hazards within the District. Fike metal researches explosive extinguishing systems and may have hazardous processes and chemicals on hand that may be dangerous to emergency response personnel. Liquid Soap is a soap manufacturing facility and houses numerous chemicals, none of which are listed on the Extremely Hazardous Substance list by the EPA. In addition, Moore Oil is also located in box 101. This facility houses a substantial amount of fuel and may present concerns for emergency response personnel. The Blue Springs Freshman Center is another specific hazard identified by the District. This facility is protected by an automatic fire alarm and sprinkler system but still poses a concern for a potential large loss of life in a fire or disaster due to the number of students.
Risk Assessment Results
Grids assessed or partially assessed within this box: 4
Grid: 5B: low vulnerability, very low risk
Grids: 5C, 5D, 5E: moderate vulnerability, low risk
Grids assessed within or partially within this box: 5D, 5E, 6C, 6D

Assigned Still Area: Ladder 1, Med 1

Next Due Companies: 2nd–Engine 5, 3rd–Engine 2, 4th–Engine 3, 5th–Engine 4

Overview
Station No. 1 is located in this box at U.S. 40 hwy and 10th St. Station No. 1 houses Ladder Co. 1 and Med No. 1 along with the support squad for the heavy rescue team. This box is bordered by U.S. 40 hwy to the north and Missouri 7 hwy to the east with Blue Springs Lake bordering the west and residential to the south.

The majority of this box is consists of single-family residential. However, there are several multi-family low and moderate-density dwellings. Villas of Autumn Bend are typical ‘garden style’ moderate density apartments with an automatic fire alarm but no sprinkler system. Fall Creek Town Homes are another multi-family complex and are only protected by an automatic fire alarm. These are two of the bigger multi-family residential complexes within the District.

There are several commercial occupancies along U.S. 40 hwy and Missouri 7 hwy many of them being retail in nature. Several of the commercial occupants are lube and tire shops, which present possible fuel load hazards. Along U.S. 40 hwy and Missouri 7 hwy there are several strip malls, which are unprotected and present a possibility of a large fire and potential large loss of life.
There are several churches within box 102. Grace Unlimited, Blue Springs Chapel, Church of Christ, and Plaza Heights Baptist are the four churches located inside this box. Plaza Heights Baptist church is the largest of the four and is protected by an automatic fire alarm and sprinkler system. Grace Unlimited is the only other church protected by an automatic sprinkler system in this box.

Franklin Smith Elementary School is located within box 102 on Clark St. This school is protected only by an automatic fire alarm. With the number of students there is a potential for large loss of life. In addition there is a preschool located down the street from Franklin Smith and is protected with an automatic fire alarm.

There are two parks located in box 102. Ward and Franklin Smith Parks are smaller parks with park facilities located within.

**Emergency Response Traffic Concerns**

U.S. 40 hwy and Missouri 7 hwy are major thoroughfares in the District. They are frequently congested, especially during peak (peak times refer to morning and afternoon rush hours) times. This may pose a concern for emergency responders.

**Identified Specific Hazards**

The two major apartment complexes noted above present high loss of life potential and remain a specific hazard. In addition the churches within this box pose a potential for large loss of life. Franklin Smith Elementary School also poses a risk for high loss of life due to the number of students and their ages. The strip malls located in this box are also of concern because of the lack of fire protection and the size of the buildings.
**Risk Assessment Results**

Grids assessed or partially assessed within this box: 5

- Grid: 5D: moderate vulnerability, very low risk
- Grid: 5E: moderate vulnerability, low risk
- Grid: 6C: low vulnerability, very low risk
- Grids: 6D, 6E: moderate vulnerability, low risk
CJCFPD Run Box – 103

**Grids within or partially within this box:** 4E, 5E, 5F

**Assigned Still Area:** Ladder 1, Med 1

**Next Due Companies:** 2nd–Engine 3, 3rd–Engine 5, 4th–Engine 4, 5th–Engine 2

**Overview**

Box 103 is comprised, mainly, of single-family residential dwellings. There are a few multi-family low-density dwellings located within this box. This box is bordered by R.D. Mize Road to the north, Sunnyside School Road to the east, Missouri 7 Highway to the West and AA Highway to the south.

Commercial occupants line Missouri 7 Highway with most of the being typical storefront retail. There are a few strip malls located in this box along Missouri 7 Highway. These pose a concern for quick fire spread. Stone Container is a moderate sized manufacturing plant located on South Ave and is considered an identified specific hazard. There are also several moderate sized commercial occupants with various products throughout box 103. At the present time the K-Mart facility is vacant but is connected to Hy-Vee, which is a operating grocery store.

James Walker Elementary School is the only school facility within this box. This facility is only protected by an automatic fire alarm. With the amount of students at this facility there is a concern for the potential for a large loss of life in a fire or disaster.
Emergency Response Traffic Concerns
Missouri 7 Highway is a major north and south thoroughfare through the middle of Blue Springs, MO. This frequently becomes congested especially during rush hour. This may pose an emergency response concern. U.S. 40 and AA highways are major east and west thoroughfares and experienced heavy congested during rush hour. As with Missouri 7 highway, the highways may pose a concern for emergency response. R.D. Mize Road is moderately traveled and becomes congested at the intersection with Missouri 7 highway. During rush hour this may pose an emergency response concern.

Identified Specific Hazards
Stone Container is identified as a specific hazard mainly because of the manufacturing processes. This facility is protected by an automatic fire alarm and sprinkler system. James Walker Elementary School is also an identified hazard because of the size and age of the population and the lack of a sprinkler system. This facility poses a potential for a large loss of life in a fire or disaster. The K-Mart facility when operational is an identified hazard and is protected by an automatic fire alarm and sprinkler system.

Risk Assessment Results
Grids Assessed or partially assessed within this box: 3
Grid: 4E: moderate vulnerability, low risk
Grid: 5E: moderate vulnerability, low risk
Grid: 5F: low vulnerability, very low risk
Grids within or partially within this box: 5E, 6E

Assigned Still Area: Ladder 1, Med 1

Next Due Companies: 2\textsuperscript{nd}–Engine 5, 3\textsuperscript{rd}–Engine 3, 4\textsuperscript{th}–Engine 4, 5\textsuperscript{th}–Engine 2

Overview
Box 104 is one of the smaller still areas for the District. Missouri 7 Hwy borders it to the west and U.S. 40 Hwy and AA Hwy to the north. Keystone Park borders the eastern portion of this box.

This box is primarily single-family residential. There are also several multi-family low-density dwellings in this still area. Commercial occupancies outline the highways that surround this box. A majority of these commercial occupancies are retail in nature with no manufacturing processes.

At this time there is one building that is currently unoccupied which was previously occupied by K-Mart and Wal-Mart. ACE Hardware has now occupied a portion of this building. As with other unoccupied buildings there is concern with mischievous behavior around these facilities that may lead to an emergency. The south Price Chopper is located off of 7 hwy and is protected by an automatic fire and sprinkler system.

Keystone Park is located in the southeastern portion of this box. This park is mainly an open and wooded area with a few park facilities located in the middle of the park. One of the primary concerns with this park is the potential for a natural cover fire spreading through the wooded areas.
Emergency Response Traffic Concerns
Missouri 7 hwy is a major thoroughfare running north and south in the middle of the District. This highway frequently is congestion due to high traffic volumes during peak times. U.S. 40 hwy and AA hwy are additional heavily traveled areas within the District. As with Missouri 7 hwy, there is considerable congestion during peak times. With all three of these thoroughfares and the probable congestion during peak times there is a potential for interrupted emergency response.

Identified Specific Hazards
The vacated building and Price Chopper are the main specific hazards within this box. These buildings are protected by fire alarms and sprinkler systems; however, the vacant building is not currently activated. An additional hazard is the park, which presents the concern for a natural cover fire spreading into the wooded areas.

Risk Assessment Results
Grids assessed or partially assessed within this box: 2
Grid: 5E: moderate vulnerability, low risk
Grid: 6E: moderate vulnerability, very low risk
CJCFPD Run Box – 105

Grids within or partially within this box: 6A, 6B, 6C

**Assigned Still Area:** Ladder 1, Med 1

**Next Due Companies:** 2nd–Engine 2, 3rd–Engine 5, 4th–Engine 3, 5th–Engine 4

**Overview**
This box is in the southwest portion of the District and primarily occupied by one of the District’s lakes, Blue Springs Lake. There are a few park facilities associated with the lake. In addition, there are a limited number of single-family dwellings in this area and a few commercial occupants.

**Emergency Response Traffic Concerns**
Woods Chapel Rd. does provide access across the lake from the north to the south. Other than this road there is no access to the opposite sides of the lake. There are also several drives that lead to the lakes edges, primarily for boat docking.

**Identified Specific Hazards**
The lake provides the only identified hazard in this box. The potential for accidents to occur on the lake is minimal.

**Risk Assessment Results**
Grids assessed or partially assessed within this box: 3
Grids 6A, 6B, 6C: low vulnerability, very low risk
Grids within or partially within this box: 6A, 6B, 6C, 7A, 7B, 7C

Assigned Still Area: Ladder 1, Med 1

Next Due Companies: 2nd–Engine 5, 3rd–Engine 2, 4th–Engine 3, 5th–Engine 4

Overview
Box 106 is a small area with a very limited number of single-family dwellings and no multi-family dwellings. There are a few park facilities including offices and storage facilities. The majority of box 106 is made up of Lake Jacomo and a portion of Blue Springs Lake.

Emergency Response Traffic Concerns
There is only one route around the lake. This limits access and causes longer response times.

Identified Specific Hazards
There are no building specific hazards located within box 106. The lake is considered a “non-fire risk” due to the potential for drowning and boat accidents. The heavy rescue team has trained for such incidents and is being equipped with a Zodiac boat to perform rescue activities on the various lakes within the District.

Risk Assessment Results
Grids assessed or partially assessed within this box: 6
Grids: 6A, 6B, 6C: low vulnerability, very low risk
Grids: 7A, 7B, 7C: low vulnerability, very low risk
CJCFPD Run Box – 201

Grids within or partially within this box: 3B, 3C, 4B, 4C

Assigned Still Area: Engine 2, Med 2

Next Due Companies: 2nd–Ladder 1, 3rd–Engine 3, 4th–Engine 5, 5th–Engine 4

Overview

Box 201 incorporates the western end of the District boundary and is just north of Interstate I-70. This box is in Engine Co. 2 and Med 2’s still area. West of Woods Chapel Road on I-70 is an established automatic aid agreement with the City of Independence. This covers all calls on I-70 and is a result of access concerns to the East and West bound lanes for each jurisdiction.

A majority of this area is made up of single-family residences and a few multi-family low-density areas. There are also a few commercial occupants none of which are regulated as a specific hazard. However, several moderate size hotels are incorporated along Jefferson St., which runs along the south side of this box. These hotels are protected by automatic sprinkler and fire alarms and pose a moderate risk in this area. In addition, Burr Oak Apartments reside in this box. These are moderate density apartments and no automatic fire alarms or sprinklers. This poses some concern to loss of life due to the lack of automatic fire protection systems. The Blue River Community College maintains a campus along Jefferson St. as well but is currently reducing the number of students on site.

Meyer Laboratories is located on Jefferson St. and contains several chemicals, however, there are no extremely hazardous substances. There are several
manufacturing processes involved within this business. This facility is protected by automatic sprinkler and fire alarm systems.

Burr Oak Park also runs into a portion of this box. This is a fairly large park a walking path for citizens. The majority of this park and the park’s facilities are located in box 301.

**Emergency Response Traffic Concerns**
The main concern within this box is I-70, which runs along the south side. Woods Chapel Rd. routinely becomes congested during peak times of the day. This may pose as a factor in response.

**Identified Specific Hazards**
This area does include one of the District’s specific known hazards. Meyer Laboratories contains several chemicals, however, there are no extremely hazardous substances, as regulated by the Environmental Protection Agency. There are several manufacturing processes involved within this business.

**Risk Assessment Results**
Grids assessed or partially assessed within this box: 4
Grids 3B, 3C: Low vulnerability, very low risk
Grids 4B, 4C: Moderate vulnerability, low risk
**Grids within or partially within this box:** 4A, 4B, 4C, 4D, 4E, 5C

**Assigned Still Area:** Engine 2, Med 2

**Next Due Companies:** 2nd—Engine 3, 3rd—Ladder 1, 4th—Engine 5, 5th—Engine 4

**Overview**

Station No. 2 is located within this box addressed on Kingsridge Dr. Station No. 2 houses Engine Co. 2 and Med 2. I-70 marks the northern boundary of this box where there is an established automatic aid agreement with the City of Independence. This agreement covers the east and westbound lanes of I-70 west of Woods Chapel Rd. and east of Little Blue Pkwy.

A majority of this area is made up of single-family residences and a few multi-family low-density areas. There are several smaller commercial occupancies along Woods Chapel Rd. and South Outer Rd, including a few larger automobile dealerships. None of these occupants are specific hazards.

There are several churches in this box, which pose moderate vulnerability. Although these churches are mainly occupied on Sundays there are people in them throughout the week. With the exception of the Remnant Church of Jesus Christ of Later Day Saints all of these churches have automatic sprinkler protection.
Two hotels, Blue Springs Quality Inn and the Hampton Inn, are both located within this box on South Outer Rd. Both of these buildings are protected by automatic sprinkler and fire alarm systems. As with other moderate sized hotels there is concern with the potential large loss of life.

There are also three large schools in this area. Two of these schools are located adjacent to one another on Valley View Rd. while the third is located on Ashton Dr. Hall McCarter Middle School, which is located on Valley View, is an alternative school for junior and high school age students. The number of students located here is somewhat smaller than in a normal sized school. This building is protected by an automatic fire alarm. John Nowlin Elementary is located adjacent to Hall McCarter on Valley View and is also protected by an automatic fire alarm. These two facilities pose a moderate vulnerability because of the lack of a sprinkler system and the potential for a large loss of life. The third school is the Blue Springs High School. This is a large campus with several buildings and is protected by automatic fire alarm and sprinkler systems with the exception of the Blue Springs High School annex. Because of the number of students here there is a moderate vulnerability, however, the history of fire calls to this campus is very infrequent.

One of the District’s multi-family high-density apartments, Autumn Place, is located near Station No. 2 off of Kingsridge Dr. This facility is protected by an automatic fire alarm system. This facility is a source of frequent calls for failures in the automatic fire alarms system. With the lack of a sprinkler system and the number of residents, there is a concern for the potential large loss of life. Across the street from Autumn Place are the Kingsridge Apartments. These apartments are closer to ‘garden style’ apartments with a moderate density. This campus has also generated frequent calls because of failures with the automatic fire alarm system. As with Autumn Place, there is a concern with the potential for large loss of life.
Woods Chapel Lodge is located behind Kingsridge Apartments. This is a three-story facility primarily occupied by handicapped and senior citizens. The facility is protected by an automatic fire alarm and sprinkler system. There is a large concern for the potential large loss of life due to the incapacities of most of the residents.

**Emergency Response Traffic Concerns**
Both Woods Chapel Rd. and South Outer Rd. maintain moderate traffic flows and experience heavy back ups during peak times of the day. This may present a factor in response.

**Identified Specific Hazards**
There are several specific hazards located in box 202. The three schools, Autumn Place Apartments, Blue Springs Quality Inn, Hampton Inn, and Woods Chapel Lodge present the concern for the potential large loss of life. The railroad systems cuts through portions of 202 and presents the respective hazards with trains and the railroad system.

**Risk Assessment Results**
Grids assessed or partially assessed within this box: 6
- Grid 4A: Low vulnerability, very low risk
- Grids 4B, 4C, 4D, 4E: Moderate vulnerability, low risk
- Grid 5C: Moderate vulnerability, very low risk
Grids within or partially within this box: 4A, 5B, 5C

Assigned Still Area: Engine 2, Med 2

Next Due Companies: 2nd–Ladder 1, 3rd–Engine 3, 4th–Engine 5, 5th–Engine 4

Overview
Box 203 covers Lake Tapawingo, which an incorporated city within the District. This historic area was once a vacation lake area for many Kansas City residents. The residential area reflects typical lake houses set close together and built on several tiers.

In addition to the residential areas there are a few buildings owned by Lake Tapawingo for city government purposes. There is also a clubhouse towards the entrance on the east side. The lake residents own this clubhouse.

Emergency Response Traffic Concerns
There are two lake entrances, one along Woods Chapel Rd. and the other on 40 Hwy. Residential streets are very narrow and may pose concern for emergency response when vehicles have parked on the street potentially blocking access. There is one access across the lake over the dam. If this road is blocked for any reason response times may be increased.

Identified Specific Hazards
There are no facilities in the box that are specific hazards. However, the lake poses routine vulnerability of drowning and boat accidents. The water system throughout Lake Tapawingo is very limited and tanker shuttle systems may be required to have effective fire flow.
Risk Assessment Results

Grids assessed or partially assessed within this box: 3

Grid 4A: Low vulnerability, low risk
Grid 5B: Low vulnerability, low risk
Grid 5C: Moderate vulnerability, very low risk

Grid 5C is rated with moderate vulnerability because of areas outside box 203
CJCFPD Run Box – 301

**Grids within or partially within this box:** 3C, 3D, 3E, 4D, 4E

**Assigned Still Area:** Engine 3, Med 3

**Next Due Companies:** 2nd – Engine 2, 3rd – Ladder 1, 4th – Engine 5, 5th – Engine 4

**Overview**
Box 301 is bordered by Missouri 7 hwy to the east, Pink Hill Rd. to the North, and a small portion of Jefferson St. to the South. The western portion of box 301 cuts through a small area of residential to the south and then cuts through Burr Oak Park. The other half of Burr Oak Park is covered in box 201.

A majority of this box is comprised of single family residential and a few multi-family low-density dwellings. Along Missouri 7 hwy there are multiple commercial occupants including a moderate sized movie theater, a bowling alley, and a large grocery store. Many of the commercial occupants along Missouri 7 hwy are retail in nature and operate during normal business hours. In addition, there are several commercial occupants along Jefferson St.

James Lewis Elementary School is located on Park St. in box 301. As with all schools, this poses a potential for high loss of life. However, the building is protected by both a fire alarm and sprinkler system.

There is also one motel located in this box. The Super 8 Motel is three stories tall and is located on North Ridge Dr. in box 301. Because of the size of this motel there is potential for large loss of life. The building is protected by an automatic fire alarm and sprinkler system.
Emergency Response Traffic Concerns
Missouri 7 hwy is a major thoroughfare and can be rather congested during peak times. This may pose a concern for emergency response. Jefferson Rd., which borders the southern edge of box 301, is an alternate thoroughfare from I-70 and can assist in access to I-70 from the north. Pink Hill Rd. to the north of this box is a northern thoroughfare and can assist with access in to remote areas of Burr Oak Park.

Identified Specific Hazards
There are several hazards that pose concern for citizens and emergency response. Super 8 Motel is considered a specific hazard because of the potential large loss of life due to the amount of transient population residing there. James Lewis Elementary School is another specific hazards due to the potential for large loss of life. In addition, there are two assembly occupancies, the movie theater and the bowling alley, that are considered specific hazards due to the potential for large loss of life. Automatic sprinklers protect all of these occupancies.

Risk Assessment Results
Grids assessed or partially assessed within this box: 5
Grids: 3C, 3D, low vulnerability, very low risk
Grid: 3E, 4D, 4E: moderate vulnerability, low risk
Grids within or partially within this box: 3E, 3F, 3G, 4E, 4F, 4G

Assigned Still Area: Engine 3, Med 3

Next Due Companies: 2nd–Ladder 1, 3rd–Engine 2, 4th–Engine 5, 5th–Engine 4

Overview

Box 302 is one of the more dense areas of development within the District. Station No. 3 housing Engine Co. 3 and Med No. 3 and CJCFPD headquarters are located in this box. This box shares a portion of I-70, east and westbound lanes, with box 304 and box 305.

A majority of box 302 is made up of single-family residences and a few multi-family dwellings. There is a large amount of commercial occupants along Missouri 7 Highway and Jefferson St. These commercial occupants range from storefront retail to a bowling alley and a large movie theater.

There are also a few hotels and motels within this box. Automatic sprinklers and fire alarms protect the Super 8 motel, Motel 6 and the Country Hearth Inn/Suites. As with all hotels and motels there is concern for the potential large loss of life in a fire or disaster.

James Lewis Elementary and Brittany Hill Middle School are also in box 302. James Lewis Elementary is a large school and is protected by an automatic fire alarm and sprinkler system. Brittany Hill Middle School is also a large school and is protected by an automatic fire alarm and sprinkler system. The size of these
schools and the population within these schools represents the concern for a potential large loss of life in a fire or disaster.

There are two churches located in this box: Duncan Baptist and North Spring United Methodist Church. Duncan Baptist is protected by an automatic fire alarm and sprinkler system. North Spring United Methodist church is a large church and is only protected by a fire alarm system. North Spring United Methodist Church is located just west of CJCFPD station no. 3. Because of the assembly type occupancy there is always a concern for a potential large loss of life in a fire or disaster.

One of the District’s nursing homes, Blue Springs Care Center, is located in this box on Duncan Road. This is a typical nursing home with nursing staff available to the residents. Blue Springs Care Center is protected by an automatic fire alarm and sprinkler system. The majority of responses to this facility are EMS in nature. There is concern for a potential large loss of life in a fire or disaster because of the population associated with a nursing home.

**Emergency Response Traffic Concerns**

Missouri 7 Highway is one of the major thoroughfares within the District. This route routinely becomes congested during peak times and poses a response concern to emergency traffic. Jefferson and Duncan Streets are thoroughfares for east and west traffic and also experience congestion during peak times. I-70, which is the southern border of box 302, experiences a heavy volume of through traffic and becomes severely congested in the morning rush hour to downtown Kansas City, MO and poses a response concern for emergency personnel.

**Identified Specific Hazards**

Brittany Hill Middle School and James Lewis Elementary School are two identified specific hazards because of the large student population within. Both of these schools are protected by automatic fire and sprinkler systems. The
three major hotels/motels mentioned above are also specific hazards because of the large number of transient population residing there. Duncan Baptist and North Spring United Methodist churches are identified specific hazards because of their assembly occupancy and the lack of a sprinkler system in the North Spring United Methodist church. The last specific hazard in box 302 is the movie theater, which is a large assembly occupancy. The Dickinson Theater complex is protected by an automatic sprinkler system.

**Risk Assessment Results**

Grids assessed or partially assessed within the box: 6
Grid: 3E: moderate vulnerability, low risk
Grids: 3F, 3G: low vulnerability, very low risk
Grids: 4E, 4F, 4G: moderate vulnerability, low risk
CJCFPD Run Box – 303

Grids within or partially within this box: 2G, 2H, 3H, 4H

Assigned Still Area: Engine 3, Med 3

Next Due Companies: 2nd–Engine 4, 3rd–Ladder 1, 4th–Engine 2, 5th–Engine 5

Overview
A majority of this box is comprised of single-family dwellings. This area is experiencing significant growth of single-family dwellings. Argo Road is the boundary line to the north while Tyer and Dillingham Roads make up the eastern boundary. A portion of Porter Road is the western border, which then extends slightly to the west, north of Pink Hill Road and a small portion of I-70 makes up the southern border.

This box also contains the Kohl’s distribution plant, which is one of the larger employers of the District. This is a large complex, which is protected by an automatic fire alarm and sprinkler system. The Kohl’s plant can be accessed from Duncan Road to the north or Jefferson Street to the south.

Emergency Response Traffic Concerns
The small portion of I-70 remains the only response concern for thoroughfares inside box 303.

Identified Specific Hazards
The Kohl’s distribution plant is the only specific hazard in box 303. There is a concern for the potential large loss of life and property because of the amount of
employees at this plant. As mentioned above this facility is protected by an automatic fire alarm and sprinkler system.

**Risk Assessment Results**

Grids assessed or partially assessed within this box: 4
- Grids: 2G, 2H: low vulnerability, very low risk
- Grid: 3H: low vulnerability, low risk
- Grid 4 H: low vulnerability, very low risk
Grids within or partially within this box: 4E, 4F, 5F

Assigned Still Area: Engine 3, Med 3

Next Due Companies: 2nd–Ladder 1, 3rd–Engine 2, 4th–Engine 5, 5th–Engine 4

Overview

Box 304 is one of the smallest run boxes within the District; however, there are a considerable number of commercial occupants in this box. This box is bordered by I-70 to the north, Missouri 7 Highway to the west, Adams Dairy Parkway to the east, and R.D. Mize Road to the south. The south border, actually, runs on R.D. Mize Road from Missouri 7 Highway to Sunnyside School Road and then south on Sunnyside School Road to Walnut Street and then east to Adams Dairy Parkway. There is a small amount of single-family dwellings and a larger amount of multi-family dwelling including low and moderate densities.

One of the biggest identified specific hazards is St. Mary’s Medical Center, which is located inside box 304. The medical center is also one of the biggest employers within the District. There are a considerable number of patient beds and offices throughout the hospital. Currently, CJCFPD provides EMS transfers from this facility, which creates a large number of responses. With the size of the hospital and the population there is a concern for the potential of a large loss of life in a fire or disaster; however, this hospital is protected by an automatic fire alarm and sprinkler system.

St. Mary’s Manor is a typical nursing home with a nursing staff on-duty 24 hours a day. The facility is protected by an automatic fire alarm and sprinkler system.
As with other nursing homes there is a concern with the potential large loss of life in a fire or disaster because of the population residing here.

Wal-Mart and Home Depot are located next to each other on the northeast corner of box 304. Both of these facilities are protected by automatic fire alarms and sprinkler systems. These facilities are major employers within the District and create a considerable amount of traffic around the area. Because of the customers inside the buildings there is a concern of a potential large loss of life in a fire or disaster.

Another specific hazard in box 304 is Timothy Lutheran Church/School. This is a large church, which is also utilized as a school. This facility is protected by a fire alarm but no sprinkler system, which presents a possible loss of life hazard and major destruction.

There are also a couple of strip malls along Missouri 7 Highway, which may present a lot of destruction if involved in a fire or disaster. A majority of the other commercial occupants are retail in nature with typical storefront design. There is also a large automobile dealership located on the north side of Mock Ave.

**Emergency Response Traffic Concerns**

I-70 remains a major transportation route and is the northern border of box 304 and may pose emergency response concerns due to the heavy traffic load. Missouri 7 Highway, which is the eastern border of this box and is frequently congested and may pose problems for emergency response. Traffic congestion is also heavy around the intersection of Mock Ave. and Adams Dairy Parkway. This is partially due to Wal-Mart and Home Depot, which are located on the south side of Mock Ave. and west of Adams Dairy Parkway.
Identified Specific Hazards

St. Mary’s Medical Center is the largest specific hazard within box 304. The variety of patients in the hospital poses concern for a potential large loss of life in a fire or large disaster. The facility is protected by an automatic fire alarm and sprinkler system, which eases the concern somewhat. Home Depot and Wal-Mart are also identified as specific hazards because of the number of customers. As with all other schools, Timothy Lutheran Church is an identified specific hazard and presents an additional concern because of the lack of a sprinkler system within the facility. The lack of a sprinkler system may present a potential large loss of life in a fire or disaster.

Risk Assessment Results

Grids assessed or partially assessed within this box: 3
Grids: 4E, 4F: moderate vulnerability, low risk
Grid: 5F: low vulnerability, very low risk
**Overview**

Box 305 is an area of Blue Springs, MO that is being developed to include a large number of commercial occupants and become a business district. There are very few single-family homes in this area and no multi-family dwellings. Box 305 is bordered by Adams Dairy Parkway to the west and Coronado Drive to the north. The east boundary is the Blue Springs, MO city limit and the south boundary is the edge of the golf course.

Commercially, there is the Marriott hotel, which is protected by an automatic fire alarm and sprinkler system. This complex also contains a convention center and attracts large numbers of people for various conferences. Adjacent to this facility is the Adams Point Golf Course, which makes up a large portion of this box’s area. The other major commercial facility in this box is Haldex Brake Systems. Haldex Brake Systems is a moderate sized facility and employer within the District. The facility is protected by an automatic fire alarm and sprinkler system.

**Emergency Response Traffic Concerns**

Adams Dairy Parkway is a major thoroughfare in the District and is heavily traveled. Congestion is frequent on Adams Dairy Parkway especially during peak times. This congestion may pose a concern for emergency response. Coronado Drive is the other thoroughfare and the northern boundary. This route is not heavily traveled and does not pose any emergency response concerns.
Identified Specific Hazards

The Marriott Hotel and Haldex Brake Systems are the only two identified specific hazards within box 305. Both of these facilities are protected by automatic fire alarms and sprinkler systems. The Marriott Hotel poses the greatest risk in this area for a potential large loss of life due to the number of transient population residing here. Haldex Brake Systems also poses a risk for a potential large loss of life because of the number of employees working in the facility.

Risk Assessment Results

Grids assessed or partially assessed within this box: 3
Grids: 4F, 4G: moderate vulnerability, low risk
Grid: 5F: low vulnerability, very low risk
CJCFPD Run Box – 306

Grids within or partially within this box: 1E, 1F, 1G, 1H, 2E, 2F

Assigned Still Area: Engine 3, Med 3

Next Due Companies: 2nd–Engine 2, 3rd–Engine 4, 4th–Engine 5, 5th–Ladder 1

Overview
Box 306 covers the northern most portion of the District. Truman Road is the northern boundary between CJCFPD and the Independence Fire Department. Missouri 7 Highway is the western boundary of this box with the West side of Missouri 7 Highway covered by Independence Fire Department. The southern boundary of this box is Pink Hill Road. This box is mainly comprised of single-family dwellings with a couple of commercial occupants.

Emergency Response Traffic Concerns
Missouri 7 Highway maintains normal traffic and does not pose a problem for emergency responses. Truman and Pink Hill Roads do not pose traffic congestion problems for emergency response.

Identified Specific Hazards
There are no identified specific hazards in box 306; however, the Lake City Ammunitions Plant is just north of the District’s boundary, Truman Road. This is a federal installation manufacturing ammunitions for the military. Planning and training has been conducted with all agencies surrounding this plant.
Risk Assessment Results

Grids assessed or partially assessed within this box: 6
Grids: 1E, 1F, 1G, 1H: Low vulnerability, very low risk
Grids: 2E, 2F: low vulnerability, very low risk
Grids within or partially within this box: 2I, 2J, 3J, 4J

Assigned Still Area: Engine 4

Next Due Companies: 2nd–Engine 3, 3rd–Engine 5, 4th–Ladder 1, 5th–Engine 2

Overview
Box 401 is mainly comprised of single-family dwellings. There is one church, Community of Christ, which is not protected by a fire alarm or sprinkler system. The Community of Christ is a small church with a relatively small congregation. The rest of this area is undeveloped with some of the land being farmed. Truman Road borders this box to the north and the eastern border begins at Dillingham Road and continues south jaggedly to Pink Hill Road and then south again at Sweeney Road to I-70. The western border is the line between the Fort Osage Fire Protection District and CJCFPD.

There is an airport located within the city limits of Grain Valley, MO. This is a private airport with very limited traffic and the control tower is not staffed 24 hours a day, seven days a week. Over the years there have been a few accidents involving planes at the airport. Initial response to airplane incidents is the responsibility of the airport; however, CJCFPD will also respond to assist with incidents.
Emergency Response Traffic Concerns
Pink Hill Road and BB highway are the two major thoroughfares in box 401. Neither of these routes are heavily congested; however, BB highway has a history of serious motor vehicles accidents occurring on it.

Identified Specific Hazards
The Community of Christ Church is the only specific hazard in box 401. Without the protection of a fire alarm or sprinkler system there is a potential for a large loss of life.

Risk Assessment Results
Grids assessed or partially assessed within this box: 5
Grid: 2I: low vulnerability, very low risk
Grid: 2J: moderate vulnerability, very low risk
Grid: 3J: moderate vulnerability, very low risk
Grid 4J: low vulnerability, very low risk
CJCFPD Run Box – 402

Grids within or partially within this box: 5I, 5G, 5H, 5J, 6H, 6I, 6J, 7H, 7I, 7J, 8H, 8I, 8J

Assigned Still Area: Engine 4

Next Due Companies: 2nd–Engine 5, 3rd–Ladder 1, 4th–Engine 3, 5th–Engine 2

Overview

Station No. 4 is located within this box and is addressed on Eagles Parkway Highway. Station No. 4 houses Engine Co. 4, Tanker 4, and Brush 4. Box 402 is one of the largest boxes in the District. This box encompasses most of the City of Grain Valley, MO as well as a large portion of unincorporated Jackson County, MO. The northern border of box 402 is the railroad tracks that run east and west across the District. The southern and eastern borders are the District boundary lines. The Sni Valley Fire Protection District covers the area to the east of the District boundary line and there are established mutual aid agreements surrounding the adjoining borders. It should be noted that there are still several areas within this box that do not have hydrants. Water supply is accomplished through mutual aid agreements, with the surrounding agencies, to bring in as sufficient supply of water. This box also includes the older part of Grain Valley, MO including the downtown Main St. area. There are a number of older buildings within the downtown area.

Single-family dwellings consume a majority of this box; however, there are a number of multi-family low-density dwellings in this area as well. The City of
Grain Valley is experiencing significant growth and has caused CJCFPD to examine a possible future station in the northern portion of Grain Valley.

There are a number of commercial occupants throughout the City of Grain Valley, MO with the majority of them being storefront retail. There is a moderate sized strip mall including several restaurants and a grocery store located off of AA highway. Some of the facilities in this strip are protected by automatic fire alarms and sprinkler systems.

Three of Grain Valley's schools are also located in box 402. These are the Grain Valley High School, Sni-A-Bar Elementary, and the Grain Valley Middle School. Sni-A-Bar Elementary School is only protected by an automatic fire alarm, which presents a concern for a possible large loss of life due to a fire or disaster. Grain Valley High and Middle Schools both are protected by an automatic fire alarm and sprinkler system. Because of the number of students there is a concern for a potential large loss of life in a fire or disaster.

Country Oak Village is a newly built nursing home located on Cross Creek just off of AA highway. This is a nursing facility protected by an automatic fire alarm and sprinkler system.

**Emergency Response Traffic Concerns**

U.S. 40 and AA highways are major east and west thoroughfares and can experience congestion during peak times. Main St., which runs north and south is the main thoroughfare for Grain Valley, MO citizens. This also becomes congested and poses concerns for emergency response. Some of the rural areas have very narrow roads and access to some residential dwellings is difficult.
**Identified Specific Hazards**

The three identified schools are all specific hazards due to the number of people at these locations. These facilities pose a concern for a potential large loss of life in a fire or disaster. The nursing home is an additional specific hazard because of the patients with ambulatory difficulties.

**Risk Assessment Results**

Grids assessed or partially assessed within this box: 13

Grid: 5I: moderate vulnerability, low risk
Grids: 5G, 5H, 5J: low vulnerability, low risk
Grids: 6H, 6I, 6J: low vulnerability, low risk
Grids: 7H, 7I, 7J: low vulnerability, low risk
Grids: 8H, 8I, 8J: low vulnerability, low risk
CJCFPD Box Profile – 501

**Grids within or partially within this box:** 6D, 6E, 7D, 7E

**Assigned Still Area:** Engine 5

**Next Due Companies:** 2nd–Ladder 1, 3rd–Engine 2, 4th–Engine 3, 5th–Engine 4

**Overview**
A majority of box 501 is comprised of single-family dwellings with a limited number of multi-family low-density dwellings. The southern border of this box is part of the District’s southern boundary, which is shared with Prairie Township Fire Protection District. There are established mutual aid agreements with Prairie Township Fire Protection District. There are a small number of commercial occupants in box 501, which are storefront retail.

Moreland Ridge Middle School is located in box 501 and is considered an identified specific hazard because of the number of students at this facility. This facility is protected by an automatic fire alarm and sprinkler system. There is a concern for a potential large loss of life in a fire or disaster because of the number of people here.

**Emergency Response Traffic Concerns**
Missouri 7 Highway, which is the eastern border of box 501, is a major thoroughfare and experiences moderate congestion during peak times. This may pose an emergency response concern.
**Identified Specific Hazards**

Moreland Ridge Middle School is the only specific hazard located within box 501. The building is protected by an automatic fire alarm and sprinkler system but still poses a concern for a potential large loss of life in a fire or disaster because of the large number of people at the facility.

**Risk Assessment Results**

Grids assessed or partially assessed within this box: 4

Grids: 6D, 6E: moderate vulnerability, very low risk

Grid: 7D: low vulnerability, very low risk

Grid: 7E: moderate vulnerability, very low risk
Grids within or partially within this box: 5F, 6E, 6F, 7E, 7F, 8F

Assigned Still Area: Engine 5

Next Due Companies: 2nd–Ladder 1, 3rd–Engine 3, 4th–Engine 4, 5th–Engine 2

Overview
Station No. 5 is located within this box addressed on Adams Dairy Parkway. Station No. 5 houses Engine Co. 5, Tanker 5, and Brush 5. The majority of this box is made up of single-family dwellings. There are no multi-family dwellings located within box 502. This area is beginning to experience substantial growth of single-family dwellings, which may increase the call load for Engine Co. 5.

There are three schools located in box 502. These schools include Blue Springs South High School, Cordill Mason Elementary School, and William Bryant Elementary School. Cordill Mason Elementary School is only protected by an automatic fire alarm. Blue Springs South High and William Bryant Elementary Schools are protected by automatic fire alarms and sprinkler systems. As with all schools there is the concern for a potential large loss of life in a fire or disaster.

There are a few churches also located in box 502. These include 1st Bible Baptist Church and Heartland Church, which are protected by automatic fire alarms and sprinkler systems. These assemblies provide the concern for a potential large loss of life in a fire or disaster.
Emergency Response Traffic Concerns
Missouri 7 Highway runs along a portion of the western border of this box and is a major thoroughfare in Blue Springs, MO. This area of Missouri 7 Highway does not experience traffic congestion like the middle areas of Blue Springs, MO. Adams Dairy Parkway is another major route in box 502. This road is being lengthened to the south and has become increasingly busier. This road provides easy access for Engine Co. 5 to the north and south.

Identified Specific Hazards
The three schools and two churches mentioned above are the known specific hazards located in box 502. Because Cordill Mason Elementary School is only protected by a fire alarm there is a bigger concern for a large loss of life and/or destruction in a fire or disaster.

Risk Assessment Results
Grids assessed or partially assessed within this box: 6
Grid: 5F: low vulnerability, very low risk
Grids: 6E, 6F: moderate vulnerability, very low risk
Grid: 7E: moderate vulnerability, very low risk
Grid: 7F: low vulnerability, very low risk
Grid: 8F: low vulnerability, very low risk
**CJCFPD Run Box – 503**

**Grids within or partially within this box:** 6F, 6G, 7G, 8G

**Assigned Still Area:** Engine 5

**Next Due Companies:** 2nd—Engine 4, 3rd—Ladder 1, 4th—Engine 3, 5th—Engine 2

**Overview**

Box 503 is a fairly rural area within the District. There are a number of single-family dwellings scattered throughout this box. The remaining areas are open land. There are no commercial occupants within this area.

**Emergency Response Traffic Concerns**

There are no major routes in box 503 and there are no concerns with emergency response.

**Identified Specific Hazards**

There are no identified specific hazards; however, there are areas in 503 that either have no hydrants or have a poor water supply. The areas where there is a lack of water supply are supported through the use of a tanker system.

**Risk Assessment Results**

Grids assessed or partially assessed within this box: 4

Grid: 6F: moderate vulnerability, very low risk

Grid: 6G: low vulnerability, very low risk

Grid: 7G: low vulnerability, very low risk

Grid: 8G: low vulnerability, very low risk
Non-Fire Risk Assessment
The Central Jackson County Emergency Management Agency (CJCEMA) and the Louis Berger Group, Inc conducted the non-fire risk assessment in 2005 in conjunction with the development of the Emergency Operations Plan, which was reapproved in 2007 by the Missouri State Emergency Management Agency. The entire Emergency Operations Plan may be found in the appendix (Appendix 2.1).

NATURAL HAZARDS

Tornado
Since Missouri lies in the heart of the nation’s “tornado alley” its residents are particularly vulnerable to tornadoes. Seventy percent (70%) of Missouri’s tornadoes occur during the months of March, April, May and June, but a tornado can occur at any time of the year. Tornadoes can have a wide-variance of damage depending on several variables.

Winter Storms
Although excessive snowfalls with prolonged severe cold or storms producing blizzard conditions are rare in Missouri, they do occur. A large winter storm accompanied by severe cold could cause numerous secondary hazards such as power failures, fuel shortages, and transportation incidents. Ice storms are more predominate in this area and have been known to strike in early fall while leaves are still on trees, which causes even more devastation. In the winter of 2002 the area experienced a severe ice storm, which lefts hundreds without power for days. This storm created over 300 calls for the District in three days.

Floods
Central Jackson County participates in the National Flood Insurance Program. Flood Maps can be found on file with the incorporated Public Works offices. Overwhelming floods are not common in the District’s coverage area; however, flash flooding occurs throughout the summer months, which may cause high water on several streets.
Earthquake
Earthquakes in the Midwest occur less frequently than on the west coast but the threat of an earthquake affecting Missouri is high. The New Madrid fault line near St. Louis, MO poses a slight risk for the District’s coverage area. The CJCEMA plan discusses the risk for a 7.6 scale earthquake at the New Madrid fault line and the consequences, which would include slight building damage, difficulty walking, and objects falling off of walls. For more information, see Attachment A of the Basic Plan in CJCEMA’s Emergency Operations Plan.

Other
Additional natural hazards that could affect Central Jackson County include: wildfires, drought, sleet and hail, high winds, excessive rain and lightning. These occur periodically but are very rarely disaster level.

TECHNOLOGICAL HAZARDS

Hazardous Materials Incident
Central Jackson County is prone to hazardous materials incidents from both fixed containment sites and transportation accidents. There are a number of fixed facilities that store or use hazardous materials, which are inspected annually. None of the facilities in the District house Extremely Hazardous Substances as listed by the EPA. The Tri-District Haz-Mat Response team will be conducting haz-mat response pre-plans in 2008 of all buildings within the District that house hazardous materials. Several major transportation routes cross through the county including I-70 and Missouri 7 highway. As with any major highway or interstate there is a risk of a transportation hazardous materials incident. First response to these scenes is handled by on-duty suppression crews who are at least trained to Hazardous Materials Operations level. On scene commanders will decide if the Tri-District Haz-Mat Response team needs to be activated.
Transportation Accident
Mass transportation is defined as the means, or system, that transfers larger groups of individuals from one place to another. The important key is that we are discussing transportation accidents involving the public not materials (see hazardous materials incidents). Thus, mass transportation accidents include public airlines, railroad passenger cars, metro rail travel, tour buses, city bus lines, school buses, and other means of public transportation. Passenger rail cars do not cross through the District, which greatly reduces a transportation accident by rail. With I-70 and Missouri 7 highway there is a considerable amount of traffic, which may involve mass transportation and a concern for an accident.

Dam Failure
Central Jackson County is vulnerable to the effects of a levee or dam failure. Major dams have been identified in the county. Dams located outside of Central Jackson County can also have an impact.

Urban and Structural Fire
Fire is the primary cause of accidental death in the United States, surpassing floods, automobile accidents and other disasters. Twenty (20) times as many deaths are caused by fire than by floods, hurricanes, tornadoes and earthquakes combined. Fires may be accidental or intentional and have the potential to cause major conflagrations, leading to secondary hazards, such as a hazardous materials incident.

Power Failure
The loss or interruption of power can cause significant problems for the businesses and residents of Central Jackson County. Power failure can be a result from another disaster (i.e., tornado, winter storms).
Terrorism

Jackson County, like any other area in the country, is vulnerable to a terrorist attack. An attack of this nature can come in many different forms – bombings, tampering with the local public works/utilities infrastructure, etc. The Tri-District Haz-Mat Response team trains regularly with topics including terrorism. The team also trains every other year with all of the Haz-Mat Response teams in the Kansas City metro area and Missouri’s 7th Civil Support Unit based in Fort Leonard Wood, MO. These training events often include terrorist scenarios.

Section III – Standards, Goals, and Objectives

In order to publish an effective Standard of Response Coverage, standards, goals, and objectives must be established. These standards, goals, and objectives help assess the District’s ability to respond to emergencies. Much time and consideration goes into setting standards, goals, and objectives. Ultimately, the goal is to arrive quickly enough to affect positive change upon the emergency.

The District utilizes a strategic management planning process for developing goals and objectives. The strategic plan is a working document that now covers a two year span. The District will implement a five year strategic plan upon the completion of the current 2007-2008 strategic plan. Goals and objectives are developed with the District’s mission statement in mind for operations, training internal and external, administration, prevention, special teams, and EMS (Appendix 3.1).

Standards and objectives are needed when examining response times. As stated earlier in this report, the goal is to respond quickly and safely enough to reduce or correct the hazards. In the emergency medical services field it is scientifically known that brain death begins to occur in 4-5 minutes when a
patient is not breathing and has no pulse. Emergency medical units are tasked with the objective to arrive on scene soon enough to stop brain death before death has occurred. In the fire service it is known that flashover may occur within 8-10 minutes in an ideal environment. That drives the objective for suppression units to arrive on scene before flashover because once flashover has occurred the fire has gained substantial momentum. The following definitions are the standards of time that the District has used to measure the effectiveness of the responding companies:

### Emergency Response Times

**Definitions:**

- **Perceived response time:**
  - Known as the “customer interval,” from the time an incident is reported, is generally longer, because it also includes the time needed for call processing.

- **Call processing and dispatch time:**
  - From the time a 911 call is answered until the nature of the emergency is determined and units are alerted.

- **Turnout time:**
  - The time from dispatched until the apparatus is placed into motion.

- **Response time:**
  - Is the time interval between the moment a resource is en route and the time it arrives at the incident (*including the full effective response force*).

- **Total time:**
  - Call processing, dispatch, turnout and response time.

The City of Blue Springs Police Department Dispatch Center was responsible for answering and screening calls for service from the public, establishing the correct initial response and initiating the response notification. The Blue Springs Police Department dispatched CJCFPD until July of 2006. CJCFPD now dispatches itself with Blue Springs Dispatch being the primary PSAP. The dispatch center uses dispatch guidelines based on the call type and location. The goal for dispatchers is to receive an emergency call and dispatch the appropriate units in 60 seconds or less, 90% of the time. In addition, the Blue Springs Police Department has agreed in an MOU to send all fire and EMS calls to CJCFPD
dispatch within 15 seconds, 90% of the time; however, we have not received any status on their progress. Dispatch times are another critical element to the total call time.

The District has realized in order to improve response times benchmarks need to be instituted to measure against and strive for. These are the benchmarks established by the District’s administration: The following are the **response goals** for CJCFPD.

- **Dispatch:** Calls shall be dispatched 80% of the time in 60 seconds from the time the call was received. The police department of Blue Springs, MO shall roll over all calls to CJCFPD Communications 90% of the time within 15 seconds. (At this time the Blue Springs Police Department has not given the District any report on the accomplishment of this time frame.)

- **Turnout:** For 90% of fire incidents crews shall have a turnout time of two-minutes and 30 seconds or less.

- **Structure Fires:** For 90% of fire incidents the first-due unit shall arrive within a 9 minute and 30 second total reflex time and/or the initial full alarm assignment within an 15-minute total reflex time.

- **Emergent EMS Incidents:** For 90% of emergent EMS incidents the first-due unit shall arrive within a 9 minute 30 second total reflex time.

- **All Emergency Incidents:** For 90% of all emergency incidents within the District the first-due unit shall arrive within a 9 minute 30 second total reflex time

- **Hazardous Materials Incidents:** For 90% of hazardous materials incidents where the Tri-District HMRT is requested within the District the first-due suppression/EMS unit shall arrive within a 6-minute response time. Incidents requiring the Tri-District HMRT: the Tri-District HMRT team shall arrive within 30 minutes from team notification 90% of the time.

- **Heavy Rescue Incidents:** For 90% of heavy rescue incidents where the STAR team has been requested within the District the first-due suppression/EMS unit shall arrive within a 6-minute response time. When the heavy rescue team is requested the heavy rescue team shall be en route within 30 minutes.
Section IV – Critical Task Capability

Section four will discuss the capability of the District when handling critical tasks. Critical tasks might include both residential and commercial structure fires, emergency medical incidents, special rescue and hazardous materials incidents. Capability is defined here as the amount of personnel necessary to mitigate a given incident (i.e. residential structure fire). The amount of staffing needed for such incidents aids the District in determining staffing levels at each of the stations.

Table 4.1 – CJCFPD Station Minimum Staffing Levels

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<th>Ladder</th>
<th>Med Unit</th>
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Automatic Aid and Mutual Aid
Within the existing interagency system, there are two basic types of aid agreements. These aid agreements are used to augment existing resources through the provision of automatic aid and mutual aid.

Automatic Aid
Automatic aid is a formal agreement between two agencies where one or both parties are dispatched and respond automatically into a portion of the other party’s jurisdiction. Under an automatic aid agreement no request is required for assistance within the boundaries of the agreed-upon area. Currently, CJCFPD utilizes the Independence Fire Department with automatic aid to I-70 east and westbound between Little Blue Parkway and Woods Chapel Road and a one-mile buffer with the Fort Osage and Sni Valley Fire Protection Districts to assist with protecting the eastern portion of the District (Appendix 4.1)
**Mutual Aid**
Mutual aid is a formal agreement between two or more agencies to respond into each other’s jurisdiction, upon request, when the requesting agency’s resources have been depleted or are projected to be depleted. Under most mutual aid agreements, the requesting party receives resources only if the providing agency can meet the request without depleting its own resources below an acceptable level. CJCFPD utilizes mutual aid water tankers with Prairie Township, Sni Valley, Fort Osage, Lake Lotawana, and Lone Jack. CJCFPD mutual aid responses also fall under the Statewide Mutual Aid system, which allows fire departments to request resources from surrounding agencies. The Statewide Mutual Aid system is utilized by contacting a regional coordinator, which will find the appropriate mutual aid.

**On-Scene Operations**
The variables of fire growth dynamics, along with property and life risks, combine to determine the fire ground tasks that must be accomplished, and to a certain extent the order in which they must be accomplished, to preserve life and mitigate loss. These tasks are interrelated but can be separated into two basic types: fire control and life safety.

Fire control tasks are those related to applying a fire suppression product, generally water, on the fire and removing the products of combustion from an enclosed environment. Life safety tasks are those related to finding trapped, disoriented or incapacitated victims and safely removing them from the structure or shielding them from the hazard.

Fire control tasks are generally accomplished by using one of two methods:
- Hand-held hose lines are mobile and produce water flows of up to 250 gallons per minute (gpm). These are generally used during interior or offensive firefighting activities.
- Master streams are generally used from stationary positions, and produce a flow of up to 1,000 gpm. They are used primarily during exterior or defensive firefighting activities.
The decision to use either hand lines or master streams depends upon the stage of the fire, the threat to life safety and adjoining property, and the specific strategy and tactics employed by the fire incident commander when sufficient firefighting resources have reached the scene. If the fire is in a pre-flashover stage (a phenomenon causing the spontaneous ignition of all combustibles in a room), firefighters can make an offensive fire attack into a building by using hand lines to attack the fire and shield trapped victims until they can be safely removed from the structure.

If a fire is in its post-flashover stage and has extended beyond the capacity or mobility of handheld hoses, or if the structural damage and the threat of collapse present a significant risk to the safety of firefighters on scene, the structure will be declared lost. In this situation, master streams are positioned to extinguish the fire and keep it from advancing to surrounding exposures. First-arriving firefighters may use a transitional “defensive to offensive” strategy (discussed below) to limit or remove an environment suspected of presenting an immediate danger to life or health (IDLH) of trapped victims while awaiting the arrival of additional resources. Life safety tasks assigned are based upon the number of occupants, their location, their status (e.g., awake, unconscious), and their ability to take effective self-preserving action. For example, ambulatory adults need less assistance than non-ambulatory adults or children. The very young and old generally require more assistance which requires greater resource utilization. The key to any fire department’s success at a fire includes a rapid response and efficient fire scene deployment, as well as adequate staffing and coordinated teamwork. These key elements are relevant regardless of whether the fire ground tasks are all fire-flow-related or a combination of fire flow and life safety.

Because aggressive offensive attacks have a greater potential for saving lives and limiting property damage, CJCFPD utilizes this type of attack whenever possible. The first objective is to put a hose line between any fire victims and the fire and to rescue those victims by removing them from proximity to the hazard. The second objective is to contain the fire to the room of origin, floor of origin, or
building of origin, in that priority order, and to mitigate the IDLH atmosphere. Before on-scene procedures can be established, the initial Incident Commander must select an appropriate initial strategy – Offensive, Defensive, or Transitional.

- **Offensive Strategy:**
  - This strategy involves an aggressive interior fire attack operation. The top priority with this strategy is to rescue trapped victims. Because the department attempts to limit the potential for fire spread beyond the room of origin and to limit fire-related deaths and injuries, the aggressive offensive attack is utilized wherever possible. The Incident Commander must take into account the safety of personnel, the availability of on-scene resources, and the size and scope of the emergency situation. The objective of an offensive attack is to stop the fire and confine it to the area of origin as quickly as possible. The offensive attack may also apply to wildland fire where firefighting crews directly attack the head, or front of an advancing fire. Although this can be an effective tactic, this mode of attack also poses an increased element of danger that warrants a higher degree of vigilance by the incident commander and all crewmembers.

- **Transitional Strategy:**
  - A transitional strategy consists of an initial exterior attack positioned to quickly transition (re deploy) into a coordinated interior attack. This transition can be either a defensive exterior to offensive interior attack, or an offensive exterior to an offensive interior attack. In either case, the objective is to knock down as much fire as possible from the exterior and then move to the interior to effect total extinguishment. The transitional attack is intended to slow the spread of fire until entry can be made to offensively engage the fire. The transitional attack is an effective tactic to employ when the OSHA Two-In/Two-Out rule cannot be met initially. Two-In/Two-Out refers to the OSHA requirement that two firefighters be on scene, equipped and in position for immediate entry, before at least two additional firefighters are allowed to enter into an IDLH environment. The objective of a transitional attack is to buy time for potential victims, and to provide a safer environment for an interior offensive attack.

- **Defensive Strategy:**
  - This strategy generally consists of an exterior attack designed to confine a fire to the structure of origin. No attempts are made to rescue civilian fire victims from the interior of a structure because, by virtue of the fire’s extent, victims not already evacuated are presumed to be beyond rescue. A “fully involved” structure is one
that is at high risk for collapse, and even modern firefighting protective equipment is not sufficient to allow rescuers to safely enter such a super-heated environment. In the case of a large structure, a defensive attack can also be an interior attack that saves a substantial portion of the structure from the fire by taking advantage of the building’s design. The objective of a defensive attack is to protect an uninvolved area or building, or other exposures. A defensive attack may also apply to wild-land fires when crews are deployed well ahead of a fire and attempt to change the fire’s course, remove unburned fuels from the fire’s path, or decide which neighborhoods can be saved and maintain safe escape routes for the use of fleeing residents.

**Critical Tasks (Firefighting)**

Critical tasks are tasks that must be conducted in a timely manner by firefighters at structure fires in order to control the fire prior to flashover or to extinguish the fire in a timely manner. A fire department is responsible for assuring that responding companies are capable of performing all of the described tasks in a prompt and proficient manner. The District is beginning critical task time analysis in 2008, which will further aid in planning efforts. Critical tasks are described below. The allocations assume that emergency crews are committed to those assigned tasks (worst-case scenario), and would not be available for re-assignment until after the balance of the alarm, or response package, arrives on scene.

**Initial Deployment**

The initial fire ground actions begin with the arrival of the first company and continue, sequentially or in parallel, as tasks are completed and additional resources arrive. Initial deployment includes the following:

---

### Table 4.2 – Critical Tasks First Alarm (Structural Fires)

<table>
<thead>
<tr>
<th>Critical Tasking</th>
<th>Commercial</th>
<th>Residential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attack line</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Search and Rescue</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Ventilation</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Back-up line</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>------------</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>RIT</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Rehab</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Pump Ops</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Command</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>15</td>
<td>12</td>
</tr>
</tbody>
</table>

**Initial Support**
Initial support functions occur slightly after the initial attack functions. Typically the first arriving ladder company and additional arriving engine companies or dual-role ambulance units perform these tasks. For areas lacking hydrants the CJCFPD response matrix located in the SOGs (Appendix 4.2) provides for tanker response including CJCFPD’s two tanker and mutual aid tanker support. Tankers are only staffed when needed and with one firefighter.

**Secondary Support**
It should be noted that secondary support functions are not all conducted concurrently, and in some cases the same personnel, reducing the overall number of required personnel, can accomplish more than one task. Examples of this include the same truck company of three personnel performing forcible entry, then ventilation, salvage, and overhaul. On the other hand, there may be instances where a second crew needs to relieve the first fire attack crew prior to the task being completed.

Secondary support functions include:
- Salvage (functions which prevent further property damage from occurring)
- Overhaul (functions which ensure that the fire is completely extinguished)
- Firefighter rehabilitation
- Breathing air supply, equipment maintenance, and on-scene lighting support activities

Secondary support functions may be performed by:
- Fire suppression companies reassigned after initial deployment task completion
- Dual-Role Medic Unit personnel
- Additional fire suppression companies called to the scene specifically for this purpose
Logistics personnel who have been called to the scene to provide air re-supply, lighting and rehab

Numerous firefighters may be needed depending on the size and degree of a fire and additional alarms may be needed to accomplish the critical tasks necessary to control structure fires, according to type, in a safe, efficient, and effective manner, using the CJCFPD current staffing configuration and alarm matrix. The exact number needed will vary from incident to incident. The fire scene is unpredictable in many ways. While it is possible to anticipate what critical tasks must be accomplished in order to extinguish the fire, it is not always possible to predict how many firefighters it will take to accomplish those tasks. The number of personnel and the amount of equipment necessary to accomplish the critical tasks listed will vary due to the following factors:

- Response time
- Building construction
- Number of floors the fire is located above ground level
- Number of occupants
- Exposures
- Physical and emotional condition of occupants
- Extent of fire upon arrival (flashover)
- Built-in fire protection
- Area of fire involvement
- Firefighter or civilian injuries
- Apparatus or equipment failure

CJCFPD has used its experience, knowledge, and historical information to determine what constitutes an effective response force. These staffing projections are accurate for the majority of the working fires within CJCFPD’s response area. The need for more personnel may arise on any fire scene at any time. Fire conditions dictate the response needed for any given fire, even if that response exceeds the requirements listed in this document. The District relies on the experience and professional judgment of its company and chief officers to request additional resources early in an incident whenever their expertise suggests that those resources might be required. These resources can be readily obtained, in order, through on-duty staffing, automatic and mutual aid, or the callback of off-duty CJCFPD personnel. The District relies more on
automatic and mutual aid; however, once a unit is staffed by call-back personnel the shift commander will then determine whether to release the mutual aid unit(s) depending on coverage and call load.

**Critical Tasks (Emergency Medical Services)**

CJCFPD provides both EMS Basic Life Support (BLS) first response and Advanced Life Support (ALS) ambulance transport services to its District and the remaining portion of the City of Blue Springs. Because the majority of the District’s call load involves emergency medical service delivery, every CJCFPD fire company is equipped with Advanced Life Support equipment. However, due to staffing limitations fire apparatus may not be staffed with a paramedic. In addition, all CJCFPD Med units are ALS transport equipped and staffed with a minimum of one paramedic and one emergency medical technician (EMT).

CJCFPD not only responds to EMS calls but non-emergency responses and inter-facility medical transfers originating within the District. These non-emergency medical transports make up about 1/6th of CJCFPD’s EMS calls. These non-emergency calls include all types of medically necessary transfers.

Emergency medical calls receive one ambulance and one engine or ladder; however, situations may arise when an ambulance may respond to an emergency medical call by itself. Critical tasks for EMS incidents vary widely from call to call. The paramedic on the ambulance is in charge of the EMS scene and the remaining crewmembers provide support functions such as patient monitoring, vital signs, and packaging.

**EMS Critical Tasking Table 4.3**

<table>
<thead>
<tr>
<th>Call Type</th>
<th>Tasks</th>
<th>Personnel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Emergent: Citizen Assist</td>
<td>Patient Care</td>
<td>3 (Engine/Ladder Company)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 Total</td>
</tr>
<tr>
<td>Scenario</td>
<td>Action</td>
<td>Resources</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>-------------------------------</td>
<td>-----------</td>
</tr>
<tr>
<td><strong>Non Emergent: EMS Transfer</strong></td>
<td>Patient care, transport</td>
<td>2 (Ambulance)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 Total</td>
</tr>
<tr>
<td><strong>Emergent: Medical, Trauma (non MVA, or need of air ambulance)</strong></td>
<td>Patient care, transport</td>
<td>2 (Ambulance)</td>
</tr>
<tr>
<td></td>
<td>Patient Care Assist</td>
<td>3 (Engine/Ladder)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 Total</td>
</tr>
<tr>
<td><strong>Emergent 1st Alarm: Medical, Trauma (including MVA and or need for air ambulance)</strong></td>
<td>Patient Care, transport</td>
<td>2 (Ambulance)</td>
</tr>
<tr>
<td></td>
<td>Patient care, hazard mitigation</td>
<td>3 (Engine/ladder)</td>
</tr>
<tr>
<td></td>
<td>Air ambulance landing zone set up</td>
<td>3 (Engine Ladder)</td>
</tr>
<tr>
<td></td>
<td>Command</td>
<td>1 (Shift Commander)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9 Total</td>
</tr>
<tr>
<td><strong>Emergent: MCI 1st Alarm (includes one mutual aid ambulance)</strong></td>
<td>Triage</td>
<td>2 (1st ambulance)</td>
</tr>
<tr>
<td></td>
<td>Patient care, transport</td>
<td>6 (ambulances)</td>
</tr>
<tr>
<td></td>
<td>Patient care, hazard mitigation, air ambulance landing</td>
<td>9 (engines/ladder)</td>
</tr>
</tbody>
</table>
Critical Tasks (Special Operations)
The CJCFPD currently maintains two separate Special Operations:

**HAZ MAT TEAM** – CJCFPD is a member of the Tri-District HazMat Team, along with Fort Osage FPD and Sni Valley FPD. All three of the Fire Districts supply manpower and financial support. The Tri-District Hazardous Materials Response Team is a federally recognized enhanced Weapons of Mass Destruction Hazardous Materials Response Team. CJCFPD makes up the majority of the HazMat Team. CJCFPD also maintains and stores the equipment. CJCFPD is the largest district, in manpower and equipment, which allows them to use on-duty crews to man the HazMat vehicles as needed. CJCFPD has 14 personnel assigned to the HazMat Team at this time distributed through five stations and the three shifts; however, the HazMat truck is only staffed when the team is activated. Personnel are state-certified to the HazMat Tech Level or higher, which requires additional special training. Currently, the Hazmat team relies on volunteer staffing from members of the three districts. On-duty members report to HazMat 1, which is housed at st.3 when an incident occurs and waits for members who are off duty to respond in. When the team is unable to respond due to staffing limitations additional area regional hazardous materials response teams will be utilized using existing mutual aid agreements. The Tri-District HazMat team also houses a regional decon trailer, which is also available to the region. In addition to the decon trailer, the HazMat team houses a Metropolitan Medical Response System (MMRS) trailer, which is equipped with extra resources that may be needed in a HazMat incident and is available to the region. The District and the Tri-District Hazardous Materials Response Team also have access to the Western Missouri Fire Chiefs Foam Bank located in
Lee’s Summit, Missouri. There is an annual fee required to have access to this foam bank.

When an incident presents a hazardous materials spill, release, or exposure requiring skills and equipment beyond the scope of those trained to the HazMat Operations level, The Tri-District Hazardous Materials Response Team is requested. While en route, the team communicates by radio and cellular telephone with the on-scene Incident Commander to begin designing specific operational priorities specific to the incident. Upon arrival, the HazMat Team is designated as the HazMat Branch or Group under the Incident Command System (ICS) organizational structure. The Team Leader or Supervisor confers with the Incident Commander to further assess:

- Relevant safety issues and additional resource needs
- Hot / Warm / Cold Zone designation
- Evacuation/isolation requirements
- Product identification / determination
- Life safety and environmental damage and exposure concerns
- Release / spill mechanism and current status
- Risk / benefit analysis
- Determination of strategy and tactics
- Required notifications
- Following this initial briefing with the Incident Commander, the HazMat Team initiates
  - Interventions
  - Reconnaissance
  - Develop mitigation plan
  - Defensive and/or offensive operations (confine vs. contain)
  - Debriefing, documentation, demobilization
- General Hazardous Materials Team tasks/assignments are as follows:
  - Team Leader
  - Resource Officer
  - Entry Team (2)
  - Back-Up Team (2)
  - Safety/Medical/Decon Teams
A minimum of one suppression apparatus is necessary to handle personnel and victim decontamination responsibilities. Additional companies may be used in support roles as needed. These may include:

- Incident Command and Command Staff
- Decontamination support
- Fire suppression standby
- Ventilation
- Scene / perimeter control
  - Medical support
    - HazMat 1
    - HazMat Decon Trailer
    - Metropolitan Medical Response System trailer (MMRS)

**SPECIAL RESCUE TEAM** – CJCFPD houses a special tactical and rescue team (STAR), which handles special incidents requiring special equipment and training. The STAR team is a Federally recognized Light Urban Search and Rescue Team. The STAR team is trained and equipped to handle incidents such as building collapse, water rescue, and high angle rescue. Currently, the STAR team relies on volunteer staffing from members of the department. On-duty members report to Heavy Rescue 1 when an incident occurs and awaits members who are off duty to respond in. CJCFPD has 30 personnel assigned to the Special Rescue Team at this time distributed through five stations and the three shifts. There are currently 7 personnel trained at the NFPA 1006 Technician level for Structural Collapse Rescue and 20 personnel trained at the NFPA 1670 Operations Level. The District’s STAR team does not currently respond to “Dive Rescue” emergencies.

CJCFPD utilizes a two-tiered approach to incidents requiring special operations capabilities. Each line company has personnel trained to the “Operations” or similar level in hazardous materials response. The STAR Team has begun to train all suppression personnel to the Operations level of technical rescue. This tiered approach allows for early arrival of trained personnel to begin mitigating the hazard and recognizing when specialized resources are needed. Of additional benefit to the community is the fact that many technical and specialist
personnel are also available as part of regular fire companies on a daily basis. These companies respond when dispatched as they would to other emergencies. Other special operations members that have not been assigned to the initial alarm of an incident or are off duty report to their team’s respective station where the apparatus requested is housed.

Specialty teams may be dispatched on the initial alarm, or may be requested by first arriving companies based on their size-up of the incident. Technical rescue services are provided within the Districts limits. The STAR team is also a recognized Light Urban Search and Rescue (LUSAR) team, which can respond anywhere requested. Upon arrival, the Technical Rescue Team is designated as the Rescue Branch or Group under the Incident Command System (ICS) organizational structure. The Team Leader or Supervisor confers with the Incident Commander to further assess:

- Risk/benefit analysis
- Additional resource needs
- Strategy and tactical priorities
- Scene security and control
- Incident documentation
- Air monitoring (confined space)
- Electrical vault or power line concerns
- Fire suppression standby (if applicable)

**Establishment of an Effective Response Force**

Once critical tasks have been identified and defined, an effective emergency response force can be established. This force is defined as the number of personnel and amount of equipment that must reach an incident in a specific response zone within the maximum response time goal. An effective response force must be trained and equipped to handle a variety of fire, rescue, special hazard, and emergency medical incidents, shortly after they are reported. In order to accomplish this, companies and units must be located close enough to the incident to arrive within the maximum prescribed response time for the full assignment of fire companies according to the risk level of the structure, situation, or event.
The risk of fire, medical emergency, or other emergency event can never be held to zero. Thus, the objective of any standard of coverage study is to identify the balance among distribution, concentration, and response reliability that will keep hazard risk at an acceptable level, while maximizing the preservation of life, property, and the environment. A minimum effective initial response force has been determined, based on fire flow capabilities, critical fire-ground tasking, rapid emergency medical intervention, and adequate and capable special rescue and hazard mitigation functions.

In areas without fire hydrants, the standard response assignment is supplemented with water tankers (tankers) to meet the additional anticipated needs for water supply. Likewise, for specialty functions such as natural cover fire response, or special rescue considerations, response packages are modified or augmented to include special equipment and/or trained personnel.

While this report was being compiled the Central Jackson County Fire District assumed dispatch responsibilities in July of 2006. However, it should be noted that the Blue Springs Police Department Dispatch Center will still be the primary 911 receivers and will transfer the calls based on incident type to CJCFPD’s communications center.

Professional organizations, laws, and traditions set up the standards within the fire service. The National Fire Protection Association (NFPA) develops and publishes the standards the fire service adopts and attempts to meet or exceed. Response time standards within the public safety industry are measured against a percentile, or a percentage of calls that fall within a defined window. As within any industry the fire service needs and relies on standards. The NFPA has established standards for response times, which are found in NFPA 1710, chapter 5. The initial arriving company (suppression) should respond and arrive on scene within a 4-minute response time and/or the initial full alarm assignment within an 8-minute response time to 90 percent of the incidents. While
continually striving to meet this objective there is ample evidence to indicate that the Central Jackson County Fire Protection District is safe and effective. Based on measurement and analysis of response times and community risk, the department has established response time baseline objectives that indicate levels of service that can be expected by members of our community.

**Call Types and Effective Response Force**

Now that critical tasks have been determined and an effective response force for the CJCFPD has been defined, a review of dispatch call types and their commensurate response packages (numbers of and types of units deployed on the initial response) are presented below. Additional alarms may duplicate the initial alarm response package.

**Still Alarm**
1 Engine Company or 1 Ladder Company

**Emergency Medical (BLS)**
1 Med Unit, 1 Engine or Ladder Company if there is no Med unit responding from the 1st due station

**Emergency Medical (ALS)**
1 Engine Company or 1 Ladder Company, 1 Med Unit

**Rescues/MVA**
2 Engine Companies or 1 Ladder Company and 1 Engine Company, 1 Chief Officer, 1 Med Unit

**Fire Alarm Activation-Residential**
1 Engine Company or 1 Ladder Company

**Fire Alarm Activation – Commercial**
2 Engine Companies or 1 Ladder Company and 1 Engine Company

**Fire – Structure Residential (Hydranted)**
2 Engine Companies, 1 Ladder Company, 1 Chief Officer, 1 Med Unit

**Fire – Structure Residential (Non-Hydranted)**
2 Engine Companies, 1 Ladder Company, 1 Chief Officer, 1 Med Unit, 1 Tanker and a 2 Mutual aid tanker shuttle
Fire – Structure Commercial
3 Engine Companies, 1 Ladder Company, 1 Chief Officer, 1 Med Unit

Fire – Natural Cover Fire
1 Engine Company, 1 Brush Truck

Fire-Vehicle
1 Engine or Ladder Company

Aircraft Responses
2 Engines, 1 Med Unit, 1 Chief Officer

note: Engine Companies only, no Ladder

HAZMAT (When HMRT is requested)
Tri-District Haz-Mat 1, Engine, 1 Med Unit, 1 Chief Officer

Special Rescues (When STAR Team is requested)
Heavy Rescue 1, At least 1 Engine, 1 Med Unit, 1 Chief Officer

Section V – Setting Service Level Objectives
Level of Service and Quality of Service

Level of service is defined as the resources needed to meet stated service level objectives. Level of service is defined only in terms of what is provided and not in terms of effectiveness or of quality.¹ Quality of service is measured by outcomes, such as fire loss data and lives saved, and perceptions, such as those documented through community surveys. While these measures are important as indicators of quality of service, they are not part of a standard of cover, and are therefore not included in this type of document.

NFPA Standard 1710³ outlines staffing, deployment, and response time standards for career fire departments. The District has adopted the response time objectives stated in this section. These objectives are based on the risk analysis of the service area, the critical task analysis conducted by the department, and the historical performance of the department. Feedback from citizens was also utilized from the 2007 citizen-driven strategic plan. Citizens
commented that the District has excellent response times. The District considers these to be local standards—a reasonable response to the level of risk in the community.

**Distribution of Resources**

Distribution is measured by the percentage of the jurisdiction covered by first-in, or primary, response companies within the adopted response time goals. This view of the District’s response system examines at fire & EMS resource deployment in terms of a static placement of resources and their theoretical response potential. By taking this theoretical view of the system it is possible to determine whether or not response standards can be met from existing infrastructure and with current staffing levels, when all companies and units are in quarters and available for emergency response. CJCFPD uses a variety of factors to determine optimal site locations for its fire stations. These factors include pertinent national standards, including NFPA, the Insurance Services Office (ISO), and the American Heart Association with regard to cardiac arrest, covering both response time (how fast) and deployment standards (how many and what type of resources on scene). In developing this infrastructure, the goal was to balance the elements that comprise a favorable fire station site configuration and three additional areas of consideration that CJCFPD applies when selecting station locations.

The District currently operates from 5 fire stations and deploys three full time ambulances. The fire companies currently cover an average of 12.6 miles. The ambulances currently cover an average of 21 square miles. Typically, stations are placed where land is available and not necessarily at the best locations. There are many variables that go into the placement of stations, which sometimes results in poor placement of stations. The District is currently utilizing the International Association of Firefighters (IAFF) GIS program to conduct an analysis of the current stations and the placement of possible future stations.
The end result will help the District properly place stations to better serve the community.

Current resource distribution concerns are:

1. Large primary response area; 12.6 square miles (average)
2. Lack of an Ambulance in the East side of the District
3. Lack of any apparatus on the north central/northeast portions of the District
4. Lack of any apparatus on the southeast corner of the District
5. Lack of a Tanker at Lake Tapawingo primary or secondary response stations
6. Possible need for Aircraft Rescue and Fire Fighting training
7. There is not a dedicated truck company within the district

Recommendations
On the basis of the analysis of coverage currently being provided by Central Jackson County Fire Protection District, the department makes the following recommendations:

1. Develop and implement a plan to build, equip, and staff additional stations in order to decrease the number of square miles per station to 9.
2. Place and staff an ambulance at Station # 4 pending cooperation with the city of Grain Valley
3. Develop and implement a plan to build, equip, and staff in the north central/northeast corner of the District
4. Develop and implement a plan to build, equip, and staff in the southeast corner of the District
5. Train personal in ARFF at Station #4 and in the District

Concentration of Resources
Concentration refers to the spacing of multiple resources within close enough proximity to allow an initial effective response force to be assembled on scene
within prescribed timeframes. An initial effective response force is one that has been deemed capable of stopping the escalation of a fire emergency, stabilizing a medical scene, affecting a rescue, and successfully handling an incident. Consideration of unit concentration must take into account the substantial reliance of all of the region’s fire service organizations with respect to mutual and automatic aid. This refers to mixed jurisdictional response packages that may comprise 1st, 2nd, 3rd, or greater alarm assignments. Currently, CJCFPD first due companies are achieving their objective of arriving on scene of an emergency incident within 6 minutes response time (travel time). In addition, the District also calculates fire dollar and life loss with respect to the efficiency of the concentration of resources.

**Distribution and Concentration Baseline Objectives**
With the adoption of this document, response time objectives for CJCFPD have been established. The District has chosen to follow the NFPA’s definition of response time. Response time is measured, by the NFPA, as the time of the company responding to the time the company is on scene. This provides one aspect of the history of response times and the success of responding to alarms within the parameters mentioned previously. Prior to CJCFPD assuming fire and EMS dispatch responsibilities there were multiple inconsistencies associated with dispatch and response times, which led to the District assuming dispatch responsibilities. Calculation has improved now that CJCFPD has the dispatch communication responsibilities. The District is now using NFIRS 5 Alive to calculate response time analysis. This program gives the District to adequately analyze the aspects of response time including separating emergency from non-emergency, which was a prior weakness. The following are the response distribution and concentration baseline objectives for CJCFPD beginning July 13, 2006 and ending December 31, 2006. Baseline objectives were updated in 2007 and are reflected after the 2006 objectives.
Dispatch: Calls shall be dispatched 80% of the time in three-minutes from the time the call was received. The police department of Blue Springs, MO shall roll over all calls to CJCFPD Communications 90% of the time within 15 seconds. (At this time the Blue Springs Police Department has not given the District a report on the accomplishment of this time frame.)

Turnout: For 80% of fire incidents crews shall have a turnout time of three minutes or less.

Structure Fires: For 80% of fire incidents the first-due unit shall arrive within a 6-minute response time and/or the initial full alarm assignment within a 15-minute total reflex time.

Emergent EMS Incidents: For 80% of emergent EMS incidents the first-due unit shall arrive within a 6-minute response time.

Other Emergency Incidents: For 80% of all non-specified emergency incidents within the District the first-due unit shall arrive within a 6-minute response time.

Total Reflex Time: For 80% all incidents the first due unit shall have a total reflex time of 9 minutes and 30 seconds.

Hazardous Materials Incidents: For 80% of hazardous materials incidents within the District the first-due unit shall arrive within a 6-minute response time. Incidents requiring the Tri-District HMRT: the Tri-District HMRT team shall be en route within 30 minutes from team notification 80% of the time; however, there are not enough HMRT team responses to analyze this performance.

Heavy Rescue Incidents: For 80% of heavy rescue incidents within the District the first-due unit shall arrive within a 6-minute response time. When the heavy rescue team is requested the heavy rescue team shall be en route within 30 minutes; however, there are not enough STAR team responses to analyze this performance.
## Response Time Objective Performance

<table>
<thead>
<tr>
<th>Structure Fires</th>
<th>2006 7/13-12/31*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Call Processing</td>
<td>89.50%</td>
</tr>
<tr>
<td>Turnout</td>
<td>83.30%</td>
</tr>
<tr>
<td>Travel Time</td>
<td>94.70%</td>
</tr>
<tr>
<td>1st Unit Total Reflex</td>
<td>85%</td>
</tr>
<tr>
<td>Fire 1st Alarm Total Reflex</td>
<td>85.70%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Emergent EMS</th>
<th>2006 7/13-12/31*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Call Processing</td>
<td>95.30%</td>
</tr>
<tr>
<td>Turnout</td>
<td>81.60%</td>
</tr>
<tr>
<td>Travel Time</td>
<td>88.60%</td>
</tr>
<tr>
<td>1st Unit Total Reflex</td>
<td>86%</td>
</tr>
<tr>
<td>EMS 1st Alarm (2nd unit)</td>
<td>82.60%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>All Calls</th>
<th>2006 7/13-12/31*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Call Processing</td>
<td>93.90%</td>
</tr>
<tr>
<td>Turnout</td>
<td>80.20%</td>
</tr>
<tr>
<td>Travel Time</td>
<td>87.40%</td>
</tr>
<tr>
<td>1st Unit Total Reflex</td>
<td>83.20%</td>
</tr>
</tbody>
</table>
The following are the 2007 baseline objectives:

- **Dispatch:** Calls shall be dispatched 80% of the time in two-minutes and 30 seconds from the time the call was received. The police department of Blue Springs, MO shall roll over all calls to CJCFPD Communications 90% of the time within 15 seconds. (At this time the Blue Springs Police Department has not given the District a report on the accomplishment of this time frame.)

- **Turnout:** For 80% of fire incidents crews shall have a turnout time of two minutes and 45 seconds or less.

- **Structure Fires:** For 80% of fire incidents the first-due unit shall arrive within a 9 minute and 30 second total reflex time and/or the initial full alarm assignment within a 15-minute total reflex time.

- **Emergent EMS Incidents:** For 80% of emergent EMS incidents the first-due unit shall arrive within a 9 minute and 30 second total reflex time.

- **All Emergency Incidents:** For 80% of all non-specified emergency incidents within the District the first-due unit shall arrive within a 9 minute and 30 second total reflex time.

- **Hazardous Materials Incidents:** For 80% of hazardous materials incidents where the Tri-District HMRT is requested within the District the first-due suppression/EMS unit shall arrive within a 6-minute response time. The Tri-District HMRT: the Tri-District HMRT team shall be en route within 30 minutes from team notification 80% of the time; however, there are not enough HMRT team responses to effectively analyze this performance.

- **Heavy Rescue Incidents:** For 80% of heavy rescue incidents where the STAR team is requested within the District the first-due suppression/EMS unit shall arrive within a 6-minute response time. When the heavy rescue team is requested the heavy rescue team shall be en route within 30 minutes; however, there are not enough STAR team responses to effectively analyze this performance.
### 2007 Response Time Objective Performance

<table>
<thead>
<tr>
<th>Structure Fires</th>
<th>2007 1st quarter</th>
<th>2007 2nd quarter</th>
<th>2007 3rd quarter</th>
<th>2007 4th quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Call Processing</td>
<td>93.3%</td>
<td>80.0%</td>
<td>85.7%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Turnout</td>
<td>90.9%</td>
<td>85.7%</td>
<td>85.7%</td>
<td>84.6%</td>
</tr>
<tr>
<td>Travel Time</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>1st Unit Total Reflex</td>
<td>100.0%</td>
<td>90.0%</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Fire 1st Alarm Total Reflex</td>
<td>100.0%</td>
<td>100.0%</td>
<td>insufficient</td>
<td>data</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Emergent EMS</th>
<th>2007 1st quarter</th>
<th>2007 2nd quarter</th>
<th>2007 3rd quarter</th>
<th>2007 4th quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Call Processing</td>
<td>94.3%</td>
<td>95.6%</td>
<td>96.9%</td>
<td>97.4%</td>
</tr>
<tr>
<td>Turnout</td>
<td>82.1%</td>
<td>86.9%</td>
<td>88.5%</td>
<td>83.6%</td>
</tr>
<tr>
<td>Travel Time</td>
<td>91.7%</td>
<td>92.1%</td>
<td>90.9%</td>
<td>90.8%</td>
</tr>
<tr>
<td>1st Unit Total Reflex</td>
<td>89.0%</td>
<td>91.2%</td>
<td>89.8%</td>
<td>90.3%</td>
</tr>
<tr>
<td>EMS 1st Alarm (2nd unit)</td>
<td>88.0%</td>
<td>84.6%</td>
<td>86.6%</td>
<td>84.4%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>All Calls</th>
<th>2007 1st quarter</th>
<th>2007 2nd quarter</th>
<th>2007 3rd quarter</th>
<th>2007 4th quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Call Processing</td>
<td>94.1%</td>
<td>94.4%</td>
<td>96.5%</td>
<td>96.6%</td>
</tr>
<tr>
<td>Turnout</td>
<td>81.7%</td>
<td>85.9%</td>
<td>89.0%</td>
<td>83.6%</td>
</tr>
<tr>
<td>Travel Time</td>
<td>89.7%</td>
<td>89.5%</td>
<td>90.1%</td>
<td>88.5%</td>
</tr>
<tr>
<td>1st Unit Total Reflex</td>
<td>86.8%</td>
<td>88.0%</td>
<td>89.4%</td>
<td>88.1%</td>
</tr>
</tbody>
</table>

### Context of Distribution and Concentration Objectives

Questions may be raised regarding any response time performance objectives developed. One position is that the objectives are not stringent enough because they are not the same as those listed in NFPA 1710. What these objectives do represent is a reasonable expectation of the level of service our community is asking for and expecting with the investment of public funds dedicated to this service area. The District has now set an objective for a total ‘reflex’ time at this point based on further analysis done through NFIRS 5 Alive. The District is also examining ways to improve these time objectives. One issue has been identified in the Communications Center. The CAD program is consistently adding 15-25 seconds onto turnout times. This issue is being addressed by the District.
The District has conducted a community risk assessment and deployment study in order to develop a Standard of Response Coverage that recognizes local authority, available resources, risk, and community expectations. It is the community, through its elected officials, that dictates its own standards of cover. By its economic decisions with respect to taxation and budgeting, the community purchases a level of “fire and life safety insurance” that is consistent with its perceived needs, risks, and available resources. While these decisions may be influenced by such factors as insurance ratings prepared by the ISO, the level of protection available in any community is a local decision that should be made only after rigorous study of local needs and resources.

The following maps on the subsequent pages were produced by RA Smith & Associates and represent travel times for the entire District and by station. The travel times were calculated using 35 mph as the standard traveling speed.
Station Two at 35MPH
Central Jackson County
Fire Protection District

Six Minute Drive Time
Eight Minute Drive Time
Station Three at 35MPH
Central Jackson County
Fire Protection District

Six Minute Drive Time
Eight Minute Drive Time
Station Five at 35MPH
Central Jackson County
Fire Protection District

Red: Six Minute Drive Time
Orange: Eight Minute Drive Time
Section VI – Evaluation of Reliability of Fire and EMS Companies

The rapid and effective performance of highly coordinated assigned tasks is the hallmark of a successful emergency response force. Time and on-scene performance expectations are the target indicators established for measuring the operational elements (individuals, crews, and work units) that comprise CJCFPD response-ready resources. Understanding the reliability of fire and EMS companies allows an organization to adjust resources to exceed the organization's mission and the community's needs. In order to properly examine the reliability of fire and EMS companies, the probability of emergency calls and the concept of “draw down” and “exhaustion” policies are important to analyze.

Types of Calls to Which Central Jackson County Fire Protection District Responds

Response requests are distributed among three main call types – Fire, EMS, and other – by sorting based on dispatch activity descriptions. These call types are further divided as:

<table>
<thead>
<tr>
<th>Call Type</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure Fires</td>
<td>86</td>
<td>90</td>
<td>68</td>
<td>91</td>
</tr>
<tr>
<td>Vehicle Fires</td>
<td>42</td>
<td>41</td>
<td>41</td>
<td>47</td>
</tr>
<tr>
<td>Natural Cover Fires</td>
<td>55</td>
<td>36</td>
<td>40</td>
<td>50</td>
</tr>
<tr>
<td>Trash &amp; Rub. Fires</td>
<td>56</td>
<td>58</td>
<td>46</td>
<td>84</td>
</tr>
<tr>
<td>Medical</td>
<td>3998</td>
<td>3742</td>
<td>4215</td>
<td>4120</td>
</tr>
<tr>
<td>MVA/Rescue</td>
<td>471</td>
<td>436</td>
<td>365</td>
<td>345</td>
</tr>
<tr>
<td>Hazmat</td>
<td>80</td>
<td>91</td>
<td>97</td>
<td>66</td>
</tr>
<tr>
<td>CO Alarms</td>
<td>92</td>
<td>81</td>
<td>86</td>
<td>64</td>
</tr>
<tr>
<td>Electrical Emergency</td>
<td>36</td>
<td>40</td>
<td>76</td>
<td>39</td>
</tr>
<tr>
<td>False Alarms</td>
<td>318</td>
<td>356</td>
<td>310</td>
<td>301</td>
</tr>
<tr>
<td>Mutual Aid</td>
<td>297</td>
<td>263</td>
<td>318</td>
<td>260</td>
</tr>
<tr>
<td>Other</td>
<td>461</td>
<td>526</td>
<td>519</td>
<td>622</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>5992</strong></td>
<td><strong>5760</strong></td>
<td><strong>6181</strong></td>
<td><strong>6089</strong></td>
</tr>
</tbody>
</table>

Note: Hazmat incidents do not necessarily require the Tri-District Hazmat Response Team

Note: EMS calls are further broken down in CJCFPD’s quarterly EMS Stats report which can be found in the references.
The chart and graph illustrate a major challenge in providing service to the District's diverse service area. As with most fire departments today, the large majority of calls are medical in nature and the demand for service is driven less by the characteristics of the fixed real property involved (land and buildings) than by the people whose distribution does not necessarily correspond to the distribution of real property. Moreover, human beings are highly mobile, thus, the demand for service in a particular area can change depending upon the time of day, day of week, specific season, special event, or as significant and long-term demographic shifts occur.
Probability Analysis
Table 6.2 below shows the total volume and the daily average incident frequency for CJCFPD from 2003 to 2005. All data, unless otherwise noted, is obtained from computer-aided fire report system records.

<table>
<thead>
<tr>
<th></th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fires</td>
<td>240</td>
<td>237</td>
<td>192</td>
<td>272</td>
</tr>
<tr>
<td>EMS</td>
<td>4396</td>
<td>4120</td>
<td>4549</td>
<td>4120</td>
</tr>
<tr>
<td>Other</td>
<td>1356</td>
<td>1403</td>
<td>1440</td>
<td>1697</td>
</tr>
<tr>
<td>Total</td>
<td>5992</td>
<td>5760</td>
<td>6181</td>
<td>6089</td>
</tr>
<tr>
<td>Avg./Day</td>
<td>16.41</td>
<td>15.78</td>
<td>16.93</td>
<td>16.68</td>
</tr>
</tbody>
</table>

*Note: Other incidents include false alarms, mutual aid, hazardous responses, and other miscellaneous calls.*

The graph on the next page shows a temporal distribution of the number of calls by hour in the year 2005. This presents the peak times where emergency apparatus are capable of being exhausted. The use of this graph may show when personnel may need to be increased in order to handle the amount of calls.
Part of the evaluation of the reliability of fire companies and EMS units is to evaluate the resource exhaustion of the District. Currently, the Duty Chief of the day will determine when resources are exhausted and subsequently request apparatus from surrounding agencies for mutual aid. Based on current staffing levels and resources, the District can only handle three EMS calls, with the med units being out of service for an extended period of time. Since the addition of St. 5 the District can handle a regular residential structure fire alarm (2 engines, 1 ladder, and a med unit). However, this would deplete the District of a ladder company. When this occurs either mutual aid must be called in or personnel from a paid recall may staff an additional ladder company.

Since the District’s ambulance service area is slightly different from its fire protection service area and there are relatively fewer units to handle the total medical transport workload, a separate analysis was conducted on this issue.
Because medical responses comprise a large majority of the total service demands placed on CJCFPD and there are relatively fewer staffed resources to handle ambulance transport to a larger service area, it is particularly useful to examine demand patterns so that resources can be deployed as efficiently and effectively as possible. Ambulance calls are displayed using demand charts that outline calls by time of day and day of week compared to daily staffing levels. This is done to analyze the use of current resources and to develop a plan on the need of future resources. This allows the District to examine the different options available in staffing and deploying the ambulance resource. This analysis includes both emergency and non-emergency ambulance calls.

The next series of graphs and charts displays the reliability of fire and EMS companies. The data depicts when a company is on another call or is out of service and another company must handle the call. The concept of reliability can examine peak call loads and the relationship to the time of day. This may also aid in deciding station placement or staffing of additional units.

Table 6.3 – Response Reliability for Fire Co.’s

<table>
<thead>
<tr>
<th>Response Reliability (Fire Co.’s Only) 2005</th>
<th>Calls In District</th>
<th># Of RunsHandled by the Company</th>
<th>Response Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>District 1</td>
<td>1166</td>
<td>1135</td>
<td>0.973413379</td>
</tr>
<tr>
<td>District 2</td>
<td>673</td>
<td>656</td>
<td>0.97473997</td>
</tr>
<tr>
<td>District 3</td>
<td>1334</td>
<td>1310</td>
<td>0.982008996</td>
</tr>
<tr>
<td>District 4</td>
<td>674</td>
<td>662</td>
<td>0.982195846</td>
</tr>
<tr>
<td>District 5</td>
<td>267</td>
<td>258</td>
<td>0.966292135</td>
</tr>
<tr>
<td>Totals</td>
<td>4114</td>
<td>4021</td>
<td>0.977394263</td>
</tr>
</tbody>
</table>
Graph 6.3 Engine/Ladder Co. Reliability

Table 6.4 Response Reliability for EMS Co.’s

<table>
<thead>
<tr>
<th>District</th>
<th>Calls In District</th>
<th># of Runs Handled by Med Unit</th>
<th>Response Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>District 1</td>
<td>922</td>
<td>758</td>
<td>0.822125813</td>
</tr>
<tr>
<td>District 2</td>
<td>482</td>
<td>388</td>
<td>0.804979253</td>
</tr>
<tr>
<td>District 3</td>
<td>972</td>
<td>831</td>
<td>0.854938272</td>
</tr>
<tr>
<td>District 4</td>
<td>**</td>
<td>0**</td>
<td>**</td>
</tr>
<tr>
<td>District 5</td>
<td>**</td>
<td>0**</td>
<td>**</td>
</tr>
<tr>
<td>Totals</td>
<td>2376</td>
<td>1977</td>
<td>0.832070707</td>
</tr>
</tbody>
</table>

Graph 6.4 EMS Unit Reliability
Detailed incident information is maintained on the commercially developed data base programs FirePoint, Red Alert, ImageTrend, NFIRS 5 Alive and the District's CAD system; however, as of January 1, 2007 Red Alert is the new records management system. The District is also now utilizing ImageTrend for EMS electronic reporting. This software package will provide much greater accountability and analysis of the EMS program. The District has also added NFIRS 5 Alive as a statistical analysis tool. NFIRS 5 Alive merges raw CAD data and NFIRS files to provide detailed incident and company information, which can then be utilized by the software's statistical analysis tools. This has greatly enhanced the analysis of response times. Fire company officers (captains) complete a report for each incident their crews respond to that does not generate a MARF; the information is then entered into the Red Alert database.

One gap in this collection system was that the Incident Report database did not include all dispatch records. Blue Springs Police Department was contracted to provide all dispatch services and they maintained all dispatch records. As noted earlier in this document CJCFPD has assumed all fire and EMS related dispatch functions for the District. This has allowed better data collection and supervision of responses.
Draw Down of Resources

The draw down of resources is the point at which an agency will not go below when other agencies are requesting mutual aid. The respective agency has a responsibility to its citizens to provide the appropriate coverage, often times that which is laid out in a standards of response coverage. The District does not have a specific policy to establish when it will not allow any units to be used as mutual aid; however, it is up to the shift commander to make those decisions based on the factors presenting at that time. The EMS unit reliability study does present a potential problem. The shift commander and dispatch officers share the responsibility of requesting mutual aid ambulances when the need arises. This is done according to District SOGs (Exhibit 6.1)
Exhaustion of Resources
The exhaustion of resources is the point at which an agency no longer has enough units to effectively handle other emergencies. The District does not currently have a specific policy for the exhaustion of resources; however, like the draw down of resources, the shift commander decides when there are not enough units to effectively handle emergencies. Concurrent medical calls usually demand the need for mutual aid ambulances. Three concurrent medical calls will ultimately require the use of mutual aid. The shift commander still makes the decision to request mutual aid based on a variety of factors. The District maintains both automatic and mutual aid with the surrounding fire departments to ensure effective response aid when resources are exhausted. The District response matrixes include mutual aid agencies in regards to 2\textsuperscript{nd} alarms or greater. This matrix is also provided through the Central Jackson County Communications Center, located within CJCFPD St. No.3.

Summary of the Reliability of FIRE and EMS Companies
As the population of the community increases and response reliability decreases, adding units to existing fire stations is a method of increasing the concentration of resources that must be considered. At the same time, additional units enhance safety as well as increase overall coverage, service delivery, and response reliability, while decreasing response time. The safety of the public and firefighters must remain a priority when apportioning additional resources and planning for the future. With the ever-increasing challenges posed by rising costs and revenues that have not in recent years kept pace with a given department’s cost curve, fire managers are faced with constructing response plans that stretch response resources and personnel. The balance is to achieve efficiency while still meeting the safety standards such as the OSHA-mandated Two-In/Two-Out rule and NFPA 1710. The District is continually working on processes to improve the coverage and safety it has for its firefighters and citizens.
Section VII – Policy Recommendations

During the process of completing the Standards of Response Coverage the District’s administration met to discuss possible policy and guidelines changes based on the findings in the document and the self-assessment portion of the accreditation process. One key finding needing to be corrected is the number of outdated policies or guidelines. The process has already begun to update all policies and guidelines to reflect current practice and contractual obligations. Other issues needing consideration have been mentioned in the Distribution section of this document in Section V. Below are the other key issues the administration wants to focus on within the next year.

- Update policy and procedure manuals to reflect current NIMS language
- Policy 402.8 needs to be updated to add an additional engine/ladder company to non-hydranted residential structure fires
- Policy 410.16.1 needs to be updated to respond only one engine/ladder and one ambulance to MVAs in speed zones less than 45 mph and two engines/ladder and one ambulance to MVAs in speed zones more than 45 mph
- Revise current geographical boundaries of company districts, which is currently being done
- Institute a more stringent training program, which requires more attention to testing, scoring and make ups
- Revise rehab sector of large incidents and enforce CO monitoring and medical screening
- Update SOGs to reflect current practice of a minimum of five personnel to be on scene to initiate interior fire attack unless there is a potential life threat to a victim inside
- Ensure continuous monitoring of response times in their comparison to benchmarks and formalize a process to periodically measure these times
Appendices – Note each item listed in the appendices is hyper-linked to its document

1.1 Blue Springs 2006 Citizen Survey
1.2 Missouri Statewide Mutual Aid System
1.3 CJCFPD Organizational Chart
2.1 CJCEMA Emergency Operations Plan
3.1 Strategic Plan 2005-2006
4.1 Mutual/Automatic Aid Agreements: Independence, Fort Osage, Sni Valley
4.2 CJCFPD SOGs §§ 402.7-402.10, 407.1
5.2 2006 Response Standards
6.1 CJCFPD SOGs § 209.0-209.3.1, 209.4
6.2 CJCFPD EMS Quarterly Stats
Works Cited

1. Commission on Fire Accreditation International. Chantilly, VA.
