SPOKANE VALLEY FIRE DEPARTMENT
STANDARDS OF COVER
Planning for continuous improvement of Department operations
AUG 2016
SPOKANEVALLEYFIRE.COM
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Standards Of Cover

Introduction
One of the most important issues the fire service has struggled with in the past decade is defining levels of service. It has been considered important to determine whether a fire agency is prepared to offer a level of service commensurate with its responsibilities, risks, and adopted service level objectives. In the absence of such an analysis by the fire service, the National Fire Protection Association (NFPA) proposed a deployment standard that was successfully adopted as NFPA 1710. This national deployment standard does not, however, recognize local issues, conditions, service demands or community needs. Additionally, very few departments in this country can meet the response time and staffing level outlined in the standard, including the Spokane Valley Fire Department. Hence, many fire service professionals view this deployment model as a goal.

The Department recognized the need to evaluate its performance as a means to improve quality and performance and to ensure community needs were met. Instead of using a one-size-fits-all approach as in NFPA 1710, the decision was made to pursue Fire Service Accreditation. The Center for Public Safety Excellence (CPSE) Accreditation system is designed to evaluate the performance of a fire agency to determine if the programs and services provided are effective in meeting the needs of the community it protects. This system includes a critical analysis of historical data, existing and proposed deployment strategies, distribution and concentration of resources based on time parameters, identification of community risks and expectations, and collection of data on the reliability of response. The governing body for the accreditation process is the Commission on Fire Accreditation International (CFAI).

The accreditation process includes three major elements: strategic planning, self-assessment and risk assessment/standard of response coverage. The department began its strategic planning process in April of 2009, completing the process with the development of its first-ever Five-Year Strategic Positioning Plan in June of 2009 and a 2nd Edition published in August 2013. The self-assessment component was initiated in November of 2006, which included an in-depth analysis to measure all of the department’s major programs or services against 253 performance indicators outlined in the CFAI guiding document. This phase of the accreditation project was completed in January of 2010. Another companion document and the requirement for agencies which pursue accreditation are the Standards of Cover Document. The Standards of Cover are
defined as the written policies and procedures that determine the distribution, concentration, and reliability of fixed and mobile resources of the department to respond to this environment. This is a critical element of Fire Accreditation as it represents the evaluation and creation of standards for response coverage.

This document is provided to serve as the Department’s Standard of Response Coverage Plan. The purpose of this document is to define the level of service based on a comprehensive study of the department’s historical performance, community risk factors and expectations, and existing and proposed deployment strategies.

The overall assessment evaluated the department’s ability to provide adequate resources to respond to an “all-risk” environment including fire and non-fire incidents such as emergency medical, hazardous material, technical rescue and structure fires, disasters both natural and manmade and water related. To translate these efforts into terms that the community and elected officials can evaluate, major findings and recommendations were clearly defined and described, measured and benchmarked.

The methodology used was a systems approach to deployment rather than the one-size-fits-all formula. An evaluation was conducted to match local needs or risks and expectations with expected outcomes. The data contained in this Standard of Response Coverage Plan should provide the leaders of Spokane Valley with the information necessary to understand and make decisions upon an effective delivery system for this environment.
Executive Summary

The purpose of this Standard of Response Coverage Plan is to define the appropriate level of service based on a comprehensive study of the department’s historical performance, deployment strategies and community risk factors to determine the capability of its response system.

Based on extensive research and in-depth analysis of the data gathered, the following represents the Department’s distribution criteria.

• The Department has chosen to analyze the five-year baseline turnout time for fire and non-fire risk, then establishing Benchmarks (Objectives) at each of the urban, suburban and rural service areas. Fire, Technical Rescue, and Hazardous Material response turnout times Benchmarks will be reduced them to 2:20 in the service areas. The Turnout Time reduction Benchmarks for EMS responses will be set at 01:20 the service areas. Each type of fire and non-fire turnout times are identified at a five year 90% fractile. This is compared to the Departments established turnout time benchmark in urban, suburban and rural areas. The difference is subtracted from the identified five year 90% fractile Total Response Time for each fire and non-fire type of response for the urban, suburban and rural areas. Establishing the Departments Benchmarks or five year goal for the urban, suburban and rural areas.

• The Department’s Total Response Time five-year combined fractal Baseline (present performance) at 90% is 07:37, urban 07:19, suburban 8:51, and rural 9:50 for the Risk 1st arriving EMS BLS equipped, non-transport apparatus with three personnel. The Department’s Total Response Time Benchmark (five-year objective) will be to improve the EMS (BLS or ALS) 1st Arriving Apparatus Baseline for urban to 06:42 and suburban to 07:59, both the urban and suburban Department Benchmarks are deviations from the CFAI Benchmark Standard but are within the CFAI Baseline Standards. And for the rural 09:03 Benchmark exceeds the CFAI Benchmark Standards. For capabilities refer to task analysis on pp 86-87.

• The Department’s Total Response Time for five-year combined fractal Baseline (present performance) at 90% is 08:14, urban 07:44, suburban 09:20, rural 11:43 for the arrival of the Effective Response Force (ERF) 1st Advanced Life Support (ALS) apparatus equipped non-transport apparatus with three personnel. The Department’s Total Response Time Benchmark (five-year objective) will be to improve the overall 1st ALS arriving apparatus baseline for urban...
to 07:08, for suburban to 08:30, and for rural to 10:46. All Department Benchmarks are within the CFAI Benchmark Standard. For capabilities refer to task analysis on pp. 86-87.

• The Department’s Total Response Time for five-year combined fractal Baseline (present performance) at 90% is 08:51, urban 08:35, suburban 09:25, and rural 10:59 for the 1st arriving apparatus on a fire incident with three personnel, initiating an Incident Commander/Safety and placing one 1 3/4" hose line in-service at 150 gallons per minute (GPM) for defensive operations or initiate a rescue under Washington Amended Code (WAC) 296-305-05001, two in/one out rule. The Department’s Total Response Time Benchmark (five-year objective) will be to improve the Fire 1st Arriving Apparatus Baseline for urban to 08:04, for suburban to 08:42, and for rural to 10:16. Both of the Department’s urban and suburban Benchmarks are a deviation from the CFAI Benchmark Standards but are within the CFAI Baseline Standards. The Department’s Rural Benchmarks exceed the CFAI Benchmark Standards. For capabilities refer to task analysis on pp. 101-102.

• The Department’s Total Response Time for five-year combined fractal Baseline (present performance) at 90% is 14:04, urban 13:54, suburban 18:20, and rural 17:58 for the arrival of the full 1st alarm response reported fire (11F) on a fire scene with fourteen personnel. The Department’s Total Response Time Benchmark (five-year objective) will be to improve the Fire Effective Response Force (ERF) Baseline for urban to 12:37, for suburban to 15:27, and for rural to 16:38. All Department Benchmarks are a deviations from the CFAI Benchmark Standards, but within the CFAI Baseline Standards. Full 1st alarm response will place a water supply in service at a minimum 1,000 GPM without interruption. And include one attack line in service with two firefighters at 150 GPM, a second attack line with two firefighters at a minimum of 150 GPM, one ventilation team consisting of two firefighters, and one search and rescue team consisting of two firefighters. This will also include the establishment of a command post outside the hazard area with a dedicated Incident Commander (IC), one Safety Officer and two firefighter Rapid Intervention Team (RIT). With the upgrading of a Low Risk 11F (reported fire) to a Moderate Risk (11W or working fire), an additional two apparatus will be dispatched to bring the on-scene manpower to 24 firefighters. This will allow for an established flow capability of 1,000 GPM without interruption, along with the ability to staff additional hand lines, ventilation team and
creation of a full Rapid Intervention Group (RIG). For capabilities refer to task analysis on pp. 101-102. Another two apparatus will be dispatched for a High Risk or 2nd Alarm.

- The Department’s Total Response Time for five-year combined fractal Baseline (present performance) at 90% is 10:22, urban 09:34, suburban 12:00, and rural 12:33, for the 1st arriving apparatus for wildland incidents of three personnel. The Department’s Total Response Time Benchmark (five-year objective) will be to improve the Fire Wildland 1st Arriving Apparatus Baseline for urban to 9:00, for suburban to 11:09, and for rural to 11:35. The Department’s Rural Benchmark Night is the only Benchmark that exceeds the CFAI Benchmark for rural. The Department’s Benchmarks for urban, and suburban deviate from the CFAI Benchmarks and Baseline Standards. For capabilities refer to task analysis on pp. 108.

- The Department’s Total Response Time for five-year combined fractal Baseline (present performance) at 90% is 09:40, urban 09:03, suburban 10:02, and rural 14:53, for the 1st arriving apparatus for technical rescue incidents with three personnel. The Department’s Total Response Time Benchmark (five-year objective) will be to improve the overall Technical Rescue 1st Arriving Apparatus Baseline for urban to 08:39, for suburban to 09:09, and for rural to 14:09. The Department’s Benchmarks for urban, suburban, and rural deviate from the CFAI Benchmarks but are within the CFAI Baseline Standards. For capabilities refer to task analysis on pp. 114-115.

- The Department’s Total Response Time for five-year combined fractal Baseline (present performance) at 90% is 16:46, urban 16:30, suburban 17:44 and rural 18:21, for the arrival of the 1st Technical Rescue equipped apparatus Effective Response Force (ERF) with six personnel. The Department’s Total Response Time Benchmark (five-year objective) will be to improve the overall 1st Technical Rescue equipped apparatus ERF Moderate Risk Baseline for urban to 15:38, for suburban to 15:05, and for rural 17:53. The Department’s Benchmarks for urban, suburban, and rural benchmarks deviate from the CFAI Benchmarks but are within the CFAI Baseline Standards. For capabilities refer to task analysis on pp. 114-115.

- Department’s Total Response Time for five-year combined fractal Baseline (present performance) at 90% is 10:19, urban 08:17, suburban 06:01, and rural 12:0 for the 1st arriving apparatus for hazardous material incidents with three (3) personnel. Department’s Total
Response Time **Benchmark** (five-year objective) will be to improve the overall 1st Arriving Apparatus Baseline for urban to 07:49, for suburban to 05:33, and for rural to 11:28. The Department’s Benchmarks for urban deviate from the CFAI Benchmarks, but are within the CFAI Baseline Standards. Both of the Department’s Benchmark for suburban and rural exceed the CFAI Benchmark Standards. For capabilities refer to task analysis on pp. 120.

- The Department’s Total Response Time for five-year combined fractal **Baseline** (present performance) at 90% is 14:15, urban 12:09, suburban 14:15, and rural 17:51 for hazardous material incidents Effective Response Force (ERF) with six (6) personnel. The Department’s Total Response Time **Benchmark** (five-year objective) will be to improve the overall ERF (2nd arriving apparatus) Baseline for urban to 11:27, for suburban to 13:56, and for rural to 17:17. The Department’s urban, suburban, and rural Benchmarks deviate from the CFAI Benchmarks but meet the CFAI Baseline Standards. For capabilities refer to task analysis on pp. 120.
Spokane Valley Fire Department’s Standards of Cover

The analysis also concluded the following findings. Recommendations are provided and were designed to address the problems that have been identified.

Major Findings:

1. 911 Operations Center is unable to track the incidents that move through their office. As a result, the Department is not able to generate complete total response times for the emergency responses.

2. The moving of Station #3 is needed for the lowering of response times into the City of Liberty Lakes residential areas, and construction of Station 11 will reduce response times for both Hazard Zones #5 and #4, and the need to address the North Barker Rd. neighborhoods in reducing their response times.

3. Reduction of Turnout Times in EMS, Fire, and other responses is considered necessary. Though the Department has seen a reduction in the times analyzed, the necessity to reduce these times further is still needed.

4. The Water Supply systems throughout the Department illustrated in the Comprehensive Risk Assessment demonstrate the need for improvement in the water supply systems provided by the 23 Water Districts in the Valley.

5. Both the ability to collect and store accurate information is of the utmost importance to the continuing effort of the Department to analyze the needs of the community and the ability to provide the services effectively, correctly, and efficiently. With the current Standards of Cover development, the Department has found the need for more accurate information to be gathered and placed into the Flexible Data Management (FDM) software program.
Plan:

1. 911 Operations Center will purchase and install a software program that will enable them to tag any alarm that transfers through the 911 Operations Center, allowing for analysis of the total response time starting January 2015.

2. Continue to establish the building of Station #3 in 2017 and #11 in 2021.

3. Turnout Times for EMS, Fire, and Other responses will be analyzed and then changes implemented for both technical and human approach factors, to enable the Department’s personnel to safely, efficiently, and effectively reduce Turnout Times.

4. The 23 Water Districts within the Departments response area are currently being presented with an extensive Water Supply Risk illustration to enable them to see ten years worth of test data on these systems, allowing them to plan better the future needs of the present Water Supply systems for which they are responsible.

5. Continue upgrading the information in the FDM system.

In summary, the Standards of Cover indicates the existence of gaps in delivering effective response coverage within the department. Station placement, Auto Aid Agreements with the closest apparatus responding to all incidents, the use of technology, and behavior change within the Department will make possible our the ability to meet nationally recognized standards to serve better the citizens of the Spokane Valley. With the continued development, analysis and implementation of the Standards of Cover, Community Oriented Strategic Positioning Plan, and the Self-Assessment Manual, further improvements to the Department’s ability to better serve the citizens of the Department will be achieved.
Community Overview

The Spokane Valley Fire Department was organized in 1940 as a fire protection district titled Spokane Valley Fire Protection District #1. The Department officially changed its name to the Spokane Valley Fire Department (SVFD) on June 4th, 2007. The Department currently offers protection to the City of Spokane Valley incorporated March 31, 2005, the City of Liberty Lake, which incorporated August 31, 2001, and the City of Millwood, which on May 17, 2005, annexed into the Department.

The Department is governed by a five-member Board of Commissioners that has the authority under the Revised Code of Washington (RCW’s) to provide the necessary framework for conducting the public’s business through established policies. It is the responsibility of the Fire Chief to develop operational practices that ensure compliance with those policies.

The total population served by the Department is 122,085; 93,340 reside within the City of Spokane Valley; 1,790 reside within the limits of the City of Millwood; 8,975 reside in the City of Liberty Lake; and 17,980 reside within the area known as the Unincorporated Areas of the Spokane Valley.

Each of these communities is governed separately. Three County Commissioners govern the unincorporated areas and cover 29.82 square miles. The City of Spokane Valley covers 38.5 square miles and is governed by a council-manager; the chair of the council is given the title of Mayor. The City of Liberty Lake is governed by a strong mayor with a council and covers six square miles. The City of Millwood is also governed by a strong mayor with a council and covers .688 square miles.

The Department provides services to 75 square miles within Spokane County. The Department has defined itself as Urban, Suburban, and Rural under the Washington Administrative Code (WAC) 246-976-010 definition. Conforming to the National Fire Protection Association (NFPA) 1710 and the Commission on Fire Accreditation International (CFAI) definitions of population density.
## Department Resources

<table>
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<tr>
<th>Station</th>
<th>Apparatus Assigned</th>
<th>Assigned Personnel</th>
</tr>
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<tbody>
<tr>
<td>Station #1</td>
<td>3,5,1 10319 E. Sprague</td>
<td></td>
</tr>
<tr>
<td>ALS</td>
<td>2007 Seagrave (Class A Pumper)</td>
<td>3 or 4</td>
</tr>
<tr>
<td></td>
<td>2004 Pierce Dash (Class A Pumper/Reserve)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2011 Ford F350 (BC)</td>
<td>1</td>
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<tr>
<td>Station #2</td>
<td>4 9111 E. Fredrick</td>
<td></td>
</tr>
<tr>
<td>ALS</td>
<td>2006 Seagrave (Class A Pumper)</td>
<td>3 or 4</td>
</tr>
<tr>
<td></td>
<td>2007 PJ Carhauler Trailer (14,000 GVWR)</td>
<td>Cross staffed</td>
</tr>
<tr>
<td></td>
<td>2000 Kenworth T-300</td>
<td>Cross staffed</td>
</tr>
<tr>
<td>Station #3</td>
<td>4 2218 N. Harvard</td>
<td></td>
</tr>
<tr>
<td>ALS</td>
<td>2003 Pierce Dash – (Class A Pumper)</td>
<td>3 or 4</td>
</tr>
<tr>
<td></td>
<td>1992 Ford F350 Flat Bed</td>
<td>Cross staffed</td>
</tr>
<tr>
<td></td>
<td>2009 Newmax Trailer (ATV Trailer)</td>
<td>Cross staffed</td>
</tr>
<tr>
<td></td>
<td>2011 Kawasaki Mule #4010 - Gas</td>
<td>Cross staffed</td>
</tr>
<tr>
<td></td>
<td>2006 Scott Trailer (SCBA Air Trailer)</td>
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</tr>
<tr>
<td>Station #4</td>
<td>5 22406 E. Wellesley</td>
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<tr>
<td>ALS</td>
<td>2010 KME Engine (Class A Pumper)</td>
<td>3 or 4</td>
</tr>
<tr>
<td></td>
<td>2014 Ford F-550 Brush Truck</td>
<td>Cross staffed</td>
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<tr>
<td>Station #5</td>
<td>6,2 15510 E. Marietta</td>
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<tr>
<td>ALS</td>
<td>2007 Seagrave Marauder II (Class A Pumper)</td>
<td>3 or 4</td>
</tr>
<tr>
<td></td>
<td>1998 Pierce Dash (Class A Pumper/Reserve)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1990 Ford F-350 / Pontoon Boat</td>
<td>Cross staffed</td>
</tr>
<tr>
<td>Station #6</td>
<td>4,4 6306 E. Sprague</td>
<td></td>
</tr>
<tr>
<td>ALS</td>
<td>2013 KME Engine</td>
<td>3 or 4</td>
</tr>
<tr>
<td></td>
<td>2002 Ford F550 - Brush</td>
<td>Cross staffed</td>
</tr>
<tr>
<td>Station #7</td>
<td>6 1121 S. Evergreen</td>
<td></td>
</tr>
<tr>
<td>ALS</td>
<td>2015 KME Engine (Class A Pumper)</td>
<td>3 or 4</td>
</tr>
<tr>
<td></td>
<td>1999 Pierce (Class A Pumper/Reserve)</td>
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<tr>
<td>Station #8</td>
<td>4,4,2 2110 N. Wilbur</td>
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<tr>
<td>ALS</td>
<td>2001 Pierce Dash – 105’ Quint</td>
<td>3 or 4</td>
</tr>
<tr>
<td></td>
<td>2011 KME Heavy Rescue</td>
<td>3</td>
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</table>
### Standards Of Cover

| Station #9 Beds 8 | 12121 E. 32nd. | 3  
|------------------|----------------|------  
|                  | 2007 Type II Kenworth T-300 | 3  
|                  | 1999 Featherlite Trailer / (Communication Trailer) | Cross staffed  
|                  | 2008 Ford F-250 | Cross staffed  

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<thead>
<tr>
<th>Station #10 Beds 1,4,4</th>
<th>17217 E. Sprague</th>
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|                       | 2007 Seagrave 75’ Quint | 3 or 4  
|                       | 2009 Ford F250 (BC) | 1  
|                       | 2005 Eagle Trailer (Class B Foam Trailer) | Cross staffed  
|                       | 1995 Pierce Lance 65’ Quint (Reserve) | Cross staffed  
|                       | 2013 Ford F-550 | Cross staffed  
|                       | 2003 Fox Trailer (Decon) | Cross staffed  
|                       | 2006 Fox Trailer (Mass Casualty) | Cross staffed  

| Shop | N. 2411 Pioneer Lane | 5  
|------|----------------------|------  
|      | 2008 Ford F350 - Service Truck | 0  
|      | 2002 / Ford F150 | 0  
|      | 2006 / Ford Ranger | 0  
|      | 2001 / Chevrolet Suburban | 0  

| Staff | 2014 Ford Explorer | Chief  
|-------|--------------------|--------  
|       | 2015 Ford Explorer | Deputy Chief  
|       | 2015 Ford Explorer | Deputy Chief  
|       | 2012 Ford Escape (Maroon) | EMS BC  
|       | 2014 Ford Explorer | Prevention BC  
|       | 2014 Ford Explorer | Training BC  
|       | 2006 Ford F-250 | V-23(V-32 day use)  
|       | 2009 Ford F250 | V32 / V23  
|       | 2008 Ford Escape - Hybrid 4WD 4DR | V10  

Spokane Valley Fire Department
Fire Department personnel staff ten strategically located fire stations. On-duty staffing is provided 24 hours a day, 7 days a week by 153 sworn positions. 52 are assigned to each of 3 shifts with a minimum shift staffing of 36 per shift. Response areas are divided into two battalions (East and West); with Stations 1, 2, 6, 7 and 9 in the West Battalion (1st Battalion); and Stations 3, 4, 5, 8 and 10 in the East Battalion (2nd Battalion). The Special Operations and Technical Rescue Team is housed at Stations 8 and 5. Six of the apparatus are Advanced Life Support (ALS), with the remaining apparatus Basic Life Support (BLS) with Auto Defibrillator. American Medical Response (AMR) does the Department’s patient transport. Civilian staffing consists of 20 personnel filling the following positions:
<table>
<thead>
<tr>
<th>Job Title</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative Executive Assistant</td>
<td>1</td>
</tr>
<tr>
<td>Accountant</td>
<td>1</td>
</tr>
<tr>
<td>Administrative Assistants</td>
<td>4</td>
</tr>
<tr>
<td>Receptionist</td>
<td>1</td>
</tr>
<tr>
<td>Fleet Operations Supervisor</td>
<td>1</td>
</tr>
<tr>
<td>Utility(s) (deliver supplies and equipment throughout the day)</td>
<td>2</td>
</tr>
<tr>
<td>Mechanics</td>
<td>2</td>
</tr>
<tr>
<td>Fire Protection Engineer</td>
<td>2</td>
</tr>
<tr>
<td>Human Resources Director</td>
<td>1</td>
</tr>
<tr>
<td>Information Systems Analyst</td>
<td>2</td>
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<tr>
<td>Information Systems Specialist</td>
<td>1</td>
</tr>
<tr>
<td>Civil Service Examiner</td>
<td>1</td>
</tr>
<tr>
<td>Community Affairs Director</td>
<td>1</td>
</tr>
<tr>
<td>TOTAL</td>
<td>20</td>
</tr>
</tbody>
</table>
Comprehensive Risk Assessment

The Department used a Focus Group of Department Personnel to develop the system to identify and rate risk hazard occupancies within the Fire Department’s response area. Building Plan Review collected the Data that was used, on-duty personnel during pre-fire inspections, County Geographic Information Systems (GIS) and annual Hydrant Inspections. This Data is placed within the software program FDM and analyzed on a 16th Geo code (16th of a mile area). With these data sources, we defined what the Department considers a risk: a threat to life and property value. These are the elements used to develop the Risk Assessment at a low, medium or high/special risk levels. The base risk elements are residential building density or assessed value. These elements are not added together, the highest level found in either gives the area its risk level of a 1, 2, or 3.

The three Base Risk Levels are identified as follows:

**Base Risk Levels**

**GIS Building Density**

1. GIS Residential Building Density Levels as identified using GIS structural density in a quarter mile Geo code. Refer to GIS Building Density Map Appendix 1 p.127.
   - **Risk Level Low (Light-Pink)** 1 to 49 buildings identified.
   - **Risk Level Medium (Dark Pink)** 50 to 99 buildings identified.
   - **Risk Level High (Red)** 100 or > buildings identified.
2. Assessed Value as identified in a quarter mile Geo code. Refer to GIS Assessed Value Map Appendix 2 p.128.
   
a) **Risk Level Low (Light Pink)** $0 million to 15 million.

b) **Risk Level Medium (Dark Pink)** $16 million to $29 million.

c) **Risk Level High (Red)** $30 million or >.

The Base Risk Categories are set at Levels Low = 1, Medium =2, or High = 3 on Residential Building Density or Assessed Value. These two elements will not be added together. The highest level found in either gives the area its risk level of 1, 2, or 3 (low, medium, or high).
The next Risk Factors has been given a +1, +2 or +3, and added to the Base Risk Levels. This risk factor is based upon Occupancy Classification. Refer to Building Occupancy Classification Map Appendix 3 p.129.

A +1 or Low Risk will be added to the Base Risk Level for a 16th mile Geo code when one or more of the following are present within the a 16th mile Geo code:

- **Group B**
  - (Multi-story) OFFICE TYPE BUILDINGS FOR PROFESSIONAL OR SERVICE TYPE BUSINESSES
  - **Examples:** BANKS, SCHOOLS ABOVE THE 12TH GRADE (ITT)

- **Group M**
  - BUILDINGS USED FOR RETAIL SALES
  - **Examples:** LOWES, SAFEWAY

- **Group R-1, R-2**
• HOTELS, MOTELS, BUILDINGS CONTAINING >2 DWELLING UNITS, BUILDINGS CONTAINING 2 OR LESS DWELLING UNITS

• **Examples:** MIRABEAU PARK, VILLA-90, VALLEY 206, DUPLEX

d) **Group S**

• MODERATE HAZARD STORAGE FOR COMMON COMBUSTIBLES, LOW HAZARD STORAGE FOR NONCOMBUSTIBLES

• **Examples:** LUMBER YARDS, AUTO REPAIR GARAGES, COLD STORAGE, INLAND EMPIRE DRYWALL

A +2 or Medium Risk will be added to the Base Risk Level for a 16th mile Geo code when one or more of the following are present within a 16th mile Geo code:

Refer to Building Occupancy Classification Map Appendix 3 p.129.

a) **Group E**

• SCHOOLS UP TO THE 12TH GRADE WITH >6 PEOPLE; DAYCARES WITH >5 CHILDREN OVER 2 ½ YEARS OF AGE

• **Examples:** ADAMS ELEM SCHOOL

b) **Group F**

• MODERATE HAZARD FACTORY PRODUCING COMMON COMBUSTIBLES, LOW HAZARD FACTORY PRODUCING NONCOMBUSTIBLES

• **Examples:** WOOD SHOP, CXT BEHIND STATION 5

c) **Group I-1, I-3, I-4**

• HOUSES < 16 PEOPLE, 24 HOUR BASIS, SUPERVISED, STRUCTURES W/<5 PERSONS UNDER RESTRAINT OR SECURITY PERSONS OF ANY AGE RECEIVING CUSTODIAL CARE LESS THAN 24 HOURS

• **Examples:** ASSISTED LIVING FACILITY, VHMCCORRECTIONAL CENTERS, STATION 1, DAY CARE


• ASSEMBLY W/FIXED SEATING FOR VIEWING OF PERFORMING ARTS
Standards Of Cover

- ASSEMBLY FOR FOOD & DRINK CONSUMPTION
- ASSEMBLY FOR WORSHIP, RECREATIONAL OR AMUSEMENT
- ASSEMBLY FOR VIEWING INDOOR SPORTING EVENTS
- ASSEMBLY FOR VIEWING OUTDOOR ACTIVITIES
- **Example:** SPOKANE VALLEY CINEMA, DENNY’S, THE ROADHOUSE, CHURCHES, BLEACHERS, STADIUMS

A +3 or High Risk will be added to the Base Risk Level for a 16th mile Geo code when one or more of the following are present within a 16th mile Geo code:

Refer to Building Occupancy Classification Map Appendix 3 p.129.

a) **Group H**
- OCCUPANCY, WHICH PRESENTS A HIGH EXPLOSION HAZARD, POSE A DEFLAGRATION HAZARD OR ACCELERATED BURNING, CONTAINS HAZARDS THAT POSE A PHYSICAL HAZARD OR READILY SUPPORT COMBUSTION, NORMALLY CLOSED CONTAINERS, POSE A HEALTH HAZARD (CORROSIVES, TOXIC, HIGHLY TOXIC), SEMICONDUCTOR FABRICATION FACILITIES AND COMPARABLE RESEARCH, AND DEVELOPMENT WHERE HAZARDOUS PRODUCTION MATERIALS ARE USED
- **Example:** DYNAMITE BUNKER, BRENNTAG PACIFIC, SAFETY KLEEN, PLATING OR ANODIZING LINES

b) **Group I-2**
- USED FOR MEDICAL, CUSTODIAL CARE > 5 PEOPLE NOT CAPABLE OF SELF-PRESERVATION, 24 HOUR
- **Example:** VALLEY HOSPITAL MEDICAL CENTER
Commodities Transport Risk

A +1 will be added to the Base Risk Level for a 16\textsuperscript{th} Geo code when one or more of the following are present within a 16\textsuperscript{th} Geo code:

Refer to Commodities Transport Route Map Appendix 4 p.130.

a) A railroad.

b) An Interstate or State Highway.

c) If one of four gas pipelines are present.

Water Supply

Minimum fire flow and total water supply requirements were established in 1996 by the Spokane County Building Department for all new construction. The minimum fire flow for single family residential properties less than 3,600 sq. ft. is 1,000 gpm and the minimum fire flow for commercial properties is 1,500 gpm. International Fire Code APPENDIX B was used to determine fire flows for all commercial buildings over 3,600 sq. ft. This same county fire flow standard is used to evaluate pre-fire plans for existing commercial buildings. A 50% reduction of the required fire flow is given to all buildings with an NFPA 13 fire sprinkler system.

For the residential properties requiring a hydrant with 1,000 gpm within 600’, refer to Appendix WS-01 p-150. This illustrates each of the Department’s hydrants and the 600 ft. distance required for each hydrant. Yellow and Green represents 1,000-1499 gpm and >=1,500 gpm respectively.
It also shows the areas that need improvement. The Department is working with the water purveyors to identify and improve these areas.

For the commercial properties requiring a hydrant with 1,500 gpm within 300’, refer to Appendix WS-02 p.151. This map illustrates each of the Department’s hydrants and the 300’ distance from each hydrant. Blue represents >=1500 gpm, Green represents 1499-1000 gpm, Yellow represents 999-500 gpm and Red represents <500 gpm. There are a few areas that need improvements, and the Department is working with the water purveyors to identify and improve these areas.

When commercial or residential properties fall outside the International Fire Code of 1500 gpm at 300’ for commercial and 1000 gpm at 600’ for residential. Then the Department uses Class A Pumpers with 1,500 gpm plus capabilities and 5” supply hose to bring the needed water supply 1300’ with 1000 gpm at the end of the 5” refer to Appendix WS-03 p.152.

In rural areas without extended hydrant systems additional fire apparatus may be dispatched by the Battalion Chief for Tender Operations. Annually, the Department uses evaluations to establish a continuous 1 ¾” hose stream of 125 gpm for a Defensive attack. If necessary the Department’s can use an attack pumper and four apparatus for tender operations which would produce a 200 gpm (two 1 ¾” hose lines) of sustainable water supply with an 8.5 minute turnaround (tender to attack pumper), allowing for an Offensive attack.

The Department also has mutual and auto aid agreements with all the neighboring fire departments to request Tenders (3,000-5,000 gal.) for additional water. This allows a mobile water supply in Hazard Planning Zone 4 (Station 4) and the outlying areas of the Department.

The Fire Prevention Bureau maintains records regarding water availability, maintenance, testing, and improvements. We have fire flow data on individual fire hydrants electronically recorded back to 1985. The water supply hydrant locations are supplied to the neighboring fire departments that potentially provide mutual and auto aid firefighting capabilities.

The available fire flows are adequate for almost every area that is served by a water purveyor. No new commercial construction or residential development has been permitted without providing adequate water supply and proper hydrant spacing to meet fire flow requirements.
Standards Of Cover

Fire Flow Availability Appendix 5 p.131 has identified the areas in the Department that have a +1 Risk added to the Comprehensive Risk Assessment final illustration when the entire 16th Geo code is not within 600 ft. of a hydrant with a flow of 1000 gpm @ 20 psi.

Water Supply Risk

Water Supply Risk
add +1 if less than 1,000 gpm is found within 600’ of a residential structure within a 16th Geo code

Risk Level
add 0, or +1 to a 16th Geo code

Total Risk Level
for the Department by 16th Geo code

The final Comprehensive Risk illustration shows the 75 square miles of the Department broken down to a 16th Geo code. Appendix 6 p.132 represents the overall risk level to be found in each 16th Geo code, based upon the combined level of risk found in each of the five areas of defined risks. Appendix 6 shows six levels of risk with the colors light green through dark red identifying these levels on the map. This method allows a systematic approach to assessing the problem from the simple to the complex and enables the Department policy makers to characterize and categorize risk levels throughout the Spokane Valley based upon hazards found and identified. It also enables the Department to establish the standards of response coverage, verify how we are meeting the standard, and determine which areas we need to improve or change. The decisions made after review of this data result in safer communities, increased firefighter safety, reduced liability for local governments and more efficient use of public and private resources.
Base Risk Level
1, 2, or 3, found between Value Assessment and Building Density

Plus

Commercial Occupancy
Risk 0, +1, +2 or +3

Plus

Commodities Transport
Risk add +1 only once if any of the following are found in a 16th Geo code - railroad, gas pipeline, or any street over 45 mph

Plus

Water Supply Risk
add +1 If less than 1,000 gpm is found within 600’ of a resident within a 16th Geo code

 Equals

Total Risk Level for SVFD by Geo code

SVFD Comprehensive Risk Illustration Color Code

Risk Level 1
Risk Level 2
Risk Level 3
Risk Level 4
Risk Level 5
Risk Level 6

This is presented in Appendix 6 on page 132.
Section 2 – Risk Hazard Planning

Section two of the Comprehensive Risk Assessment document describes potential non-fire risks that may confront the Fire Department in the future. Some of the topics include natural hazards, weather-related hazards, domestic terrorism, hazardous materials, and transportation.

Natural Hazard Assessment

These natural hazards have been identified as potential risks to Spokane County and could create conditions that could tax the available resources of the Department.

A. Tornados

The Department has a low risk for the threat of a tornado. A tornado is a violently rotating column of air that extends from the base of a thunderstorm and comes in contact with the ground. Major characteristics of a tornado are strong winds that can exceed 200 mph; heavy rain and large hail; destruction of homes; extensive tree damage; utility line breaks and damaged communication towers. There have been very few occurrences of tornados in this area, but these occurrences have been increasing in recent years. In the past century, water has been taken out of the Columbia River and Reservoir and used to irrigate the once arid landscape within the Columbia River Basin. The added moisture in the surrounding landscape will cause the creation of more frequent and severe tornados for this area.

The Department is a part of the overall Emergency Operation Plan for Spokane County and has pre-plans to deal with this type of emergency. If additional assistance is needed, it is available through mutual aid agreements.

B. Severe Thunderstorms

Spokane County is vulnerable to severe thunderstorms. The area experiences several each year. The most common hazards associated with a severe thunderstorm are high winds, hail, lightning, and torrential rains. Thunderstorms most often occur in the spring, summer and fall during the afternoon and...
evenings, but can occur at any time.

The Department is capable of handling incidents caused by a severe thunderstorm and its effects. Existing response plans cover the hazards that would be associated with this type of incident.

C. Floods

Spokane Valley has one river. The Spokane River starts in Kootenai County, Idaho as the outlet for Lake Coeur d’Alene, flows west from Idaho into central Spokane County and the Spokane Valley, through the Cities of Liberty Lake, Spokane Valley and Millwood, then through the rest of Spokane County. Annual snow pack, rainfall intensity, and duration will affect melt off and the potential for floods. Flooding along rivers and streams is natural and inevitable. River flooding occurs when a stream or river flows over its banks and causes considerable damage to nearby property and roads. Dangers of flooding include damaged property, uprooted trees causing utility power outages, drowning, dispersion of hazardous materials, and interruption of communication and transportation systems.

Spokane Valley has several low-lying areas that are susceptible to minor flooding. The Spokane River cuts a deep “V” through Spokane County and, in the early 1900’s, the building of numerous dams along the river from Kootenai County through Spokane County and the ability to regulate the seasonal flow levels has allowed large scale flooding in the Spokane Valley area to be alleviated. The Department usually responds to several minor incidents each year involving citizens recreating in the river throughout the spring, summer and fall.

The Department has a specialty Swift Water/Technical Rescue Team and with mutual aid from the City of Spokane’s Swift-Water Rescue unit, the Department is capable of responding to the type of incidents described above. Also, all first response units carry personal floatation devices and throw ropes to assist in a water rescue.
D. **Droughts**

Drought is a prolonged period of reduced precipitation severe enough to reduce soil moisture, water and snow levels below the minimum necessary for sustaining plant, animal, and economic systems. A natural part of the climate cycle, droughts can reduce water supply, and increase the threat of wildfires.

Spokane Valley has a history of droughts, with several that lasted more than a single season: 1928 to 1932, 1992 to 1994, and 1996 to 1997. The worst two on record occurred in 1997 and 2001; the most recent event in 2005 was not as severe. Presently, reliable forecasts of drought are not attainable for more than a season in advance. However, based on a 100-year history of drought, Spokane Valley, and the Department can expect to experience severe or extreme drought about 10 to 15 percent of the time. With these conditions, the wildland-urban interface faces a greater risk of wildfires meaning greater risk for the population.

The Department has ongoing contact with all municipalities and water districts that have water systems from which The Department obtains water supplies for firefighting. All cities and water districts have effective and efficient water conservation plans in the event of a serious threat to the water supply caused by drought conditions. The Department continues training and improvements in both its wildland-urban interface and the Department’s wildland firefighting training.

E. **Earthquakes**

An earthquake is trembling of the ground that results from the sudden shifting of rock beneath the earth’s crust. Earthquakes may cause landslides and rupture dams. Severe earthquakes destroy the power and telephone lines, gas, sewer, or water mains which, in turn, may set off fires and hinder firefighting or rescue efforts. Earthquakes may also cause buildings and bridges to collapse.

Spokane Valley experienced a cluster of earthquakes in June 2001; the largest measured 4.0. These quakes continued through the fall of 2001. The earthquakes were near the surface, possibly in the basalt layers. An unidentified fault was
suspected, but no relationship was found between the fault and the quakes.

The potential for a severe earthquake in Spokane Valley is low. However, the people, buildings, emergency services, hospitals, transportation, dams, and electric, natural gas, water and sewer utilities are susceptible to an earthquake. Although there is the chance of an earthquake as severe as 5.5 on Richter scale in Spokane Valley, the probability is low.

The Department is capable of handling an incident resulting from the effects of an earthquake. This is an extremely low-risk hazard, and existing response plans would be utilized.

F. Winter Storms

Winter storms are a seasonal occurrence in Spokane Valley. They are usually snowstorms accompanied by high winds that create drifting and occasionally bring large accumulations of snow. The usual damage is to power lines, trees and structures. The most common problem is that snowstorms are disruptive to travel.

All areas of Spokane Valley are vulnerable to the severe winter storms. The affects are transportation problems and loss of utilities. Transportation accidents occur, motorists are stranded, and schools, businesses, and industries close.

The Department is capable of handling incidents caused by a winter storms and its effects. Existing response plans cover the hazards that would be associated with this type of incident. The Department provides a backup power supply system for all fire stations. The Department’s stations are on gas service. Cell phones can be utilized when hardwired phone service is affected.
Security Hazard Assessment

The subsequent hazards have the ability to strain the resources of the Department. They have been identified through risk management profiles. Hopefully, there is little chance of occurrence. However, the Fire Department understands these risks and has plans in place to address each of them.

A. Terrorism

There are five general classifications for “major” terrorist incident planning: biological, chemical, radiological, incendiary, and explosive. Science and the Internet have made information relating to weapons of mass destruction (WMD) technology widely available to an increasing audience. The terrorist attacks of the World Trade Center, the Pentagon, and the Murrah Federal Building have demonstrated that acts of terrorism can occur at anytime and anywhere. In Spokane Valley, the Phineas Priesthood, a domestic terrorism organization, detonated a pipe bomb at the Valley Branch offices of the Spokesman-Review newspaper on April 1, 1996, and robbed a Spokane Valley branch of the US Bank ten minutes later. The Phineas Priesthood repeated this method of operation three months later when they placed a pipe bomb at a Planned Parenthood office in Spokane on July 12. They then robbed the same branch of the US Bank using handguns and a 25-pound propane tank bomb. In February 1999, the FBI, along with local law enforcement and fire departments, responded to a hoax bioterrorism incident involving a tenant dental clinic in the Spokane Valley Planned Parenthood building that received a Christmas card containing an unidentified smudge. The card followed the method of 30-plus cards sent to Planned Parenthood offices and other businesses across the nation, some of which had explicit threats claiming exposure to anthrax spores.

Biological agents create a serious threat due to their ease of access and the rapid manner in which they can spread within a population. Many biological agents can be modified for use as weapons by terrorism advocates. These agents are
disseminated by aerosol propulsion or through air handling systems, by the contamination of food and water supplies, direct skin application or injection. The most commonly discussed agents include anthrax, tularemia, cholera, the plague, and botulism.

Chemical agents are compounds with unique chemical properties that can produce lethal or damaging effects in humans, animals, and plants. Chemical agents take the form of solids, liquids, or gasses depending on temperature and pressure. Most chemical agents are liquid and can be introduced into an unaware population relatively easily using an aerosol generator, explosive devices, container breakages and other forms of covert application. Dispersed as an aerosol, chemical agents have their greatest potential for inflicting mass casualties.

The nuclear threat is the use, threatened use, or threatened detonation of a nuclear bomb or device. Currently, there is no known case in which any non-governmental entity has been able to obtain or produce and assemble the components of a nuclear weapon. The most expected nuclear scenario is the detonation of a large conventional explosive that incorporates nuclear material or explosives detonation near nuclear materials in use, storage, or transit. Of concern is the increasing frequency of radiological materials shipments throughout the U.S. and the world. Eastern Washington’s Hanford Nuclear site represents one of the world’s largest nuclear use, waste storage, and potential radioactive contaminated sites.

Incendiary devices are either mechanical, electrical, or chemical devices used to initiate intentionally combustion and start fires. Their purpose is to destroy and ignite their target or other proximate materials and structures or as a diversion preceding an even larger terrorist or criminal act. These devices are detonated singularly or in series.
Explosive incidents account for 70 percent of all terrorist attacks worldwide. Bombs are terrorist's weapon of choice. The Internet and even local libraries provide ample information for the design and construction of many forms of explosive devices. The FBI reported that 3,163 bombing incidents occurred in the United States in 1994, 77 percent of all explosives occurrences. Residential properties are reported as the most common bombing targets.

There may be no advance warning of a terrorist attack. The number of potential casualties and the extent of the area involved can quickly overwhelm local capabilities. A Weapons of Mass Destruction (WMD) incident will challenge the expertise of emergency response personnel and capacity of the area health care system.

The Department would be overwhelmed by a large-scale WMD incident. However, response plans involving all area emergency services are in place, along with area health care providers. A fully trained and equipped Hazardous Material Response Team from the Spokane Fire Department would provide initial resource information in the Spokane County area. The Department is responsible for EMS and Suppression activities. With the regional Major Incident Support Team (MIST) in place, several annual exercises are run to assure plans are in place to meet the demands that may be required by the Department should one of the events unfold within the region.

B. Volcano

Mount St. Helens is one of a group of high volcanic peaks that dominate the Cascade Range between northern California and southern British Columbia. The distribution of these volcanic peaks in a broad band that roughly parallels the coastline is part of the so-called “Ring of Fire,” a roughly circular array of volcanoes located on islands, peninsulas, and the margins of continents that rim the Pacific Ocean. Even before it began erupting, Mount St. Helens, and, at least, six other volcanoes in the Cascade Range were known to be "active" - that is, to
have erupted at least once during historical time. Few major Cascade volcanoes are known to have been inactive long enough to be considered "extinct" or incapable of further eruption. Most display some evidence of residual volcanic heat, such as fumaroles, hot springs, or hot ground where snow melt is unusually rapid.

On May 18, 1980, at 8:32 in the morning, Mount St. Helens erupted, killing 57 people. After a 5.1 magnitude earthquake, the volcano’s summit slid away in a huge landslide, the largest in earth’s recorded history. The landslide depressurized the volcano’s magma system, triggering a powerful explosion that ripped through the sliding debris. Rock, ash, volcanic gas, and steam were blasted upwards and outward to the north.

The lateral blast produced a column of ash and gas that rose more than 15 miles into the atmosphere in 15 minutes. From a second eruption, magma erupted explosively from the newly created crater. Then avalanches of hot ash, pumice, and gas (pyroclastic flows) poured out of the crater and spread 5 miles to the north. Over the course of the day, prevailing winds blew 520 million tons of ash eastward across the United States and caused complete darkness in Spokane.

The Department is at risk only to the long-range carriage and the fallout from volcanic ash, a potential respiratory hazard for many Spokane residents, especially for those with chronic respiratory conditions. Existing response plans cover the hazards that would be associated with this type of incident.

C. Wildland Fire

Wildland fires are a part of the natural ecological cycle of forest ecosystems. They are the uncontrolled destruction of forests, brush, field crops and grasslands caused by nature or humans. However, as humans encroach on these forests, the risk of catastrophic disaster increases. These areas where humans and forest mix are known as the Wildland Urban Interface. The Wildland Urban Interface in
Spokane County is defined as that area where houses meet or mix with natural/native vegetation. The fuel on the forest floors grows with the spring rains and then becomes more and more flammable later in the year. The wildfire season is usually in the late summer and early fall when fuels have dried, and precipitation is low.

Much of the increase in development over the past decade occurred in the areas that could be considered as part of the wildland urban interface. Both north and south sides of the Department experienced these elevated levels of development. As humans move into the forests to live, the risk of property and life increase and the potential for human-caused fires increases.

On October 15, 1991, there had been no rain for 42 days. Several small fires caused by downed power lines were fanned into a firestorm on October 16th. Spokane County suffered the most damage with 92 wildfires consuming 35,000 acres, causing two deaths and $15 million in damage.

The Valleyview Fire began on the afternoon of July 10, 2008. The Department was the first Department to be dispatched and took control of what started as an extinguished (3 days out) burn pit fire and turned into an 1100 acre wind driven Wildland-Urban Interface Fire. In the end, eleven homes and ten outbuildings (barns, garages, and shops) were destroyed, with no fatalities.

The Department is a part of the overall Emergency Operation Plan for Spokane County and has pre-plans to deal with this type of emergency. If additional assistance is needed, it is available through mutual aid agreements. The Department continues annual wildland firefighting training and has a 2007 Wildland Urban Interface Triage map showing the 1100 homes built in the Wildland Urban Interface throughout the Fire Departments boundaries, and how they are rated (green, yellow and red) for the ability to protect them from Wildland Urban Interface fires. See Figure 1.12 on p.114.
Increased Readiness

The Department officials will monitor situations and determine when the need for additional resources may be needed. Currently, the 2nd Battalion Chief has been implemented on a shift basis, and the Resource Officer is on pager to acquire and manage the needed resources to provide timely emergency response capabilities for the remaining department while firefighters are occupied with another major response. The Department also has full auto and mutual aid agreements with the surrounding departments and districts to provide us with additional resources when necessary. Personnel callback procedures are also in place to assemble people and equipment for emergency response in a timely manner.

Technological / Human Hazards

The following man-made hazards have been identified as potential risks to the citizens of Spokane Valley. A major incident involving these hazards could strain the resources of the Fire Department.

A. Hazardous Materials - Fixed and Mobile

Hazardous material incidents are intentional and unintentional releases of a material, which because of their chemical, physical, or biological nature, pose a potential risk to life, health, environment, or property. Each incident’s impact and resulting response depend on a multitude of interrelated variables that range from the quantity and specific characteristic of the material to the conditions of the release and area/population centers involved. Releases may be small and easily handled with local response resources or rise to catastrophic levels with long-term consequences that require representatives of federal, state, and local governments to be present at the scene, with each level consisting of personnel from between five and fifteen different agencies.

The most vulnerable areas are those associated with the storage and transport of hazardous materials and areas adjacent to the major transportation corridors.
involving trucking, railroads and pipelines. These corridors are often adjacent to highly populated commercial and residential centers. The greatest threat appears to be the commodity transport corridors through the City of Spokane Valley. However, areas of the City of Liberty Lake, Millwood and unincorporated areas are as vulnerable. Numerous critical facilities are vulnerable to hazardous spills. These include but are not limited to a major hospital facility, Kaiser Aluminum, the Spokane River and the aquifer. It is difficult to identify which critical facilities will be affected when the location of the facilities and the hazardous materials is widespread throughout the Department’s boundaries. The Department plays the principle role in any hazardous material incidents within our boundaries as we are the first arriving agency with the ability to contain or control the incident.

The Department personnel will respond in a Defensive mode taking appropriate measures to avoid coming in contact with the released substance or taking actions to mitigate a release that would place them in danger of coming into contact with the released substance. The primary function of the Operations level responder is to isolate the release from a safe distance, keep if from spreading, and to protect exposures including the environment. The basic functions are isolate the hazard area and control access, product identification, hazard and risk assessment, basic control, containment, and confinement appropriate to the level of training.

When requested the Spokane Fire Departments Hazardous Materials (Haz-Mat) Team will respond to releases of hazardous materials that exceeds The Department’s Operations level training and is categorized at a Technician level of training to be mitigated. In the few situations that this happens each year, the Department’s personnel will assist the Haz-Mat team in mitigating the situation.

B. Utility Failures

Spokane Valley is vulnerable to utility failure by loss of water, gas, phone, or
electric service. A utility failure could affect the response time of emergency services. Often the failure is only for a short period, but there are instances such as those created by a winter storm that could increase the failure time from hours to days.

The Department currently provides backup electrical power to its ten stations, along with emergency food and water supplies. The Department also has 20 active Fire Core members. These individuals have been trained to assist the Department and the community with numerous functions in different types of disaster scenarios. Their roles might include closing streets off for downed power lines or checking on individual neighbors during major snow events to make sure that their needs are being met (i.e. food, water, heat, medication).

C. **Transportation Accidents**

Transportation accidents can involve all modes of travel including aircraft, railroad, truck, and auto. Spokane Valley has one interstate highway, I-90. WA-27 and WA-290 are also major routes through the Valley. Railroads that have service through the Valley are the Burlington Northern Santa Fe and Union Pacific. There have been incidents over the past years at all of the listed locations. Although most accidents are isolated at the immediate site, there is a possibility that a hazardous materials accident on any of the highways or railroads, or at any large aircraft crash, could strain the resources of the Department.

Depending on the size of the incident, and taking into consideration the number of casualties, the Department is capable of responding to most incidents on highways with two station responses. This is due to the high speeds that are found at these locations and limited access to I-90 (freeway). If an incident is located close to the boundary areas, full auto aid agreements with Spokane Fire Department, District 8 Fire Department and soon with Kootenai Fire Department, will send a response automatically or because of a request for mutual aid with District 9 Fire Department or District 13 Fire Department.
Major Incident Planning

Spokane County officials along with the Sheriff’s Department, Washington State Patrol, Inland Empire Fire Chiefs Association, Department of Emergency Management, Fairchild Air Force Base and Industrial Business Leaders have joined to establish one emergency management entity and office. The citizens of Spokane County lead the organizational structure of the Comprehensive Emergency Management Plan (CEMP) followed by the Board of County Commissioners, Mayors, and City Councils. The Emergency Management Advisory Council (EMAC), which is made up of:

- City of Spokane Administrator
- City of Spokane Chief Financial Advisor
- Spokane County Chief Executive Officer
- City of Spokane Valley Chief Financial Officer
- A representative from the Northwest Law Enforcement Leadership Group
- A representative from the Inland Northwest Law Enforcement Liaison Group
- A representative of the Inland Empire Fire Chiefs Association
- An administrator representing small cities
- Department of Emergency Management
- The Local Emergency Planning Committee (LEPC)
- Disaster Council/Citizen Corps Council
- Disaster Committee, and Search and Rescue Council

These are all overseen by the groups above. Through these organizations, the region and county prepare for a catastrophic event that could occur in the region by developing the CEMP.

The Spokane City/County Comprehensive Emergency Management Plan (CEMP) is used to guide organizational behavior before, during and after a disaster. It develops and describes a comprehensive program that defines who does what, when, and where, to mitigate, prepare for, respond to, and recover from effects of natural and manmade disasters. The initial response to a disaster, or to the threat thereof, will be by the measures outlined in the Emergency Support Functions (ESF) plans. Overall direction, control, and coordination to support community response to a disaster will be established
through the Emergency Coordination Center (ECC). The Spokane County ECC is configured around a Multi-Agency Coordination (MAC)/Emergency Support Function (ESF) model.

The ECC will be staffed at the appropriate level to:

• Collect, record, analyze, display, and distribute information.
• Coordinate public information and warning.
• Coordinate governmental and emergency activities.
• Support first responders by aiding management and distribution of resources and the restoration of services.
• Conduct appropriate liaison and coordination activities with all levels of government, public utilities, volunteer and civic organizations, private industry, and the public.

Spokane County has a “standing” MAC and pre-designated MAC Agency Representatives for all Spokane County Fire and Law Enforcement Agencies called the Spokane Area Fire Coordinator and the Spokane Area Law Enforcement Coordinator. The Area Coordinator has at their disposal the County Resource Plan and the Field Operations Guide (FOG) to mitigate the emergency events within the county and region.

The development and use of the Spokane County Regional Incident Management Team (SCRIMT) which is an All Hazard Type III team that is used throughout the region, is another example of the Department’s ability to assist the county and region on larger than normal events. Whether it is to assist another agency in dealing with an event in their jurisdiction or relieve them of their responsibility when they reach their exhaustion point. Each of the three Type III teams is made up of area fire and law enforcement individuals that have been trained in both the Incident Command System (ICS) and the National Incident Management System (NIMS).

The training for the MAC individuals and SCRIMT teams is accomplished through annual training presented through tabletop and field exercises. Train derailments, building collapses, and wildland fires are just a few of the examples that are used for annual training events.
Section 3 – Hazard Zones

Section three of the Comprehensive Risk Assessment program describes fire and non-fire risks in each of the stations first response areas (Hazard Planning Zones) located within the jurisdiction of the Fire Department. There is, at least, one fire risk located in each planning zone. Routine and non-fire risks are also identified in each fire zone. A risk factor includes both the probability and the consequence of a serious fire incident. An example of a risk factor would be the fire load and the District’s ability to control a particular incident, including water demand. A majority of the occupancies are classified as routine hazards.

HAZARD PLANNING ZONE #1

OVERVIEW

Location: Zone #1 is located in the central southwest portion of the City of Spokane Valley

Square Miles: 3.6

Boundaries: Refer to Appendix A - p. 153

Towns/Cities: City of Spokane Valley

Major Occupancies: Sunshine Gardens, Sunshine Manor, University Shopping Center

Major Thoroughfares:

Paved: I-90, Dishman-Mica Road, Sprague Avenue, Appleway Avenue, Argonne Road and Mullan Road

Rail: Union Pacific
Standards Of Cover

Fire Protection: Station #1

Station #1 is located at 10319 East Sprague Avenue, in the city limits of Spokane Valley. Built in 1976, it houses one ALS Apparatus with up to four-man crew, one Ford F-250 for Battalion #1 Chief Officer and, 1 Reserve Apparatus

Backup Fire Protection:

1. Station #2, located in Zone #2 at 9111 East Fredrick, two and three-quarter miles north by northwest of Station #1
2. Station #6, located in Zone #6 at 6306 East Sprague, two and one-half miles west of Station #1
3. Station #9, located in Zone #9 at 12121 East 32nd, three and one-quarter miles south by southeast of Station #1.
4. Station #7, located in Zone 7 at 1121 South Evergreen, two and three-quarter miles east of Station #1.
5. Station #8, located in Zone #8 at 2110 North Wilbur, one and three-quarter miles northeast of Station #1.

Water Supply for Fire Protection: Modern Electric Water District, Spokane County Water District #3, Hutchinson Irrigation District #16 and Model Irrigation District #18.

Hydrants: Throughout the City of Spokane Valley.

Typical Hydrants: Mueller

Hydrant: GPM: 1000-1500, 97% are 3 ports.

DESCRIPTION:

Zone #1 is made up of urban and rural residential areas, as well as commercial, educational, and assembly occupancies. The primary occupancies of this zone are mainly residential, consisting of single-family homes ranging from 900 to 2000 sq ft, and some trailer parks. The Department mainly responds to medical alarms and automobile accidents.
RESPONSE TIMES:

Response times for Hazard Zone #1 are based on the urban and rural classification due to population versus square miles of the Department.

FIRE ONLY

Hazard Zone #1/Station #1 has in the urban and rural classification been analyzed and identified with the 1st Arriving Apparatus Baseline history of 90% in 2010 at 07:22, 2011 at 07:15, 2012 at 06:11, 2013 at 07:45, 2014 at 07:55 and 2015 at 07:52 Total Response Time.

MEDICAL ONLY

Hazard Zone #1/Station #1 responds to any EMS medical (BLS) alarms in the urban and rural classification. With an identified Baseline history of 90% in 2010 at 06:50, 2011 at 06:41, 2012 at 06:19, 2013 at 06:30, 2014 at 07:33 and 2015 at 07:07 Total Response Time.

Hazard Zone #1/Station #1 responds to any ALS medical alarms in the urban and rural classification. With an identified Baseline history of 90% in 2010 at 06:46, 2011 at 06:36, 2012 at 06:27, 2014 at 07:24 and 2015 07:02 Total Response Time.

WORST HAZARD RISK

Spokane Discount Mercantile is located at 523 South Dishman Mica Road, two miles west by southwest of Station #1. It is a known firefighter hazard due to its Bowstring Truss construction with a common attic. This also has high fuel loads of merchandise. The premises were sprinkled throughout the 13200 sq. ft. structure in 2007, with a Knox box, added for quick access. This 13,200 sq. ft. sprinkled building has the need of 1500 gpm for 2 hrs duration, which is supplied by one 1500 gpm hydrant within 300 ft., the second 1500 gpm hydrant is within 600 ft., and the third 1500 gpm hydrant is 1000 ft. away. Firefighters will need to use extreme caution with this building. Anything more than an incipient phase fire should be considered a Defensive fire.

Ultimate Truck and Auto is located at 15 North Argonne Road, one mile west of Station #1. It is also a Bowstring Truss construction, 7500 sq. ft. structure with a common attic. The fuel load is moderate, with no sprinkler or fire alarm system. This 7500 sq. ft. non-sprinkled building has the need of 2250 gpm for 2 hours duration, which is supplied by one of three 1500 gpm hydrants
within 300 ft. Firefighters will need to use extreme caution with this building. Anything more than an incipient phase fire should be considered a Defensive fire.

The Gardens is located at 414 South University Road, one-half mile southeast of Station #1. It is a single story structure, fully sprinkled and alarmed. It is a high life hazard in a fire scenario due to 93 non-ambulatory residents on the premises. Removing or sheltering these individuals in place would be of high priority. Sheltering off-site with the Valley Spokane Transit Authority main bus stop located just north of this location would be one of many possibilities. With this sprinkled 6000 sq. ft. building the need for 1500 gpm for 2 hrs is available with three 1500 gpm hydrants within 300 ft.

**ROUTINE HAZARD RISKS**

A large amount of non-fire risks in Zone #1 would be medical responses to residences and nursing homes. Routine fire risks are fires occurring at single-family residences and mobile homes. Residences are of 1200 sq. ft. average size, with hydrants spaced throughout the City of Spokane Valley. 99% of Hazard Zone #1(Station #1 first response area) is provided with 1000 gpm hydrant within 600 ft. Zone #1 also has the potential for fatal and serious traffic accidents due to Dishman Mica Road and I-90 on its northern border.

**UNIQUE HAZARD RISKS**

On the Southwest border of Zone #1 is a Natural Wildlife area that is prone to Wildland fires needing suppression or support from Station #1. Water Tender shuttles are available via Mutual Aid to supply areas outside of the hydrant systems in Zone #1. Wildland fires are more common during certain times of the year, and the effects of weather upon the region. A derailment on the Union Pacific rail line along Dishman Mica is possible, but mainly carries lumber in and out of the area.

**Properties given a +3 High Risk on the Comprehensive Risk Assessment in this Hazard Zone due to Occupancy Class of building are –**

- Sunshine Gardens  10410 E. 9th Ave.
- Sunshine Terrace  1102 S. Raymond Rd.
HAZARD PLANNING ZONE #2

OVERVIEW

Location: Zone #2 covers the northwest portion of the Department.

Square Miles: 5.1

Boundaries: Refer to Appendix A - p. 153

Towns/Cities: the City of Millwood and the City of Spokane Valley

Major Occupancies: Inland Empire Paper Company, West Valley High School, and Bethany Place.

Major Thoroughfares:

Paved: WA 290 and I-90

Rail: Burlington Northern Santa Fe and Union Pacific

Airports: Felts Field is on the west border, two hangers are in Hazard Zone #2.

Bodies of Water: Spokane River

Fire Protection: Station #2

Station #2 is located at 9111 East Fredrick Avenue, was built in 2002 and houses three personnel, one ALS engine, one Kenworth T-300, and one PJ Carhauler Trailer.
Standards Of Cover

Backup Fire Protection;

1. Station #1, located in Zone #1 at 10319 East Sprague, two and three-quarter miles south by southeast from Station #2.
2. Station #6 located in Zone #6 at 6306 East Sprague Ave., three and one-half miles south by southwest from Station #2.
3. Station #8 located in Zone #8 at 2110 North Wilbur, two and one-quarter miles southeast from Station #2.
4. Mutual Aid Agreement – City of Spokane Fire Department Station #8 at 1608 North Rebecca, three miles west of Station #2.
5. Mutual Aid Agreement – Spokane County District #9, Station #94 at 7017 North Jensen, three miles north of Station #2.

Water Supply for Fire Protection: City of Millwood Water Department, Orchard Avenue Irrigation District #6, Spokane County Water District #3, Modern Electric Water Company, Hutchison Irrigation District #16, Irvin Water District #6 and City of Spokane Water Department.

Hydrants: Throughout the City of Millwood, the City of Spokane Valley, and the Unincorporated areas of the Department.

Typical Hydrant: Mueller

Class: G 1000-1500 gpm

Make: Mueller

GPM: 1000

Steamer: 4.5

Tender Shuttle: Under Mutual Aid Agreements for areas without adequate water supply

DESCRIPTION:

Hazard Zone #2 is made up of urban, suburban and rural residential areas, as well as commercial,
Standards Of Cover

educational, industrial, and assembly occupancies. With two cities, the primary occupancies of this zone are mainly residential, single-family homes ranging from 900 to 2000 sq ft. the Department mainly responds to medical alarms, and automobile accidents.

The two cities in Hazard Zone #2 are Millwood and a portion of Spokane Valley. The city of Millwood with a population of 1790 is mainly residential, one paper mill and small retail outlets. The segment of the City of Spokane Valley in this Zone is also residential, with light manufacturing and assorted retail outlets. The remainder of this Zone is a part of the unincorporated area of the Department, made up of urban, rural, and suburban residential areas. Both I-90 and WA 290 run east and west through this Zone, with Argonne Rd. (4 lanes) running north and south through the middle of the Zone. The Spokane River flows from east to west, along with both the Burlington Northern Santa Fe and Union Pacific Railroad through the zone. The river itself cuts this zone almost in half, with only one bridge allowing limited access to the unincorporated area of this zone. The river is at its slowest flow in this part of the Department, attracting citizens throughout the year, creating challenging opportunities for the Department. Felts Airfield is located on the west boundary of the Hazard Zone, but has only two hangers, storing 30 planes within the Zone.

**RESPONSE TIMES:**

Response times for Hazard Zone #2 are based on the urban, suburban, and rural classification due to population versus square miles of the Department.

**FIRE ONLY**

Hazard Zone #2/Station #2 has in the urban, suburban, and rural classification been analyzed and identified. With the 1st Arriving Apparatus Baseline history of 90% in 2010 at 08:23, 2011 at 10:25, 2012 at 07:05, 2013 at 08:37, 2014 at 07:27, and 2015 at 09:29 Total Response Time.

**MEDICAL ONLY**

Hazard Zone #2/Station #2 responds to any EMS medical (BLS) alarms in the urban, suburban, and rural classification. With an identified Baseline history of 90% in 2010 at 07:58, 2011 at 07:15, 2012 at 07:03, 2013 at 07:25, 2014 at 07:33, and 2015 at 07:35 Total Response Time.
Hazard Zone #2/Station #2 responds to any ALS medical alarms in the urban, suburban, and rural classification. With an identified Baseline history of 90% in 2010 at 07:54, 2011 at 06:55, 2012 at 06:58, 2013 at 07:27, 2014 at 07:30, and 2015 at 07:22 Total Response Time.

**WORST HAZARD RISK**

Inland Empire Paper Company at 3320 N. Argonne Road was shown by the Comprehensive Risk Assessment to be at a Risk Level of 6 out of 7. This was due to cavernous buildings and various hazardous materials used throughout their manufacturing process. The majority of structures on this site are sprinkled with both wet and dry systems, including a Deluge system at one process location. The Hazardous Materials are stored in separate control areas throughout the structures of this complex. The level of these materials is also below the maximum allowable per the fire code per control area. Some of the worst materials are as follows: Hydrochloric Acid, Hydrogen Peroxide, N-Alkyl Dimethyl Benzyl, Ammonium Chloride, Hydrochloric Acid, Sodium Hydroxide, Sodium Hydroxide Cleaner, and Sodium Metabisulfate. The available on-site water consists of a well with fire pumps (one electric and one diesel) with a small storage tank (approx. 10,000 gals.) for sprinkler demand. One hydrant on site (SW corner) is supplied by Millwood water.

**ROUTINE HAZARD RISK**

A large amount of non-fire risks in Zone #2 would be medical responses to residences and Bethany Place nursing home. Routine fire risks are fires occurring at single-family residences and Wildland fires. Residences are of 1200 sq. ft. average size, with hydrants spaced throughout the City of Millwood and the Spokane Valley. 96% of Hazard Zone #2 (Station #2 first response area) is provided with 1000 gpm hydrant within 600 ft. Running adjacent to the Spokane River is the Centennial Trail, which has numerous brush and illegal campfires throughout the summer. Zone #2 also has the potential for fatal and serious traffic accidents due to WA 290 and I-90.

**UNIQUE HAZARD RISK**

Both the Burlington Northern Santa Fe and Union Pacific Railroad transport commodities east to west on two separate rail lines; these could derail and create a major hazardous material spill within this zone. Some of the items being transported would be Chlorine, Anhydrous Ammonia,
LPG, and NPG. One of the rail lines is positioned parallel to a 4ft. diameter pressurized commodities transport pipeline, running east to west through the zone. Both rail lines and the pipeline have been addressed within Department’s Comprehensive Risk Assessment. The MAC Area Coordinator will use the Comprehensive Emergency Management Plan (CEMP) and The Spokane County ECC along with the Emergency Support Function (ESF) model to assist the Department in applying all regional resources to mitigate these types of incidents to their conclusion.

**There are no Properties given a +3 High Risk on the Comprehensive Risk Assessment in this Hazard Zone due to Occupancy Class.**
HAZARD PLANNING ZONE #3

OVERVIEW

Location: Zone #3 covers the southeast portion of the Department.

Square Miles: 14.4

Boundaries: Refer to Appendix A - p. 153

Towns/Cities: the City of Liberty Lake and a small portion of the City of Spokane Valley

Major Occupancies: Guardian Angel Assisted Living and Huntwood Industries.

Major Thoroughfares:

Paved: I-90

Rail: N/A

Airports: N/A

Bodies of Water: Spokane River and Liberty Lake.

Fire Protection: Station #3

Station #3 is located at 2218 North Harvard Avenue, was built in 1997 and houses three personnel, one ALS/extrication engine, one Ford F-350, one air trailer, a Kawasaki Mule, and one All Terrain Vehicle (ATV) trailer.
Standards Of Cover

Backup Fire Protection;

1. Station #4, located in Zone #4 at 22406 East Wellesley, one and three-quarter miles north from Station #3.
2. Station #10 located in Zone #10 at 17217 E. Sprague Ave., three and one-half miles southwest from Station #3.
3. Station #5 located in Zone #5 at 15510 E. Marietta Ave., four and one-half miles west from Station #3.
4. Mutual Aid Agreement – Spokane County Fire District #8, Station #85 located at 3324 S. Linke Rd., six and one-quarter miles west by southwest of Station #3.
5. Mutual Aid Agreement – Kootenai County Idaho Fire District, Station #2 located at 4320 W. Seltice Way, Post Falls, ID, three miles northeast of Station #3.


Hydrants: Hydrants are located throughout the City of Liberty Lake, but hydrants cover only 35% of the City of Spokane Valley and the unincorporated areas of this zone.

Typical Hydrant:

- Class: G 1000-1500 gpm
- Make: Mueller
- GPM: 1000
- Steamer: 4.5

Tender Shuttle: Under Mutual Aid Agreements for areas without adequate water supply

DESCRIPTION:

Hazard Zone #3 is made up of suburban and rural residential areas, as well as commercial, educational, industrial, and assembly occupancies. With two cities, the primary occupancies of this zone are residential, single-family homes ranging from 900 to 2000 sq. ft. the Department mainly responds to medical alarms, and automobile accidents.

The two cities in Hazard Zone #3 are Liberty Lake and a small portion of Spokane Valley. The City of Liberty Lake with a population of 8975 is mainly residential, light industrial and small
retail outlets. Another part of Zone #3 is in the City of Spokane Valley, consisting of suburban and rural residential and assorted retail outlets. The remainder of this Zone is part of the unincorporated area of the Department, which is made up of rural residential and some suburban residents. Liberty Lake is also located in the unincorporated area. Liberty Lake covers four sq. mi., allowing the Department to participate annually in Ice and Water Rescue Training. I-90 runs east and west through this Zone while the Spokane River flows east to west on the northern border of Zone #3. There are several large tracts of land in this Zone that are being developed or are in the beginning stages of future development. All of these developments are a combination of residential, mixed with commercial retail stores and light industrial. Greenstone Corporation has plans in motion that would bring some residential neighborhoods, along with eight to nine-story taxpayers, with some light and heavy industrial complexes, covering about 780 acres.

**RESPONSE TIMES:**

Response times for Hazard Zone #3 are based on the suburban and rural classification due to population versus square miles of the Department.

**FIRE ONLY**

Hazard Zone #3/Station #3 has in the suburban and rural classification been analyzed and identified. With the 1st Arriving Apparatus Baseline history of 90% in 2010 at 12:40, 2011 at 11:42, 2012 at 10:49, 2013 at 11:28, 2014 at 09:21, and 2015 at 08:40 Total Response Time.

**MEDICAL ONLY**

Hazard Zone #3/Station #3 responds to any EMS medical (BLS) alarms in the suburban and rural classification. With an identified Baseline history of 90% in 2010 at 10:08, 2011 at 09:51, 2012 at 09:12, 2013 at 09:16, 2014 at 09:23, and 10:10 Total Response Time.


**WORST HAZARD RISK**

Huntwood Industries at 23800 E. Appleway Ave. is a manufacturer of furniture, fixtures, and bedding. On the Comprehensive Risk Assessment, this Geo-code (business) scored as a plus four
out of seven. However, the spacious two floors covering 552,056 sq. ft. with offices and large manufacturing space with storage in the warehouse is designated as a moderate fire load. This building is a monitored Fire Alarm System with sixteen different sprinkler systems spread throughout the interior. The 10” water main surrounding the building has eight hydrants. But with two hydrants flowing 1500 gpm from the 10” main that loops the building, there would not be much more available flow out of the water main system. Another factor would be with the sprinkler system already activated, the two hydrants may provide less than originally planned for. There is the option of pumping a hydrant from Molter Ave. This is another 14” main coming from a second well that would be able to supply water from a fire apparatus 1300’ through 5” hose to a second fire apparatus for attack or a water tower. The building is also plumbed with wet hose lines throughout, connected into the sprinkler/standpipe risers, allowing the firefighters to attach 1 ¾” attack hose deep within the building. A Deluge system protects the Spray Booth.

**ROUTINE HAZARD RISK**

A large amount of non-fire risks in Zone #3 would be medical responses to residences and nursing homes. Routine fire risks are fires occurring at single-family residences. Residences are of 1200 sq. ft. average size, with hydrants spaced throughout the City of Liberty Lake, City of Spokane Valley and the unincorporated areas of Zone #3. 50% of Hazard Zone #3 is provided with 1000 gpm hydrant within 600 ft. Another 10% is fields with plans for future development. Zone #3 also has the potential for fatal and serious traffic accidents due to WA 290 and I-90.

**UNIQUE HAZARD RISK**

Urban-Wildland fire could be an occurrence on any windy afternoon. The east side and southeast corner of Zone #3 are populated with medium and light forested lands with residences built in these areas. The Greenridge Development is the only area with eight hydrants located within these neighborhoods. All the hydrants are under 1000 gpm. The homes in this area have been triaged, and the use of brush trucks, Class “A” Pumpers, and water tenders from auto and mutual aid agreements with Fire District #8 and Fire District #13 are in place to address this area.

**There are no Properties given a +3 High Risk on the Comprehensive Risk Assessment in this Hazard Zone due to Occupancy Class.**
HAZARD PLANNING ZONE #4

OVERVIEW

Location: Zone #4 is located in the northeast portion of the Department; it has several square miles of the City of Spokane Valley in its boundaries.

Square Miles: 13.6

Boundaries: Refer to Appendix A - p. 154

Towns/Cities: City of Spokane Valley

The Major Occupancies: Mountain View Middle School, Otis Orchard Elementary, and Maranatha Church.

Major Thoroughfares:

Paved: WA 290

Rail: Burlington Northern Santa Fe and Union Pacific

Fire Protection: Station #4

Station #4 is located at 22406 East Wellesley Ave. in the Community of Opportunity which is found in the unincorporated area of the Department. Built in 1984, it houses one BLS engine with a three-man crew and an F-550 brush truck.
Backup Fire Protection:

1. Station #3, located in Zone #3 at 2218 North Harvard Avenue, one and three-quarter miles north from Station #4.
2. Station #10 located in Zone #10 at 17217 E. Sprague Ave., five miles south by southwest from Station #4.
3. Station #5 located in Zone #5 at 15510 E. Marietta Ave., five and one-quarter miles west from Station #4.
4. Mutual Aid Agreement – Spokane County Fire District #8, Station #85 located 3324 S. Linke Road, eight miles south by southwest of Station #4.
5. Mutual Aid Agreement – Spokane County Fire District #13, Station #1 location five and one-quarter miles northeast of Station #4.

Water Supply for Fire Protection: Consolidated Irrigation District #19, Moab Irrigation District #20 and Pioneer Water Company. At 6703 N. Idaho Rd. there is a private hydrant system at the Word of Life Community Church with two hydrants pressurized by private pump.

**Hydrants:** Throughout the unincorporated areas of Spokane Valley.

**Typical Hydrants:** Mueller

**Hydrant: GPM:** 1000-1500, 50% of Zone #4 is covered by 1000gpm, 600’ from residents, with three ported hydrants.

**DESCRIPTION:**

Zone #4 is made up of rural and a small amount of suburban residential areas, as well as commercial retail, educational, and assembly occupancies. The primary occupancies of this zone are mainly residential, consisting of single-family homes ranging from 900 to 2000 sq ft, and some trailer parks. The Spokane River flows east to west on the south border of Hazard Zone #4.

**RESPONSE TIMES:**

Response times for Hazard Zone #4 are based on the rural classification due to population versus square miles of the Department.
**FIRE ONLY**

Hazard Zone #4/Station #4 has in the rural and suburban classification been analyzed and identified. With the 1st Arriving Apparatus Baseline history of 90% in 2010 at 09:57, 2011 at 10:12, 2012 at 09:20, 2013 at 11:20, 2014 at 13:20, and 2015 at 10:10 Total Response Time.

**MEDICAL ONLY**


**WORST HAZARD RISK**

On the Departments Comprehensive Risk Assessment the Northwest Pacific Gas Meter Station, which is located at 6112 N. Starr Rd. was found to be risk level four out of six. A 4 ft. diameter pressurized natural gas commodities transport pipeline runs west to east through the zone. The pipeline has been addressed within the Department’s Comprehensive Risk Assessment. The Departments Target Hazard instructions state to contact Avista Gas and Electric for assistance with any problem at this site. Isolate, Evacuate and Do Not attempt to extinguish the fire, place unmanned monitors for exposure protection. If a situation is of an explosive nature, the MAC Area Coordinator will use the Comprehensive Emergency Management Plan (CEMP) and The Spokane County ECC along with the Emergency Support Function (ESF) model to assist the Department in applying all regional resources to mitigate these types of incidents to their conclusion.

**ROUTINE HAZARD RISKS**

A large amount of non-fire risks in Zone #4 would be medical responses to residents. Routine fire risks are fires occurring at single-family residences and mobile homes. Residences are of 1200 sq. ft. average size, with hydrants spaced throughout the unincorporated areas of the Department. 83% of Hazard Zone #4 (Station #4 first response area) is provided with 1000 gpm
UNIQUE HAZARD RISKS

Both the Burlington Northern Santa Fe and Union Pacific Railroad transport commodities east to west on two separate rail lines. The trains could derail and create a major hazardous material spill within this zone. Some of the items being transported would be Chlorine, Anhydrous Ammonia, LPG, and NPG. One of the rail lines is positioned parallel to a 4’ diameter pressurized commodities transport pipeline, running east to west through the zone. Both rail lines and the pipeline have been addressed within the Department’s Comprehensive Risk Assessment. The MAC Area Coordinator will use the Comprehensive Emergency Management Plan (CEMP) and the Spokane County ECC along with the Emergency Support Function (ESF) model to assist the Department in applying all regional resources to mitigate these types of incidents to their conclusion.

The Zephyr Lodge has historical value within the Liberty Lake area and region. The building itself is a 4000sq. ft. wooden structure used as a retreat site for groups. There is a private hydrant system on this site with a 5000-gallon tank for supply. The effort by the Department at this site for fire protection would include a tender operation, with auto/mutual aid support, from District #8, District #13 and District #9.

There are no Properties given a +3 High Risk on the Comprehensive Risk Assessment in this Hazard Zone due to Occupancy Class.
HAZARD PLANNING ZONE #5

OVERVIEW

Location: Zone #5 is located in the north central portion of the City of Spokane Valley

Square Miles: 7.5

Boundaries: Refer to Appendix A - p. 154

Towns/Cities: City of Spokane Valley.


Major Thoroughfares:

Paved: WA 290 and I-90

Rail: Burlington Northern Santa Fe and Union Pacific

Fire Protection: Station #5

Station #5 is located at 15510 E. Marietta Ave., in the north central area of the Department in the City of Spokane Valley. Built in 1995, it houses one ALS engine with a three-man crew, one reserve engine, and one F-350.

Backup Fire Protection:

1. Station #3, located in Zone #3 at 2218 North Harvard Avenue, four and one-quarter miles east from Station #5.
2. Station #8 located in Zone #8 at 2110 N. Wilbur Ave., three and one-quarter miles west from Station #5.

3. Station #4 located in Zone #4 at 22406 East Wellesley Ave., five and one-quarter miles east from Station #5.

4. Station #10 located in Zone #10 at 17217 E. Sprague Ave., three and three-quarter miles southeast from Station #5.

**Water Supply for Fire Protection:** Consolidated Irrigation District #19, Trentwood Irrigation District #3, Vera Irrigation District #15 and four private water systems Kaiser Aluminum, Spokane Industrial Park, Pre-Mix Concrete and Kemira.

**Hydrants:** Throughout the City of Spokane Valley.

**Typical Hydrants:** Mueller

**Hydrant: GPM:** 1000-1500, 89% of Zone #5 is covered by 1000 gpm, 600’ from residents, with three ported hydrants.

**DESCRIPTION:**

Zone #5 has primary occupancies of light, medium and heavy industrial. There is commercial retail, urban, rural and suburban residential and single-family homes ranging from 900 to 1800 sq ft. The Spokane River flows from east to west; I-90 and WA 290 run east to west.

**RESPONSE TIMES:**

Response times for Hazard Zone #5 are based on the urban and rural classification due to population versus square miles of the Department.

**FIRE ONLY**

Hazard Zone #5/Station #5 has in the urban and rural classification been analyzed and identified. With the 1st Arriving Apparatus Baseline history of 90% in 2010 at 09:12, 2011 at 09:50, 2012 at 09:21, 2013 at 09:58, 2014 at 10:30, and 2015 at 09:01 Total Response Time.
MEDICAL ONLY

Hazard Zone #5/Station #5 responds to any EMS medical (BLS) alarms in the urban and rural classification. With an identified Baseline history of 90% in 2010 at 08:48, 2011 at 08:15, 2012 at 08:14, 2013 at 08:27, 2014 at 08:07, and 2015 at 08:16 Total Response Time.

Hazard Zone #5/Station #5 responds to any ALS medical alarms in the urban and rural classification. With an identified Baseline history of 90% in 2010 at 08:31, 2011 at 08:13, 2012 at 08:03, 2013 at 08:16, 2014 at 08:29, and 2015 at 08:03 Total Response Time.

WORST HAZARD RISK

In the Department’s Comprehensive Risk Assessment there was one-quarter mile Geo code that had the maximum risk level of seven. This was found within Hazard Zone #5. The following are the risk factors that led to this extreme risk level:

1. The value found to be >$30 million in the quarter mile Geo code. This made the Geo code +3 (High Risk) in the Base Risk factor.
2. Building Occupancy Classification I-2 for Spokane Valley Mall Cinemas allowed this quarter mile Geo code to have a +3 High-Risk factor added.
3. This quarter mile Geo code is adjacent to I-90, which is identified as a +1 risk on the Commodities Transport Risk Map.
4. The quarter mile Geo code has a +1 risk added because of the lack a water supply to cover the I-90 corridor.

Spokane Valley Cinemas at 14760 E. Indiana is at high risk for exposure to commodities that are transported on I-90 if there was a hazardous materials accident on the freeway. The establishment is 500’ from the freeway for a buffer area and is surrounded by an excellent 1500 gpm hydrant system. This structure is also a fully alarmed and sprinkled building with 24-hour security.

Two of the Departments biggest concerns are Kaiser Aluminum and Spokane Industrial Park. Both of these locations received a Risk level of 4 Medium or 5 High/Special on the Comprehensive Risk Assessment and were found in Hazard Zone #5. Both of these locations were built in 1942, with heavy wood construction. Kaiser Aluminum has a footprint area of
2,618,000 feet or 65 acres under the roof. This structure has wet, dry and chemical suppression systems throughout. This site has a private hydrant system, with five electric 1500 gpm pumps and two diesel 1500 gpm pumps. It is fully alarmed and staffed 24 hrs. Some of the chemicals to be found on this site in large quantities are: Sulfuric Acid, Aluminum Chloride, Hydrochloric Acid and Phosphonic Acid.

Spokane Industrial Park covers the equivalent of one square mile with 33 100’x 300’ large warehouses and approximately 78 smaller buildings of various sizes. The buildings have been rented or leased to numerous businesses; some buildings have been divided up internally. Most of these structures are sprinkled, but not always up to the present code requirements while some structures have regular turnover by businesses. A few of the chemicals to be found on this site in large quantities are: Methyl Ethyl Ketone, Zinc Sulfate, Cupric Sulfate, Acetone and Sodium Nitrate. This site has a private hydrant system, with two 250,000 gallon tanks supplying it.

**ROUTINE HAZARD RISKS**

A large amount of non-fire risks in Zone #5 would be medical responses to residences and businesses. Routine fire risks are fires occurring at single-family residences. Residences are of 900 to 1200 sq. ft. average size, with hydrants spaced throughout. 89% of Hazard Zone #5 (Station #5 first response area) is provided with 1000 gpm hydrant within 600 ft. The potential for fatal and serious traffic accidents are present due to WA 290 and I-90.

**UNIQUE HAZARD RISKS**

Kemira Corporation is located at 2315 N. Sullivan Rd. and was identified as a Risk level 6 in the Departments Comprehensive Risk Assessment. This site has large holding tanks and railroad tankers on site for delivering ingredients and products. Some of the chemicals found on this site are Sulfuric Acid, Aluminum Chloride, Hydrochloric Acid, and Phosphonic Acid. This site has an extensive diking and recovery system in place to for chemical mishaps. This site has one hydrant on a private system with a 20,000-gallon gravity feed system. The next closest hydrant is north across the railroad tracks to a 1500 gpm hydrant. In the event of a major incident, the MAC Area Coordinator will use the Comprehensive Emergency Management Plan (CEMP) and The Spokane County ECC along with the Emergency Support Function (ESF) model to assist the
Department in applying all regional resources to mitigate these types of incidents to their conclusion.

**Properties given a +3 High Risk on the Comprehensive Risk Assessment in this Hazard Zone due to Occupancy Class of building are –**

- Forrest Tech 3808 N. Sullivan
- Inland Empire Distribution System Bldg H20 3808 N. Sullivan
- Spokane Valley Cinemas 14760 E. Indiana
- Honeywell – Master 15128 E. Euclid
- Honeywell Bldg 2 15128 E. Euclid
- Honeywell Bldg 3 15128 E. Euclid
- Honeywell Bldg 8 15128 E. Euclid
- Kouchlock Productions 18991 E. Euclid
- Petro Card 16704 E. Euclid
HAZARD PLANNING ZONE #6

OVERVIEW

Location: Zone #6 is located in the southwest portion of the City of Spokane Valley

Square Miles: 6.1

Boundaries: Refer to Appendix A - p. 154

Towns/Cities: City of Spokane Valley

Major Occupancies: Park Place Assisted Living and Park Place Retirement

Major Thoroughfares:

Paved: I-90, Sprague Avenue, and Appleway Avenue

Rail: Burlington Northern Santa Fe and Union Pacific

Fire Protection: Station #6

Station #6 is located at 6303 E. Sprague Ave., in the city limits of Spokane Valley. Built in 2012, it houses one ALS engine with a three-man crew, and one Ford F-550 Brush Truck.

Backup Fire Protection:

1. Station #2, located in Zone #2 at 9111 E. Fredrick, two and three-quarter miles north by northeast of Station #6.
2. Station #1, located in Zone #1 at 6306 E. Sprague, two and one-half miles east of Station #6.

3. Station #8, located in Zone #8 at 2110 N. Wilbur, four miles east of Station #6.

4. Mutual Aid Agreement – City of Spokane Fire Department Station #7 at 1901 E. 1st Ave., three and one-half miles west of Station #6.

**Water Supply for Fire Protection:** East Spokane Water District #1, Carnhope Irrigation District #7, Spokane County Water District #3, City of Spokane Water Department, and Hutchinson Irrigation District #16.

**Hydrants:** Throughout the City of Spokane Valley.

**Typical Hydrants:** Mueller

**Hydrant:** GPM: 1000-1500, 97% are 3 ports.

**DESCRIPTION:**

Zone #6 is made up of urban, suburban and rural residential areas, plus commercial retail, light industrial, educational, and assembly occupancies. Residential occupancies, consisting of single-family homes ranging from 900 to 2000 sq ft, and some trailer parks will be found in Zone #6. The Department mainly responds to medical alarms, and automobile accidents.

**RESPONSE TIMES:**

Response times for Hazard Zone #6 are based on the urban, and rural classification due to population versus square miles of the Department.

**FIRE ONLY**

Hazard Zone #6/Station #6 has in the urban and rural classification been analyzed and identified. With the 1st Arriving Apparatus Baseline history of 90% in 2010 at 08:30, 2011 at 08:19, 2012 at 08:50, 2013 at 09:41, 2014 at 09:10, and 2015 at 10:03 Total Response Time.

**MEDICAL ONLY**

Hazard Zone #6/Station #6 responds to any EMS medical (BLS) alarms in the urban and rural

Hazard Zone #6/Station #6 responds to any ALS medical alarms in the urban and rural classification. With an identified Baseline history of 90% in 2010 at 07:40, 2011 at 07:15, 2012 at 07:59, 2013 at 07:09, 2014 at 07:56, and 2015 at 07:41 Total Response Time.

**WORST HAZARD RISK**

In the Departments Comprehensive Risk Assessment, there is two-quarter mile Geo code areas that were found to be at a Risk Level of 4 Medium. It is the Departments belief that Geo codes 3513A and 3513B should be considered as this zone’s Worst Hazard Risk because petroleum tank farms cover these. The volume of combustible and flammable product present creates the potential for a devastating effect on the area due to the location of the area’s sole source of drinking water 60’ below (The Spokane Aquifer). Both Exxon and Conoco have Deluge systems on their loading stations but lack a sealed barrier at the bottom of their diking systems. Both of these sites are surrounded by an excellent hydrant system 1500 to 2000 gpm, on 18” mains supplied by the meeting of the City of Spokane Water Department and Spokane County Water District #3, with interconnecting system switches.

The hydrant system located on the Exxon site needs to be used with caution because it is a private system that does not meet Fire Flow requirements. The system was built to provide water throughout the Tank Farm only. The first hydrant on the 8” main entering the site on the north side, sits next to an FDC (Fire Department Connection) that is used to increase pressure to the Exxon site system. The hydrant needed for this FDC is not this first hydrant on the 8” main that enters the site, but one of two hydrants that are on the north side of Mission Ave. They are both plumbed into an 18” main, 600’ east and west of the FDC.

In the event of a major incident, the MAC Area Coordinator will use the Comprehensive Emergency Management Plan (CEMP) and The Spokane County ECC along with the Emergency Support Function (ESF) model to assist the Department in applying all regional resources to mitigate these types of incidents to their conclusion.
ROUTINE HAZARD RISKS

A large amount of non-fire risks in Zone #6 would be medical responses to residences and nursing homes. Routine fire risks are fires occurring at single-family residences and mobile homes. Residences are of 900 to 1200 sq. ft. average size, with hydrants spaced throughout the City of Spokane Valley. 99% of Hazard Zone #6 is provided with 1000 gpm hydrant within 600 ft. Zone #6 also has the potential for fatal and serious traffic accidents due to I-90 that runs east and west through it.

UNIQUE HAZARD RISKS

Park Place Retirement located at 511 S. Park Rd. was identified as a Risk Level 4 Medium for the Departments Comprehensive Risk Assessment. This location is a four story pre-1933 construction that houses 200 plus residents. The structure is fully sprinkled with a wet/dry system and fire alarm system. The unique risk identified within this location would be a life safety issue when working with the residents during a fire at this location. Whether to shelter in place or evacuate is of primary concern for any incident commander when dealing with a fire at this location, in conjunction with a quick fire attack, water supply, boost sprinkler system and ventilation. Some additionally identified hazards at this location:

1. Lightweight truss roof on side “A” portion of the north zone
2. Maze-like basement with drop-offs
3. Unprotected roof facade
4. HVAC on roof over kitchen/dining area-south zone

This site has an excellent hydrant system surrounding it, including an 8” main with three access mains into a double looped system surrounding the structures, with three FDC hook ups located on the west side of the structure.

Properties given a +3 High/Special on the Comprehensive Risk Assessment in this Hazard Zone due to Occupancy Class of building are:

- Sure Green Lawn & Tree Service 225 N. Ella Rd.
- Progress Auto Body 225 N. Ella Rd.
- Park Place Assisted Living 601 S. Park Rd.
<table>
<thead>
<tr>
<th>Business Name</th>
<th>Address</th>
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</thead>
<tbody>
<tr>
<td>Park Place Retirement</td>
<td>511 S. Park Rd.</td>
</tr>
<tr>
<td>Brenntag Pacific Inc</td>
<td>1402 N. Thierman Rd.</td>
</tr>
<tr>
<td>Northwest Sandblast &amp; Paint Bldg 4</td>
<td>5916 E. Baldwin Ave.</td>
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<tr>
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<tr>
<td>American Way Auto Body</td>
<td>6614 E. Trent Ave.</td>
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<td>Les Schwab Warehouse</td>
<td>6308 E. Alki Ave.</td>
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HAZARD PLANNING ZONE #7

OVERVIEW

Location: Zone #7 is located in the southeast central portion of the City of Spokane Valley

Square Miles: 6.8

Boundaries: Refer to Appendix A - p. 155

Towns/Cities: City of Spokane Valley

Major Occupancies: Holman Gardens, Sullivan Park Care Center, Central Valley High School, and Orchard Crest Retirement Community

Major Thoroughfares:

Paved: I-90 and WA 27

Rail: Union Pacific

Fire Protection: Station #7

Station #7 is located at 1121 Evergreen Rd., in the city limits of Spokane Valley. Built in 1994, it houses one ALS engine with a four-man crew and one reserve engine.

Backup Fire Protection:

1. Station #1, located in Zone #1 at 10319 E. Sprague Ave., three miles west of Station #7.
2. Station #10, located in Zone #10 at 17217 E. Sprague, two and one three-quarter miles east of Station #7.
3. Station #9, located in Zone #9 at 12121 E. 32\textsuperscript{nd} St., two and one-quarter miles southwest of Station #7.

4. Mutual Aid Agreement – Spokane County Fire District #8 Station #85, located at 33245 S. Linke Rd., three and three-quarter miles southeast of Station #7.

5. Station #8, located in Zone #8 at 2110 North Wilbur, three and one-half miles northeast of Station #7.

**Water Supply for Fire Protection:** Consolidated Irrigation District #19, Vera Irrigation District #15 and Modern Electric Water Company.

**Hydrants:** Throughout the City of Spokane Valley.

**Typical Hydrants:** Mueller

**Hydrant:** GPM: 1000-1500, 97% are 3 ports.

**DESCRIPTION:**

Zone #7 is made up of urban, suburban and rural residential areas, plus commercial retail, educational, and assembly occupancies. Residential occupancies, consisting of single-family homes ranging from 900 to 2000 sq ft, will be found in Zone #7.

**RESPONSE TIMES:**

Response times for Hazard Zone #7 are based on the urban and rural classification due to population versus square miles of the Department.

**FIRE ONLY**

Hazard Zone #7/Station #7 has in the urban and rural classification been analyzed and identified. With the 1\textsuperscript{st} Arriving Apparatus Baseline history of 90% in 2010 at 07:00, 2011 at 07:09, 2012 at 06:37, 2013 at 07:25, 2014 at 07:14, and 2015 at 09:46 Total Response Time.

**MEDICAL ONLY**

Hazard Zone #7/Station #7 responds to any EMS medical (BLS) alarms in the urban and rural classification. With an identified Baseline history of 90% in 2010 at 07:27, 2011 at 06:58, 2012
Standards Of Cover

at 06:51, 2013 at 06:53, 2014 at 06:52, and 07:05 Total Response Time.

Hazard Zone #7/Station #7 responds to any ALS medical alarms in the urban and rural classification. With an identified Baseline history of 90% in 2010 at 07:35, 2011 at 06:54, 2012 at 6:58, 2013 at 07:08, 2014 at 06:56, and 2015 at 07:15 Total Response Time.

**WORST HAZARD RISK**

In the Departments Comprehensive Risk Assessment Holman Gardens located at 12912 E. 12th Ave. was rated at a Risk Level 3 Medium in Hazard Zone #7. The Department believes that this location is the worst hazard risk inside this Hazard Zone. This location has a possibility of 200 plus residents on site. It is a non-sprinkled building except for the kitchen area. The floor plan is broken up with no standpipes, this would force the Department to hand lay a 2 1/2” supply line to the middle wings to supply the hand-lines needed for fire suppression on the first or second floors. The building is alarmed, but with elderly residents, the hearing impaired may have difficulty hear any alarm. Rapid, aggressive transitional or offensive attack should be considered with a shelter in place strategy for the residents.

**ROUTINE HAZARD RISKS**

A large amount of non-fire risks in Zone #7 would be medical responses to residences and nursing homes. Routine fire risks are fires occurring at single-family residences and mobile homes. Residences are of 900 to 1200 sq. ft. average size, with hydrants spaced throughout the City of Spokane Valley. 99% of Hazard Zone #7 is provided with 1000 gpm hydrant within 600 ft. Zone #7 also has the potential for fatal and serious traffic accidents due to I-90 that runs east and west through it.

**UNIQUE HAZARD RISKS**

In the Hazard Zone #7, Sullivan Park Care Center would be considered a unique risk. The structure has 125 possible residents with some needing assistance to evacuate. There are no fire doors on four of the six wings, and oxygen bottles are stored in rooms and hall storage. The structure is completely sprinkled with the wet and dry system, with an excellent hydrant system surrounding the structure. Consider sheltering residents in place, while aggressively identifying and attacking the seat of the fire.
Properties given a +2 Medium on the Comprehensive Risk Assessment in this Hazard Zone due to Occupancy Class of building are:

- Tony’s Frame Auto Repair 115 S. Blake Rd.
- Holman Gardens 12912 E. 12th Ave.
- Sullivan Park Care Center 14820 E. 4th Ave.
- Orchard Crest – Bldg Master 222 S. Evergreen Rd
- Orchard Crest – Bldg 2 222 S. Evergreen Rd
- Orchard Crest – Bldg 3 222 S. Evergreen Rd
- Orchard Crest – Bldg 4 222 S. Evergreen Rd
HAZARD PLANNING ZONE #8

OVERVIEW

Location: Zone #8 is located in the central portion of the City of Spokane Valley

Square Miles: 4.9

Boundaries: Refer to Appendix A - p. 155

Towns/Cities: City of Spokane Valley

Major Occupancies: American Behavioral Health, Brighton Court Assisted Living and Colonial Court Assisted Living.

Major Thoroughfares:

Paved: I-90, WA 27 and WA 290

Rail: Burlington Northern Santa Fe and Union Pacific

Fire Protection: Station #8

Station #8 is located at 2110 N. Wilbur Rd., in the city limits of Spokane Valley. Built in 2004, it houses one Pumper-Ladder with a three-man crew, one Heavy Rescue with a three-man ALS crew, one suburban, and one F-250 with one Training/Safety Officer.

Backup Fire Protection:

1. Station #2, located in Zone #2 at 9111 E. Fredrick, two and three-quarter miles north by northeast of Station #8.

2. Station #1, located in Zone #1 at, 10319 E. Sprague one and three quarter miles
southwest of Station #8.

3. Station #6, located in Zone #6 at 6306 E. Sprague, four miles southwest of Station #8.

4. Station #5, located in Zone #5 at 15510 E. Marietta Ave., three and one-quarter miles east of Station #8.

**Water Supply for Fire Protection:** East Spokane Water District #1, Carnhope Irrigation District #7, Spokane County Water District #3, City of Spokane Water Department, and Hutchinson Irrigation District #16.

**Hydrants:** Throughout the City of Spokane Valley.

**Typical Hydrants:** Mueller

**Hydrant:** GPM: 1000-1500, 97% are 3 ports.

**DESCRIPTION:**

Zone #8 is made up of urban and apartment residential areas, in addition to commercial retail, light industrial, educational, and assembly occupancies. Residential occupancies, consisting of single-family homes ranging from 900 to 1600 sq ft, and a trailer park will be found in Zone #8. The Department mainly responds to medical alarms and automobile accidents.

**RESPONSE TIMES:**

Response times for Hazard Zone #8 are based on the urban classification due to population versus square miles of the Department.

**FIRE ONLY**

Hazard Zone #8/Station #8 has in the urban classification been analyzed and identified. With the 1st Arriving Apparatus Baseline history of 90% in 2010 at 10:36, 2011 at 08:22, 2012 at 08:16, 2013 at 08:17, 2014 at 08:18, and 2015 at 07:57 Total Response Time.

**MEDICAL ONLY**

Hazard Zone #8/Station #8 responds to any EMS medical (BLS) alarms in the urban

Hazard Zone #8/Station #8 responds to any ALS medical alarms in the urban classification with an identified Baseline history of 90% in 2010 at 07:59, 2011 at 06:59, 2012 at 06:50, 2013 at 06:54, 2014 at 07:00, and 2015 at 07:07 Total Response Time.

**WORST HAZARD RISK**

In the Departments Comprehensive Risk Assessment Geo code 45102C was classified as Hazard Risk Level 5 High. This Geo code is a concern for the Department because it is filled with three-story apartment complexes. These complexes are built among natural granite rock formations that will cause fire department access problems for fire suppression. These structures are alarmed and sprinkled and located within an excellent hydrant system.

**ROUTINE HAZARD RISKS**

A large amount of non-fire risks in Zone #8 would be medical responses to residences and apartment complexes. Routine fire risks are fires occurring at single-family residences and mobile homes. Residences are of 900 to 1200 sq. ft. average size, with hydrants spaced throughout the City of Spokane Valley. 96% of Hazard Zone #8 is provided with 1000 gpm hydrant within 600 ft. Zone #8 also has the potential for fatal and serious traffic accidents due to I-90 that runs east and west through it.

**UNIQUE HAZARD RISKS**

Wilbur-Ellis Company located at 12001 E. Empire Ave. was identified as a Hazard Risk Level 4 Medium for the Departments Comprehensive Risk Assessment. This location is used to store large quantities of herbicides and pesticides, in addition to hydrochloric acid, potassium cyanide, sulfuric acid, nitric acid and methyl ethyl ketone. Many of the chemicals stored here are water reactive, producing heat or toxic gasses. This site has an excellent hydrant system surrounding, but should be used with extreme caution. If a major spill is present the Department would dispatch mutual aid with the City of Spokane Fire Departments Hazardous Material Units, for mitigation of the incident. With the Spokane River located close to this site, and the Spokane Aquifer 40’ or less below the site, runoff is of great concern. The first drain inside the main gate
of this location should be sealed to stop contamination. The other five drains are sealed dry wells.

Properties given a +2 on the Comprehensive Risk Assessment in this Hazard Zone due to Occupancy Class of building are:

- American Behavioral Health 12715 E. Mission Ave.
- Rose Pointe Assisted Living 13013 E. Mission Ave.
- Spokane Hyperbaric 13007 E. Mission Ave.
- Brighton Court Assisted Living 1308 N. Vercler Rd.
- Colonial Court Assisted Living 12016 E. Cataldo Ave.
- YMCA 2421 N. Discovery Pl.
HAZARD PLANNING ZONE #9

OVERVIEW

Location: Zone #9 is located in the south central portion of the City of Spokane Valley

Square Miles: 7.0

Boundaries: Refer to Appendix A - p. 155

Towns/Cities: City of Spokane Valley

Major Occupancies: University High School and University Village Apartments

Major Thoroughfares:

- **Paved:** Dishman Mica Rd. and WA 27
- **Rail:** Union Pacific

Fire Protection: Station #9

Station #9 is located at 12121 32nd Ave., in the city limits of Spokane Valley. Built in 2008, it houses one BLS Type II engine with a three-man crew, and one Ford F-250 Truck with a 21’ Communications Trailer.

Backup Fire Protection:

1. Station #7, located in Zone #7 at 1121 S. Evergreen, two and one-quarter miles north by northeast of Station #9.
2. Station #1, located in Zone #1 at 10319 East Sprague, three and one-quarter miles
north of Station #9.
3. Station #8, located in Zone #8 at 2110 North Wilbur, three and three-quarter miles
   north of Station #9.
4. Mutual Aid Agreement – Spokane County District #8 Station #84 at 4410 S.
   Bates Rd., one and three quarter miles south of Station #9.

**Water Supply for Fire Protection:** Modern Electric Water Company, Model Irrigation District
   #18, Spokane County Water District#3 and Vera Irrigation District #15.

**Hydrants:** Throughout the City of Spokane Valley.

**Typical Hydrants:** Mueller

**Hydrant: GPM:** 1000-1500, 97% are 3 ports.

**DESCRIPTION:**

Zone #9 is made up of urban, suburban and rural residential areas, as well as commercial retail,
educational, and assembly occupancies. Residential occupancies, consisting of single-family
homes ranging from 900 to 2000 sq ft will be found in Zone #9. The Department mainly
responds to medical alarms, and automobile accidents.

**RESPONSE TIMES:**

Response times for Hazard Zone #9 are based on the urban and rural classification due to
population versus square miles of the Department.

**FIRE ONLY**

Hazard Zone #9/Station #9 has in the urban and rural classification been analyzed and identified.
With the 1st Arriving Apparatus Baseline history of 90% in 2010 at 07:53 and 2011 at 09:15,

**MEDICAL ONLY**

Hazard Zone #9/Station #9 responds to any EMS medical (BLS) alarms in the urban and rural
classification. With an identified Baseline history of 90% in 2010 at 07:04, 2011 at 06:56, 2012
Standards Of Cover

at 06:31, 2013 at 06:49, 2014 at 07:18, and 2015 at 06:54 Total Response Time.

Hazard Zone #9/Station #9 responds to any ALS medical alarms in the urban and rural classification. With an identified Baseline history of 90% in 2010 at 08:43, 2011 at 08:39, 2012 at 08:37, 2013 at 08:17, 2014 at 08:26, and 2015 at 08:08 Total Response Time.

**WORST HAZARD RISK**

The University Village Apartments located at 3205 S. University was in a Geo code that within the Department’s Comprehensive Risk Assessment was rated at a Risk Level 3 Medium. The decision to make this location the worst hazard for this Zone is based on this site being the largest apartment complex inside this Hazard Zone. There are 119 units in the apartment complex with no alarm or sprinkler system. This remains the largest life threat in the Hazard Zone.

**ROUTINE HAZARD RISKS**

A large amount of non-fire risks in Hazard Zone #9 would be medical responses to residences and nursing homes. Routine fire risks are fires occurring at single-family residences and mobile homes. Residences are of 900 to 2000 sq. ft. average size, with hydrants spaced throughout the City of Spokane Valley. 99% of Hazard Zone #9 is provided with 1000 gpm hydrant within 600 ft. Zone #9 also has the potential for fatal and serious traffic accidents due to I-90, WA 27 and Dishman Mica Road that run through it.

**UNIQUE HAZARD RISKS**

University High School located at 12420 E. 32nd Ave. is located in Geo code 4534-2B, and was found to be at a Risk Level of 3. The Department believes there is a unique risk at this location; an individual could cause major havoc and destruction involving students and faculty. The Department has performed training on an annual basis to address the problems that might arise at this or similar locations throughout the Spokane Valley. With the ability to access the Rapid Responder Program on the Mobile Data Computers inside the Department Apparatus and the cross training that the Department has been a part of with County Sheriff, School District Officials and Faculty members, the ability to bring a situation to a positive conclusion has been greatly enhanced.
There are no Properties given a +2 on the Comprehensive Risk Assessment in this Hazard Zone due to Occupancy Class.
HAZARD PLANNING ZONE #10

OVERVIEW

Location: Zone #10 is located in the southeast portion of the City of Spokane Valley

Square Miles: 7.0

Boundaries: Refer to Appendix A - p. 155

Towns/Cities: the City of Spokane Valley and Liberty Lake

Major Occupancies: Good Samaritan Apartments

Major Thoroughfares:

Paved: I-90 and Sprague Ave

Rail: None

Fire Protection: Station #10

Station #10 is located at 17217 E. Sprague Ave., in the city limits of Spokane Valley. Built in 2004 at 17217 E. Sprague, it houses one BLS Pumper-Ladder with a three-man crew, one Pumper-Ladder, and one Ford F-450 Brush Truck.

Backup Fire Protection:

1. Station #5 located in Zone #5 at 15510 E. Marietta Ave., three and three-quarter
miles northwest from Station #10.
2. Station #7, located in Zone #7 at 1121 S. Evergreen, two and one three-quarter miles west of Station 10.
3. Station #3 located in Zone #3 at 2218 N. Harvard., three and one-half miles northeast from Station #10.
4. Mutual Aid Agreement – Spokane County Fire District #8 Station #85 located at 3324 S. Linke Rd., three and one-quarter miles south of Station #10.

**Water Supply for Fire Protection:** Consolidated Irrigation District #19 and Vera Irrigation District #15

**Hydrants:** Throughout the City of Spokane Valley and Liberty Lake.

**Typical Hydrants:** Mueller

**Hydrant: GPM:** 1000-1500, 97% are 3 ports.

**DESCRIPTION:**

Zone #10 is made up of urban, suburban and rural residential areas, as well as commercial retail, educational, and assembly occupancies. Residential occupancies, consisting of single-family homes ranging from 900 to 2000 sq ft, will be found in Zone #10. The Department mainly responds to medical alarms, and automobile accidents.

**RESPONSE TIMES:**

Response times for Hazard Zone #10 are based on the urban, suburban, and rural classification due to population versus square miles of the Department.

**FIRE ONLY**

Hazard Zone #10/Station #10 has in the urban, suburban, and rural classification been analyzed and identified. With the 1st Arriving Apparatus Baseline history of 90% in 2010 at 08:22, 2011 at 08:22, 2012 at 07:51, 2013 at 08:11, 2014 at 08:20, and 2015 at 09:26 Total Response Time.


**MEDICAL ONLY**


**WORST HAZARD RISK**

In the Department’s Comprehensive Risk Assessment Geo-code 5519-2C is identified as a Risk Level 3 Medium, due to Good Samaritan Apartments located at 17117 E. 8th Ave. in the Geo-code. This structure built in 1958 is a five story non-sprinkled building, with masonry bearing wall construction, pre-stressed floor trusses, and metal deck roof construction. As a Retirement Community, this location has 85 apartments with the ability to accommodate two residents in each apartment. The interior suppression system consists of two wet one ¾” standpipes located on the north and south end of the building, and one 2 ½” standpipe next to the elevators in the central part of the building. The Smoke Detector system in the hallway throughout the five-story building is monitored, with non-monitored smoke detectors inside the apartments. A strategy of shelter in place with the residents would be the primary option, due to the manpower needed for evacuation. The hydrant system has recently been upgraded with a looped main system in this Geo-code.

**ROUTINE HAZARD RISKS**

A large amount of non-fire risks in Zone #10 would be medical responses to residences and retirement communities. Routine fire risks are fires occurring at single-family residences and mobile homes. Residences are of 900 to 1200 sq. ft. average size, with hydrants spaced throughout the City of Spokane Valley. 95% of Hazard Zone #10 is provided with 1000 gpm hydrant within 600 ft. Zone #10 also has the potential for fatal and serious traffic accidents due to I-90 that runs east and west through it.
**UNIQUE HAZARD RISKS**

The Spokane River flows east to west through the Department, and several of the Hazard Zones found within this Department. The flows of the river range from 2890 to 35500 cubic feet per second (cfs), with a Median flow of 5310 cfs and Mean flow of 6070 cfs. The whitewater is rated at Type II or III throughout the valley. This river has been the center of this region since the beginning of man's existence in this area and is as beautiful as it is hazardous. This river has taken at least one or more lives annually. During the moderate to hot days the citizens will seek this site for recreation and to cool off swimming, rafting, kayaking or hiking on and along its shores.

**Properties given a +3 on the Comprehensive Risk Assessment in this Hazard Zone due to Occupancy Class of building are:**

- Good Samaritan Apartments 17117 E. 8th Ave.
- Good Samaritan Nursing Home 17121 E. 8th Ave.
Standards Of Cover

Section 4 – Standard of Cover

This is the 2016 Standard of Cover adopted by the Department Fire Commissioners on February 22, 2016. This is a complete rewrite, and update to the original Standards of Cover adopted December 21, 2009, and published for Accreditation approval in August 2011 by the Commission on Accreditation International Commissioners.

The Organization

The Department was organized under the tenants of Title 52 of the RCWs, with the legal formation of the Fire Department mandated by resolution in 1939 and established by voter approval on March 12, 1940.

The Department operates a chain of command which has an elected Board of Commissioners. The chain of command (organizational chart) can be referenced in Appendix B.

The Department provides services to 75 square miles within Spokane County. The Department has defined itself as Urban, Suburban, and Rural under the Washington Administrative Code (WAC) 246-976-010 definition. The services provided by the Department include:

a) Fire suppression and rescue
b) Motor vehicle accident response
c) Basic Life Support (BLS) Emergency Medical Services (EMS)
d) Advanced Life Support (ALS) Emergency Medical Services (Paramedic)
e) Technical Rescue including:
   - Trench Rescue
   - Confined Space Rescue
   - High Angle (rope) Rescue
   - Water Rescue
   - Ice Rescue
f) Investigation of fires and prosecution of arsonists
g) Public Education
h) Businesses fire inspections
i) Plan review and fire code enforcement
j) Hazardous Materials “Operations” level response
Standards Of Cover

k) Mutual aid emergency responses to other jurisdictions
l) Spokane County Incident Management Teams

Standards of Cover – (As defined in CFAI 2008) The written policies and procedures that establish the distribution and concentration of fixed and mobile resources of an organization.

Apparatus – All Department, Auto Aid, Mutual Aid, Ambulance units and Mobilization Apparatus. Beginning in 2010 all first arriving responders listed above will be entered into FDM and included in the analysis of the Department’s ability to maintain the Standard of Cover.

911 Operations Center – Spokane County 911 Operations Center is used for both police and fire dispatching throughout the county. 911 Operations Center will be able to establish their alarm processing time for the Department starting in January 2015. This is considered PSAP 1.

Combined Communication Center (CCC) – Is used for county-wide Fire Dispatches. CCC is staffed and managed by the City of Spokane Fire Department and directed by the CCC Policy Board made up of area Fire Department Chiefs throughout the county that meets monthly to set policy. The CCC contract has the standard of 60 seconds 90% of the time for alarm processing time. Table 1 shows the data collected over the last five years.
Standards Of Cover

Table 1 (The Department’s CCC Alarms Only)

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**Table 1 (The Department’s CCC Alarms Only)**

**Total Response Time** – The total time interval from the receipt of alarm call at 911 Operations Center, through CCC, notification to the Department, through apparatus Turnout and Travel time, ending with apparatus on scene. Response time for the Department is broken down into these elements:

1) **Alarm Handling Time** - Receipt of the emergency call at 911 Operations Center through Fire Dispatch to notification of the alarm to the Department.

   a. **Alarm transfer time by 911 Operations Center** - Receipt of the alarm call at 911 from citizen to the transfer of alarm to CCC. (30 sec.) Presently the system does not allow us to track the Department’s Total Response Time from the 911 Operations Center. In January 2015, the 911 Operations Center will be able to track their transferred alarms.
Response Time: Alarm Transfer Time By 911 Operations Center

The Department has been informed that the management team for 911 Operations Center has purchased software and hardware that will allow them to track the information through their computer system. This means that in January 2015 we will be able to track the Alarm transfer time by the 911 Operations Center, allowing the Department to analyze the data for future reference. This will add the Call Transfer Time of 30 sec. to the Department’s Total Response Time and give a true Total Response Time analysis.

b. Alarm processing time by Combined Communication Center (CCC) – Receipt of alarm by CCC to notification of the alarm to the Department (60 sec.).

Response Time: Alarm Processing Time By Combined Communication Center (CCC)

1 911 Center Alarm Transfer Time of 30 seconds for a call or less is considered industry standards.

2 Alarm Processing Time by CCC of one minute for a call or less is considered an industry standard.
2. **Turnout Time** – Per Revised Code of Washington (RCW) 52.33.020, Turnout Time begins when apparatus receive notification of the alarm to the beginning of response time (motion of the apparatus). Emergency Medical Services (EMS) that use no Bunker Gear in the turnout times use CCC Codes Low Risk (31B), Moderate Risk (31C), and High/Special Risk (31D, 31E).

**Response Time: EMS Turnout Time for the Engine Company**

![Diagram of response time](image)

Fire calls and motor vehicle accidents that use Bunker Gear in the turnout times use CCC Codes Low Risk (11F, 11S, 13S, 14L, 14M), and Moderate Risk (11W, 14E, 14H). To reference Turnout Times, please refer to EMS Table 9 on p. 98 and for FIRE Table 12 on p.110.

The Department has chosen to analyze our five year turnout time baseline for both fire and non-fire also at the daytime (08:00-20:59) and nighttime (21:00-07:59) level, then establishing Benchmarks (Objectives) for the turnout times.

---

3 Turnout times of one minute for EMS or less are considered industry standards.
While analyzing for the Department’s Baseline Department Turnout Times, it has been identified that the Department’s baseline performance has a deviation from best practice.

The Turnout Time reduction Benchmarks for Fire, Technical Rescue, and Hazardous Material responses will be set at 02:20. The Turnout Time reduction Benchmarks for EMS responses will be set at 01:20.

In addition, the Department has decided to analyze the Turnout Time reduction Benchmarks for Fire, Technical Rescue, and Hazardous Material responses for Daytime at 02:20 from 08:00-20:59 and for Nighttime at 02:50 from 21:00-07:59. The Turnout Time reduction Benchmarks for EMS responses will be set at Daytime 01:20 from 08:00-20:59 and for Nighttime 01:50 from 21:00-07:59.

Presently the Department is developing the strategies to improve on the above turnout timetables the Battalion Chiefs and Company Officers are working with all the crews to achieve better the Departments goals safely and to better serve the community.

2) **Response Time** per RCW 52.33.020 is defined as: Travel Time begins when apparatus are enroute to the incident and ends when apparatus arrive at the scene. The Department used the following Reporting Criteria to enable the Department to analyze accurate data:

---

4 Turnout times of one minute twenty seconds for Fire or less are considered industry standards.
1. Only report on incidents that were responding code (lights and sirens).
2. Only use 24/7 staffed apparatus.
3. Only report on identified incident types.
4. On response times, eliminate from the data all times with a negative or over 1200 seconds (20 minutes) as they have proven to have data errors in the collection systems.

Effective Response Force (ERF) is defined as those resources, personnel, and equipment necessary to conduct successful operations and complete critical tasks on an emergency scene. As defined in the Standard of Coverage document, the size, and complexity of an ERF is dependent upon the type and severity of the alarm.

Basic Life Support (BLS) Low Risk The Department is the primary provider of EMS care for the jurisdiction. The Department provides Advanced Life Support (ALS) care with 39 paramedics staffing seven ALS engine companies staffed with one or two paramedics. The remaining 127 firefighters provide Basic Life Support (BLS) for the Spokane Valley. Similar to fire flashover, Emergency Medical Services (EMS) uses a critical point to determine the optimal time for the effective deployment of medical resources. This point in time is brain death, caused most often when a person’s heart has stopped beating, and oxygen can no longer reach the brain. The American Heart Association (AHA) recognizes that the brain begins to die in four to six minutes without oxygen and initiate defibrillation. See Figure 1.5 p.90, the survival rate is extremely low when the time to initiate defibrillation exceeds six minutes and damage is irreversible after 10 minutes.
## MEDICAL, TRAUMA, CPR CRITICAL TASKS for ALS & BLS Responses

### MEDICAL CRITICAL TASKS Low-High Risk

(An * asterisk represents an effective response force critical task)

<table>
<thead>
<tr>
<th>Personnel Number</th>
<th>Equipment</th>
<th>Responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Medical Box and Defibrillator</td>
<td>*1) ABCs&lt;br&gt; *2) Patient assessment (primary and secondary surveys)&lt;br&gt; *3) Advanced life support – intubation, IV/IO, medications, cardiac monitor&lt;br&gt; 4) Contact base hospital as needed</td>
</tr>
<tr>
<td>1</td>
<td>Airway Box/Airway Bag</td>
<td>*1) Airway management - patent airway, airway adjuncts, oxygen administration, CPAP, nebulizer&lt;br&gt; *2) Vital signs&lt;br&gt; 3) (SPO2, CO2, CO)-monitor readings</td>
</tr>
<tr>
<td>1</td>
<td>Suction/Sharps container</td>
<td>1) Equipment set up&lt;br&gt; 2) Assist with vital signs&lt;br&gt; 3) Disposal of biohazards</td>
</tr>
<tr>
<td>1</td>
<td>Scribe (Information Gather)</td>
<td>1) Documentation - Medication &amp; History&lt;br&gt; 2) Family member/bystander information&lt;br&gt; 3) Patient information turned over to transport personnel.</td>
</tr>
</tbody>
</table>

### TRAUMA CRITICAL TASKS Low-High Risk

(An * asterisk represents an effective response force critical task)

<table>
<thead>
<tr>
<th>Personnel Number</th>
<th>Equipment</th>
<th>Responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Medical Box and Defibrillator</td>
<td>*1) ABCs&lt;br&gt; *2) Patient assessment (primary and secondary surveys), trauma destination evaluation, GCS&lt;br&gt; *3) Advanced Life Support - IV/IO, medications, cardiac monitor&lt;br&gt; 4) Contact base hospital as needed</td>
</tr>
<tr>
<td>1</td>
<td>Airway Box/Airway Bag</td>
<td>*1) Airway management - patent airway, airway adjuncts, oxygen administration, intubation&lt;br&gt; *2) Vital signs&lt;br&gt; 3) (SPO2, CO2, CO)-monitor readings</td>
</tr>
</tbody>
</table>
### ****Additional Manpower

1) Cervical spine management and spinal immobilization  
2) Splinting  
3) Equipment set up  
4) Assist with vital signs

### Scribe (Information Gather)

1) Documentation - Medication & History  
2) Family member/bystander information  
3) Patient information turned over to transport personnel.

### CPR CRITICAL TASKS High Risk

(An * asterisk represents an effective response force critical task)

<table>
<thead>
<tr>
<th>Personnel Number</th>
<th>Equipment</th>
<th>Responsibilities</th>
</tr>
</thead>
</table>
| **1**            | Medical Box and Defibrillator | *1) ABCs  
*2) Patient assessment-PQRST  
*2) Advanced Life Support - Cardiac monitor, IV/IO, medications  
3) Contact base hospital as needed |
| **1**            | Airway Box/Airway Bag | *1) Ventilation  
*2) Intubation  
3) Ongoing airway assessment and management |
| **1**            | ****Additional Manpower | *1) Compressions  
*2) Pulse checks |
| **1**            | Scribe (Information Gather) | 1) Documentation - Medication & History  
2) Family member/bystander information  
3) Patient information turned over to transport personnel. |
EMS interventions include early Cardio-Pulmonary Resuscitation (CPR) and electrical defibrillation. According to the AHA, defibrillation is the single most important factor for survivability of the cardiac patient. Additionally, the AHA asserts that the earlier CPR is initiated, the better the chance the patient has for survival.

Setting goals and objectives that will allow the EMS patient to have access to CPR within two minutes and defibrillation within four will greatly improve the chances for the survivability of that patient. Currently, all the Department’s engine and ladder companies have the ability to perform CPR and defibrillation.

The Department will track and analyze Basic Life Support (BLS) responses as Emergency Medical Services (EMS), which are the minimum Effective Response Force for Emergency Medical Service (EMS). This response level is at a minimum of three personnel with a full complement of BLS equipment including Oxygen, King Airways and Automated External Defibrillator (AED). All apparatus will be staffed with three to four personnel. Emergency Medical Incidents that will be tracked are Dispatch Codes BLS Low Risk (31A, 31B), and ALS Moderate Risk (31C,46C), and High/Special Risk (31D,31E,46D). Due to the tiered response used, the Department will send the closest apparatus to any EMS call, which may be a BLS apparatus, followed by an Advanced Life Support (ALS) apparatus if the emergency requires it.
Standards Of Cover

<table>
<thead>
<tr>
<th>Risk Level EMS</th>
<th>Low Risk</th>
<th>Moderate Risk</th>
<th>High/Special Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Apparatus BLS or ALS both with &amp; without Ambulance (Could include Auto/Mutual Aid) ERF=3</td>
<td>1 BLS &amp; 1 ALS Apparatus or 2 ALS Apparatus, Battalion Chief and Ambulance (Could include Auto/Mutual Aid) ERF=5</td>
<td>2 Apparatus BLS or ALS, 2 Apparatus ALS, 2 Extrication Apparatus, 2 Battalion Chiefs, 3 Ambulances (Could include Auto/Mutual Aid) ERF 7 or more depending on the event</td>
<td></td>
</tr>
</tbody>
</table>

Table 2 Illustrates Response versus Risk Level

Under the Specialty Risk the incidents are zero to three of these a year total. Divided under the urban, suburban and rural areas this does not allow for enough data to establish a benchmark. Therefore, the Department does not establish a Benchmark for this risk level.

Total Response Time Baseline (present performance): Emergency Medical Incidents (BLS) for Engine Companies

Figure 1.6 illustrates the method used to build the Department’s Total Response Time Baseline.

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5 CFAI BLS Total Response Time Baseline of 09:30:00 minutes or less is considered industry standards.
In Table 3 above, the Department’s five-year (2011-2015) combined Baseline (present performance) at 90% is 7:37 for the arrival of the 1st Arriving apparatus. Also this data signifies each station’s (Hazard Zones) ability to meet the CFAI Emergency Medical Incident Total Response Time Baseline of 7:27 for urban, 8:45 for suburban, and 15:15 for rural (FESSAM p.70-71) or less 90% of the time.

The Department has chosen to analyze the five year baseline for non-Fire risk at 90% fractile (present performance), then establishing Benchmarks (Objectives/five year goal) at this level for each of the urban, suburban and rural service areas. EMS turnout times will be reduced to 1:20 in the service areas.

The Department’s Total Response Time Benchmark (five year objective) will be to improve the EMS (BLS or ALS) 1st Arriving Apparatus Baseline for urban to 06:42 and suburban to 07:59, and for the rural 09:03.

<table>
<thead>
<tr>
<th>1st Arriving EMS (BLS or ALS) Apparatus 24/7 Low Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline (2011-2015)</td>
</tr>
<tr>
<td>Urban</td>
</tr>
<tr>
<td>Suburban</td>
</tr>
<tr>
<td>Rural</td>
</tr>
</tbody>
</table>

Table 4 above, has the Total Response Time (TRT) Baselines that was identified and the reduction
Standards Of Cover

time that was found when the TRT’s Turnout Time at 90% fractal was identified and compared to the Department’s established turnout time Benchmark of 1:20. This established how much time needed to be reduced from the TRT Baseline establishing the Departments TRT Benchmark for the Department’s 1st Arriving Apparatus.

In Addition, the Department has chosen to analyze the five year baseline for non-Fire risk at the daytime (08:00-20:59) and nighttime (21:00-07:59) level, then establishing Benchmarks (Objectives) at this level for each of the urban, suburban and rural service areas. EMS turnout times will be reduced to 1:20 during the daytime and 1:50 during the nighttime in the service areas.

<table>
<thead>
<tr>
<th>1st Arriving EMS (BLS or ALS) Apparatus</th>
<th>Baseline (2011-2015)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Day</td>
</tr>
<tr>
<td>Urban</td>
<td>07:07</td>
</tr>
<tr>
<td>Suburban</td>
<td>08:34</td>
</tr>
<tr>
<td>Rural</td>
<td>09:32</td>
</tr>
</tbody>
</table>

**Table 5 above** has the Total Response Time (TRT) Baselines that was identified and the reduction time that was found when the TRT’s Turnout Time at 90% fractal was identified and compared to the Department’s established turnout time Benchmark of Day 1:20 and Night 1:50. This established how much time needed to be reduced from the TRT Baseline establishing the Departments TRT Benchmark for the Department’s 1st Arriving Apparatus.

Some of the improvements to meet the reduction are as follows:

1. Station #3 is positioned in Hazard Zone #3 covering 14.4 sq. mi. in open fields with some commercial development in the area. This station has been slated for moving 1.5-mile southwest on Department-owned land, in the Capital Facility Plan in the fiscal year 2017. This will improve response times in the City of Liberty Lake and the areas surrounding Liberty Lake.

2. Station #4 in Hazard Zone #4 covers 13.6 sq. mi. in a rural and suburban region causing some extended travel times. In the Capital Facility Plan Station #11 is scheduled to be constructed in 2021, relieving some of Station #4’s first run response area. With future growth in this area, the Fire
Department will monitor and plan for adjustments that may be needed to in the future.

3. Presently the Department is developing the strategies to improve on the turnout times. The Battalion Chiefs and Company Officers are working with all the crews to achieve better the Departments goals safely to better serve the community.

The BLS/EMS Total Response Times have been tracked and analyzed from 2011-2015, with the results plotted for the 2011-2015 Baseline results are on p.140 Appendix 7 BLS-2011-2015. The representation of BLS responses is shown with a break down to a 1/16th of a mile and represented with the number of responses within each 1/16th of a mile area. The ability for the Department to meet the 90% fractal for the Departments Benchmark is represented in green, yellow represents meeting the Departments Baseline at the 90%, orange represents meeting the CFAI 90% Baseline and red represents response areas below any of the establish success rates.

**Advanced Life Support** (ALS) is the next response level that will be tracked and analyzed. The Department uses tiered Response due to three out of ten stations are BLS trained staff with three personnel on each apparatus, with the remaining seven stations having ALS, paramedics staffing mixed with BLS responders. The Department’s standard is to arrive at the scene of Emergency Medical Incidents (BLS) with at least one (1) department resource. With a Total Response Time **Benchmark** (five year objective/goal) of 6:54 Day and 7:09 Night in the urban service area, 8:16 Day and 8:30 Night in the suburban service area, and 9:10 Day and 9:07 Night in the rural service area.

The Department has analyze the five-year baseline for EMS/ERF/ALS moderate, high/specialty risk, then establishing Benchmarks (Objectives/Goals) at each of the Urban, Suburban and Rural service areas.

In addition, the Department has elected to analyze the five-year baseline for EMS/ERF/ALS also at the daytime (08:00-20:59) and nighttime (21:00-07:59) level, then establishing Benchmarks (Objectives) at this level for each of the Urban, Suburban and Rural service areas.

The CCC Codes tracked for ALS incidents are Moderate Risk (31C and 46C) and High/Special
Standards Of Cover

Risk (31D, 46D, and 31E). These dispatch codes will have the closest apparatus dispatched plus one ALS apparatus. In hazard zones that have an ALS apparatus assigned, the codes Moderate Risk (31C and 46C) will have one ALS apparatus dispatched, staffed with three to four personnel. Code High/Special Risk (31D, 46D, and 31E CPR in progress) will have two apparatus dispatched, with one if not both the apparatus ALS, brings eight personnel to the scene. All medical responses except Low Risk (31A’s) will have an ambulance from American Medical Response (AMR) dispatched by contract, with two personnel, one BLS, and one ALS trained. Figure 1.8 illustrates the method used to build the Department’s Total Response Time Baseline.

**ALS Total Response Time Baseline (present performance) for Engine Companies**

|  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |  |  |

Figure 1.8 illustrates the method used to build SVFD’s ALS Total Response Time Baseline.

**Advanced Life Support (ALS) Total Response Time**

| Effective Response Force Baseline (Moderate, High/Specialty Risk) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Department | Station 1 | Station 2 | Station 3 | Station 4 | Station 5 | Station 6 | Station 7 | Station 8 | Station 9 | Station 10 |
| 2014 | 8:17 | 7:24 | 7:30 | 10:07 | 13:21 | 8:29 | 7:56 | 6:56 | 7:00 | 8:26 | 9:39 |

6 ALS response of 12:24 minute for ALS or less is considered an industry standard.
Table 7 above, the Department’s five-year combined Baseline (present performance) at 90% fractal is 8:16 for the arrival of the Effective Response Force (1st ALS Apparatus). Also this data signifies each station’s (Hazard Zones) ability to meet the CFAI ALS 2nd in apparatus ERF Total Response Time Baseline of 14:04 for urban, 14:04 for suburban, and 21:52 for rural (FESSAM p.70-71) or less 90% of the time.

The Department’s Total Response Time Benchmark (five-year objective) will be to improve the overall 1st ALS arriving apparatus Baseline for urban to 07:08, for suburban to 08:30, and for rural to 10:46.

<table>
<thead>
<tr>
<th>ERF/EMS (1st Arriving ALS Apparatus) 24/7</th>
<th>Baseline (2011-2015)</th>
<th>Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban</td>
<td>07:44</td>
<td>07:08</td>
</tr>
<tr>
<td>Suburban</td>
<td>09:20</td>
<td>08:30</td>
</tr>
<tr>
<td>Rural</td>
<td>11:43</td>
<td>10:46</td>
</tr>
</tbody>
</table>

The Department has elected to also analyze the five year baseline for ERF also at the daytime (08:00-20:59) and nighttime (21:00-07:59) level, then establishing Benchmarks (Objectives) at this level for each of the Urban, Suburban and Rural service areas.

The Department’s Total Response Time Benchmark (five year objective) Total Response Time Benchmark of 7:16 Day and 7:44 Night in the urban service area, 8:45 Day and 8:59 Night in the suburban service area, and 11:06 Day and 11:21 Night in the rural service area.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban</td>
<td>07:29</td>
<td>07:16</td>
<td>07:44</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suburban</td>
<td>09:03</td>
<td>08:45</td>
<td>08:59</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>11:23</td>
<td>11:06</td>
<td>11:21</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
reduction time that was found when the TRT’s Turnout Time at 90% fractal that was
identified and compared to the Departments established turnout time Benchmark of Day
1:30 and Night 1:50. This established how much time needed to be reduced from the TRT
Baseline establishing the Departments TRT Benchmark for the Department’s ERF.

The ALS/EMS Total Response Times have been tracked and analyzed from 2011-2015,
with the results plotted for the 2011-2015 Baseline results are on p.141 Appendix 8 ALS-
2011-2015. The representation of the Department’s ALS responses is shown with a break
down to a 1/16th of a mile and represented with the number of responses within each 1/16th
of a mile area. The ability for the Department to meet the 90% fractal average for the
Departments Benchmark is represented in green, yellow represents meeting the Departments
Baseline at the 90%, orange represents meeting the CFAI 90% Baseline and red represents
response areas below any of the establish success rates.

| Table 9 |
| --- | --- | --- | --- | --- | --- | --- |
| Alarm Handling | Pick-up to Dispatch | 24/7 | 0:58 | 0:49 | 0:54 | 0:54 | 1:22 |
| Turnout Time | Turnout Time 1st Unit | Dept. 24/7 | 2:00 | 2:05 | 2:02 | 2:00 | 1:57 | 1:56 |
| | | Day | 1:34 | 1:41 | 1:37 | 1:32 | 1:30 | 1:29 |
| Travel Time | Travel Time 1st Unit (BLS/ALS) Distribution | Urban | 5:09 | 5:23 | 5:23 | 4:57 | 5:03 | 4:56 |
| | | Rural | 7:23 | 7:05 | 7:28 | 7:14 | 7:13 | 7:57 |
| | | Suburban | 6:56 | 7:09 | 7:01 | 6:53 | 6:50 | 6:40 |
| | | Rural | 9:13 | 9:19 | 9:46 | 8:26 | 8:26 | 9:14 |
| Total Response Time | Total Response Time 1st Unit On Scene (BLS/ALS) Distribution (Low Risk) | Urban | 7:19 | 7:29 | 7:34 | 7:07 | 7:11 | 7:16 |
| | | Suburban | 8:51 | 9:14 | 8:46 | 8:40 | 8:34 | 8:56 |
| | Total Response Time ERF (ALS) Concentration (Moderate and High Risk) | Urban | 7:44 | 7:54 | 7:50 | 7:38 | 7:40 | 7:44 |
| | | Rural | 11:43 | 11:50 | 12:41 | 11:19 | 11:06 | 11:45 |
Table 9 on p.97 represents both 1st Arriving Apparatus on scene by Travel Time and Total Response Time for Distribution of resources with the annual 90% fractal for five years. And the Effective Response Force (ERF) arrival on scene by Travel Time and Total Response Time for Concentration of resources with the annual 90% fractal for five years.

The areas of concern are several through this ALS/ERF response report; the following are locations that will be looked at for future staffing and equipping of another ALS apparatus. The Department will use this analysis to place the additional ALS unit in the best strategic location.

1. Station #4 in Hazard Zone #4 covers 13.6 sq. mi. in a rural and suburban region causing some extended travel times. In Capital Facility Plan Station #11 is scheduled to be constructed in 2021, relieving some of Station #4’s first run response area.

2. Station 10 in Hazard Zone 10 will in September 2016 become a fully staffed ALS location.

3. Presently the Department is developing the strategies to improve on the above turnout timetables the Battalion Chiefs and Company Officers are working with all the crews to achieve better the Departments goals safely to better serve the community.

STRUCTURE FIRE

Time - Temperature Curve

The ‘time-temperature curve’ standard is based on data that suggests that ‘flashover’ will occur at a point somewhere between two (2) and seven (7) minutes after ignition where a fire occurs inside of a typical residential house (the earliest estimated time for flashover to occur in a modern wood frame residential house is two minutes and ten seconds (2:10). The estimation of flashover time is based upon full-scale flame tests conducted by the National Fire Protection Association (NFPA), Factory Mutual Research Corporation (FM), and the Home Fire Sprinkler Coalition. Flashover usually results in the rapid acceleration of fire and dramatic fire spread. Flashover is also the point at which the internal environment within a fire container or room is no longer considered survivable. Estimating flashover time is used
for developing strategies related to the deployment of effective response forces. It is important to note that flashover does not occur at every incidence of fire. Additionally, the time-temperature curve has its limitations as they relate to station placement.

- It does not account for the time required for the fire to be discovered and reported.
- The time from ignition to flashover varies, depending upon the configuration, method of construction and contents of the building.
- The curve will shift depending upon the configuration of the building, presence of built-in suppression systems, and the presence of fire resistive materials.

A major cause of fire fatalities is associated with the combustion of upholstered furnishings, foam mattresses, and plastics. The presence of these materials within modern dwellings has resulted in a situation where flame and smoke development is rapid and where flashover temperatures occur quickly. Conditions favorable to supporting flashover may occur in as little as two minutes and thirty seconds (2:30). Toxic smoke levels may exist sooner. Figure 1.10 illustrates Fire Growth vs. Reflex Time.
Standards Of Cover

The Department will track and analyze fire incidents from the arrival of the 1st apparatus of three (3) personnel on an incident to the 1st Full Alarm response Effective Response Force (ERF) with 18 personnel arriving on scene to mitigate the situation.

The 1st due apparatus for a Fire Incident will be tracked and analyzed for the ability to execute a two in one out rescue in a burning structure. This will only be authorized on a structure fire with a known rescue. Washington Administrative Code (WAC) 296-305-05001 states “Initial attack operations shall be organized to ensure that, if upon arrival at the emergency scene, initial attack personnel find an imminent life-threatening situation where immediate action could prevent the loss of life or serious injury, such action shall be permitted with less than four personnel when conducted in accordance with this standard. No exception shall be permitted when there is no possibility to save lives. Any such actions taken in accordance with this section shall be thoroughly investigated by the fire department with a written report submitted to the fire chief.”

The following we will analyze Moderate Risk (11W) and Low Risk (11F, 11S, 13A) dispatch codes. They are defined as follows:

- **Low Risk (11F)** STRUCTURE FIRE FULL RESPONSE, Businesses, houses, sheds, and chimney fire with smoke or odor in house, car fire inside garage
- **Moderate Risk (11W)** WORKING STRUCTURE FIRE – Working fire, fire, and smoke showing.
- **Low Risk (11S)** STRUCTURE FIRE SINGLE RESPONSE, Small detached sheds, chimney fire with no smoke or odor in the house, electrical or appliance problems, wires down.

The Department’s five-year combined Baseline (present performance) at 90 % is 8:50 for the 1st Arriving Apparatus on the scene of a fire incident. See Figure 1.11 on p. 101.
1st Arriving Engine Company Total Response Time Baseline (present performance) for Fire

In Table 7 above, the Department’s five-year (2011-2015) combined Baseline (present performance) at 90% fractal is 8:50 for the arrival of the 1st Arriving Apparatus. Also this data signifies each station’s (Hazard Zones) ability to meet the CFAI Emergency Medical Incident Responses of 09:30 Total Response Time for Fire or less is considered industry standards.

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7 Responses of 09:30 Total Response Time for Fire or less is considered industry standards.
Standards Of Cover

Total Response Time Baseline of 8:52 for urban, 10:10 for suburban, and 16:53 for rural. (FESSAM p.70-71) or less 90% of the time.

The Department has chosen to analyze the five year baseline for Fire (Low) risk at the urban, suburban and rural service areas. Fire turnout times will be reduced to 2:20 in the service areas.

<table>
<thead>
<tr>
<th>Fire 1st Arriving Apparatus 24/7 (Low Risk)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Urban</td>
</tr>
<tr>
<td>Suburban</td>
</tr>
<tr>
<td>Rural</td>
</tr>
</tbody>
</table>

In addition, the Department has chosen to analyze the five year baseline for Fire risk at the daytime (08:00-20:59) and nighttime (21:00-07:59) level, then establishing Benchmarks (Objectives) at this level for each of the urban, suburban and rural service areas. Fire turnout times will be reduced to 2:20 during the daytime and 2:50 during the nighttime in the service areas.

<table>
<thead>
<tr>
<th>Fire 1st Arriving Apparatus (Low Risk)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Urban</td>
</tr>
<tr>
<td>Suburban</td>
</tr>
<tr>
<td>Rural</td>
</tr>
</tbody>
</table>

Table 8 above has the Total Response Time (TRT) Baselines that was identified and the reduction time that was identified when the TRT’s Turnout Time at 90% fractal Baseline was identified and compared to the Departments established turnout time Benchmark of Day 2:30 and Night 2:50. This established how much time needed to be reduced from the TRT Baseline establishing the Departments TRT Benchmark for the Department’s 1st Arriving Apparatus.

Fire 1st Arriving Apparatus Total Response Times have been tracked and analyzed from 2011-2015, with the results plotted for the 2011-2015 Baseline results are on p.142 Appendix 9 Fire 1st Arrival. The representation of the Department’s Fire responses data is shown with a break down to a 1/16th of a mile and identifies the number of responses within each 1/16th of a mile area. The
ability for the Department to meet the 90% fractal for the Department’s Benchmark is represented in green, yellow represents meeting the Department’s Baseline at the 90%, orange represents meeting the CFAI 90% Baseline and red represents response areas below any of the establish success rates.

The analysis of these illustrations allows the Department to determine present and future needs for station and equipment. The following are some examples:

1. Station #3 is positioned in Hazard Zone #3 covering 14.4 sq. mi. in open fields with some commercial development in the area. This station has been slated for moving 1 mile south on Department-owned land, in the Capital Facility Plan. This will improve response times in the City of Liberty Lake and the areas surrounding Liberty Lake.

2. Station #4 in Hazard Zone #4 covers 13.6 sq. mi. in a rural and suburban region causing some extended travel times. In the Capital Facility Plan Station #11 is scheduled to be constructed, relieving some of Station #4’s first run response area.

3. Presently, the Department is developing the strategies to improve on the above turnout timetables the Battalion Chiefs and Company Officers are working with all the crews to achieve better the Departments goals safely to better serve the community.

**Alarm Response is beginning with seven (7) firefighters through a complete 1st Alarm and 2nd Alarm.**

The result of legal and ethical mandates that to protect firefighters requires an agency to provide five (5) people, performing six (6) critical tasks to support the efforts of a single two (2) person crew placing a single hose line on a fire. Failure to provide sufficient personnel to meet these requirements may compromise the safety and effectiveness of the first arriving fire resources.

**Critical Task Analysis**

The critical task analysis determines what tasks need to be accomplished at the scene of an emergency. To extinguish a structure fire, there are many tasks that need to be accomplished
in the initial minutes of the incident. When assigning personnel to complete tasks, firefighter safety is the highest priority. The second consideration is assigning the proper number of personnel so that the critical tasks can be completed. Having a fully staffed fire company consisting of three to four firefighters to complete these tasks greatly increases effectiveness on the fire ground. To minimize the loss of life and property and account for firefighter safety, the critical tasks need to be completed on all moderate structure fires, as outlined below.

**Structure Fire Critical Tasks**

The initial response for a reported structure fire Low Risk (11F) will be four apparatus with three to four personnel each. Also a Heavy Rescue Truck (VR-8) three personnel for Air Supply, two Battalion Chiefs, and one Safety Officer will be dispatch on a Low Risk (11F). When there is confirmation of a “working fire”, the response is upgraded to a Moderate Risk (“11W, working fire response”) that brings an additional two apparatus, one ALS Ambulance, Investigator, and a Public Information Officer. See Table 9 below for further illustration.

<table>
<thead>
<tr>
<th>Risk Level FIRE</th>
<th>Low Risk</th>
<th>Moderate Risk</th>
<th>High/Special Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>18S One Apparatus  18F Two Apparatus  11F One Ladder, Three Engines, One Air Supply, Safety Officer, Two Battalion Chiefs (To Include Auto Aid)</td>
<td>11C - 11F response with another ladder. 11W - 11F response with two additional apparatus, if possible, one of these will be a 2nd ladder (To include Auto/Mutual Aid)</td>
<td>11F or 11C with 11W response and two additional apparatus (To include Auto/Mutual Aid)</td>
<td></td>
</tr>
</tbody>
</table>

**Table 9 Illustrates Response versus Risk Level**

Under the High/Specialty Risk the incidents are zero to three of these a year total. Divided
Standards Of Cover

under the urban, suburban and rural areas this does not allow for enough data to establish a benchmark. Therefore, the Department does not establish a Benchmark for this risk level.

<table>
<thead>
<tr>
<th><strong>1st Alarm Residential Structure Fire</strong></th>
<th>(an * asterisk represents an effective response force critical task)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task</td>
<td>Staffing Level</td>
</tr>
<tr>
<td>*Initial Attack Line</td>
<td>2</td>
</tr>
<tr>
<td>*Standby(pre-RIC)/Back-up(Protect Egress, Assist in Fire Attack, S/R )</td>
<td>2</td>
</tr>
<tr>
<td>Rapid Intervention Group (RIC)</td>
<td>3</td>
</tr>
<tr>
<td>Pump Operator</td>
<td>1</td>
</tr>
<tr>
<td>Ventilation (PPV)</td>
<td>1</td>
</tr>
<tr>
<td>*Incident Command</td>
<td>1</td>
</tr>
<tr>
<td>Primary Search or Rescue</td>
<td>2</td>
</tr>
<tr>
<td>Soften Structure/Ladders/Vertical Ventilation</td>
<td>2</td>
</tr>
<tr>
<td>*Water Supply</td>
<td>1</td>
</tr>
<tr>
<td>Secondary Search or Rescue</td>
<td>3</td>
</tr>
<tr>
<td>*Safety/Utilities</td>
<td>1</td>
</tr>
<tr>
<td>Salvage &amp; Overhaul</td>
<td>3</td>
</tr>
</tbody>
</table>

The following critical tasks need to be completed on all structure fires. The first–in engine company which consists of three to four firefighters is responsible for the following initial actions:

---

8 Pump Operator is able to accomplish other assignments in proximity of his pump panel.
9 This assignment consumes minimum time and effort, with additional assignments made upon completion.
10 Upon the Battalion Chiefs arrival, they normally assume the Incident Command position.
11 This assignment consumes minimum time and effort, with additional assignments made upon completion.
12 The Safety Officer normally turns the gas meter off on their walk around & address the power meter with the IC before assuming the position of scene Safety Officer.
• Initiate command short time assignment
• Size-up/Identify problems and hazards
• Place one hose line in-service at 150 gallons per minute (GPM)
• Initiate mitigation efforts within one minute of arrival
• Provide Emergency Medical Technician (EMT) including cardiac defibrillation (AED)

Structure Fire Low Risk (11F/11C) Response

An effective response force for a structure fire Low Risk (11F/11C) consists of 14 firefighters with the following capabilities in addition to those listed above:

• Place a water supply in service at a minimum 1000 GPM without interruption
• Place one hose line in-service with a minimum of two firefighters at 150 GPM
• Provide one ventilation team consisting of a minimum of two firefighters
• Provide one search team consisting of a minimum of two firefighters
• Establish command outside the hazard area with a dedicated position
• Comply with the requirements of Two In/Two out (OSHA 1910.134) utilizing a “standby team” consisting of two firefighters or RIG with a minimum of three firefighters
• Provide a backup hose line with a minimum of two firefighters and a minimum of 150 GPM

Working Fire Moderate Risk (11W) Response

An effective response force for a working fire Moderate Risk (11W) consists of 24 firefighters with the following capabilities in addition to those listed above:

• Establish the capability to flow 1,000 GPM without interruption
• Provide additional attack team
• Provide additional search team
• Supplement the Rapid Intervention Group with one to two teams.

2nd Alarm High/Specialty Risk

An effective response force for a two-alarm fire consists of 30 firefighters with the following capabilities in addition to those listed above:
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• Provide one additional ventilation team
• Provide one additional search team
• Supplement the fire protection systems as needed

Some of the specific position responsibilities are listed below:

**Attack line**- A firefighting line staffed with a minimum of two firefighters capable of delivering an effective fire attack with a minimum of 150 GPM.

**Back-up Line**- This is the same size as the attack line, but can be larger and staffed with a minimum of two firefighters. The backup line is used to protect the egress for the fire attack crew in the event of a hostile smoke event.

**Search**- A minimum of two firefighters assigned to search the structure for victims. The crew locates and removes any victims while the fire attack and ventilation are being completed.

**Ventilation**- A minimum of two firefighters assigned to provide vertical or horizontal ventilation.

**Rapid Intervention Team**- A minimum of three firefighters assigned to stage in a ready position near the entry point of the involved structure. Their purpose is to provide intervention for lost or injured firefighters inside the structure. If the fire escalates, the RIG should be supplemented with additional teams.

**Pump operator**- This position is responsible for delivering water pressure to the attack lines and the initial primary “one out” for the first arriving company in a rescue situation.

**Water supply**- One or more firefighters responsible for providing uninterrupted water supply to the attack engine. This is accomplished by laying a 3”-5” supply line.

**Command**- An officer outside the structure and responsible for coordinating the fire operation.

**Safety Officer**- This officer is responsible for making sure that safe firefighting operations are being conducted.
In Table 10 below, the five-year combined Baseline (present performance) at 90% is 14:04 for the complete 1st alarm arrival ERF on the scene, 14 firefighters with an (11F/11C) Low Risk dispatch or 23 firefighters with a Moderate Risk (11W) dispatch. In addition this data signifies each station’s (Hazard Zones) ability to meet the CFAI Emergency complete 1st alarm arrival Total Response Time Baseline of 16:00 or less 90% of the time.

<table>
<thead>
<tr>
<th>Fire Total Response Time</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1st Alarm Effective Response Force Baseline</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Department</th>
<th>Station 1</th>
<th>Station 2</th>
<th>Station 3</th>
<th>Station 4</th>
<th>Station 5</th>
<th>Station 6</th>
<th>Station 7</th>
<th>Station 8</th>
<th>Station 9</th>
<th>Station 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011-2015</td>
<td>14:04</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In Table 10 p.108, the five-year (2011-2015) combined Baseline (present performance) at 90% fractal is 14:04 for the arrival of the ERF. Also this data signifies each station’s (Hazard Zones) ability to meet the CFAI Emergency ERF Total Response Time Baseline of 16:40 for urban, 16:40 for suburban, and 21:52 for rural. (FESSAM p.70-71) or less 90% of the time.

The Department has chosen to analyze the five year baseline for Fire risk then establishing Benchmarks (Objectives) at this level for each of the urban, suburban and rural service areas. Fire turnout times will be reduced to 2:20 in the service areas.
In addition, the Department has chosen to analyze the five year baseline for Fire risk at the daytime (08:00-20:59) and nighttime (21:00-07:59) level, then establishing Benchmarks (Objectives) at this level for each of the urban, suburban and rural service areas. Fire turnout times will be reduced to 2:20 during the daytime and 2:50 during the nighttime in the service areas.

<table>
<thead>
<tr>
<th>Fire Effective Response Force (ERF) 14 Firefighters on scene</th>
<th>Baseline (2011-2015)</th>
<th>Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Day</td>
<td>Night</td>
</tr>
<tr>
<td>Suburban</td>
<td>18:20</td>
<td>13:19</td>
</tr>
<tr>
<td>Rural</td>
<td>18:13</td>
<td>17:05</td>
</tr>
</tbody>
</table>

Table 11 above has the Total Response Time (TRT) Baselines that were identified and the reduction time that was found when the TRT’s Turnout at 90% fractal was identified and compared to the Departments established turnout time Benchmark of Day 2:30 and Night 2:50. This established how much time needed to be reduced from the TRT Baseline to establishing the Departments TRT Benchmark for the Department’s ERF arrival.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Alarm Handling</td>
<td>Pick-up to Dispatch 24/7</td>
<td>0:57</td>
<td>0:59</td>
<td>0:56</td>
<td>0:56</td>
<td>0:45</td>
</tr>
<tr>
<td>Turnout Time</td>
<td>Turnout Time 1st Unit Dept. 24/7</td>
<td>2:53</td>
<td>3:01</td>
<td>3:09</td>
<td>2:41</td>
<td>2:40</td>
</tr>
<tr>
<td></td>
<td>DAY 2:42</td>
<td>2:58</td>
<td>3:00</td>
<td>2:33</td>
<td>2:29</td>
<td>2:26</td>
</tr>
<tr>
<td>Travel Time</td>
<td>Travel Time 1st Unit Distribution Urban 5:38</td>
<td>6:10</td>
<td>5:45</td>
<td>5:34</td>
<td>5:12</td>
<td>5:16</td>
</tr>
<tr>
<td></td>
<td>Suburban 6:25</td>
<td>8:33</td>
<td>5:10</td>
<td>4:57</td>
<td>5:15</td>
<td>6:59</td>
</tr>
<tr>
<td></td>
<td>Rural 8:07</td>
<td>7:03</td>
<td>9:15</td>
<td>8:16</td>
<td>7:06</td>
<td>8:02</td>
</tr>
<tr>
<td>Travel Time</td>
<td>Travel Time ERF Concentration Urban 10:30</td>
<td>10:53</td>
<td>9:52</td>
<td>10:37</td>
<td>11:05</td>
<td>10:04</td>
</tr>
<tr>
<td></td>
<td>Suburban 14:28</td>
<td>8:00</td>
<td>10:12</td>
<td>9:15</td>
<td>14:28</td>
<td>7:18</td>
</tr>
</tbody>
</table>
Table 12 above represents Fire 1st arriving apparatus on scene by Travel Time and Total Response Time for Distribution of resources with the annual 90% fractal for five years in the urban, suburban, and rural service areas. And Full 1st Alarm Arrival ERF by Travel Time and Total Response Time for Concentration of resources with the annual 90% fractal for five years in the urban, suburban, and rural service areas.

Fire Effective Response Force (ERF) Total Response Times have been tracked and analyzed from 2011-2015, with the results plotted for the 2011-2015 Baseline results are on p.143 Appendix 10. The representation of the Department’s Fire responses data is shown with a break down to a 1/16th of a mile and identifies the number of responses within each 1/16th of a mile area. The ability for the Department to meet the 90% fractal for the Departments Benchmark is represented in green, yellow represents meeting the Departments Baseline at the 90%, orange represents meeting the CFAI 90% Baseline and red represents response areas below any of the establish success rates.

The analysis of these illustrations allows the Department to determine present and future needs for station and equipment. The following are some examples:

1. Station #3 is positioned in Hazard Zone #3 covering 14.4 sq. mi. in open fields with some commercial development in the area. This station has been slated for moving 1 mile south on Department owned land, in the Capital Facility Plan. This will improve response times in the City of Liberty Lake and the areas surrounding
Standards Of Cover

Liberty Lake.

2. Station #4 in Hazard Zone #4 covers 13.6 sq. mi. in a rural and suburban region causing some extended travel times. In the Capital Facility Plan Station #11 is scheduled to be constructed, relieving some of Station #4’s first run response area.

3. Presently the Department is developing the strategies to improve on the above turnout timetables the Battalion Chiefs and Company Officers are working with all the crews to achieve better the Departments goals safely to better serve the community.

Wildland Fire Responses will be tracked and analyzed by data from dispatch codes 14 low, 14 medium, 14 high and 14 extreme.

- Low Risk (14 L or 14M on a 1st Alarm) dispatches a Brush Truck and Engine.
- Moderate Risk (14L or 14M on a 2nd Alarm) dispatches a Brush Truck, Engine, Safety Officer, and Battalion Chief.
- Moderate Risk (14H or 14E on a 1st Alarm) dispatches a Brush Truck, 2 Engines, 2 Battalion Chiefs and Safety Officer.
- High/Special Risk (14H or 14 E on a 2nd Alarm) dispatches a Brush Truck, and Engine.

<table>
<thead>
<tr>
<th>Risk Level Wild FIRE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Risk</td>
</tr>
<tr>
<td>14S, 14M &amp; 14L</td>
</tr>
<tr>
<td>14S - One Apparatus (To Include Auto Aid) 14M &amp; 14L - 1st Alarm one Brush Truck &amp; one Apparatus (To Include Auto/Mutual Aid)</td>
</tr>
</tbody>
</table>

Under the High/Specialty Risk the incidents are zero to three of these a year total.
Divided under the urban, suburban and rural areas this does not allow for enough data to establish a benchmark. Therefore, the Department does not establish a Benchmark for this risk level.

**Table 13** above Illustrates Response versus Risk Level

<table>
<thead>
<tr>
<th>WILDLAND CRITICAL TASKS</th>
<th>Staffing</th>
<th>Function</th>
<th>Responsibilities</th>
</tr>
</thead>
</table>
|                         | 1        | *Incident Commander               | 1. Action Plan Development  
2. Action Plan Implementation  
3. LCES & Watch-outs are established |
|                         | 1        | *Safety Officer                    | 1. Identify all hazards  
2. Ensure proper PPE is utilized  
3. LCES & Watch-outs established |
|                         | 1        | *Water Supply                       | 1. Maintain Water Supply |
|                         | 1        | Tender Operator                     | 1. Maintain Water Supply |
|                         | 2        | *Hose Crew                          | 1. Hose Crew  
2. Quick Knockdown  
3. Wet-line |
|                         | 6        | Hand Crew                           | 1. Cut Hand-line |

The critical tasks analysis reflects the personnel and equipment needed on the scene to mitigate the incident. See **Table 14** above.

<table>
<thead>
<tr>
<th>Wildland Fire Total Response Time</th>
<th>1st Arriving Apparatus Baseline (Low Risk)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station 1</td>
<td>10:15</td>
</tr>
<tr>
<td>Station 2</td>
<td>8:31</td>
</tr>
<tr>
<td>Station 3</td>
<td>11:51</td>
</tr>
<tr>
<td>Station 4</td>
<td>12:32</td>
</tr>
<tr>
<td>Station 6</td>
<td>13:37</td>
</tr>
<tr>
<td>Station 7</td>
<td>5:45</td>
</tr>
<tr>
<td>Station 8</td>
<td>8:40</td>
</tr>
<tr>
<td>Station 9</td>
<td>6:53</td>
</tr>
<tr>
<td>Station 10</td>
<td>9:53</td>
</tr>
</tbody>
</table>
In **Table 15** on page 112, the five-year (2011-2015) combined **Baseline (present performance)** at 90% is 10:15 for the arrival of the 1st Arriving Apparatus Wildland. Also this data signifies each station’s (Hazard Zones) ability to meet the CFAI Emergency ERF Total Response Time Baseline of 8:52 for urban, 10:10 for suburban, and 16:53 for rural. (FESSAM p.70-71) or less 90% of the time.

The Department has chosen to analyze the five year baseline for Fire risk level, then establishing Benchmarks (Objectives) at this level for each of the urban, suburban and rural service areas. Fire turnout times will be reduced to 2:20 in the service areas.

<table>
<thead>
<tr>
<th>Wildland Fire 1st Arriving Apparatus 24/7</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline (2011-2015)</td>
<td>Benchmark</td>
</tr>
<tr>
<td>Urban</td>
<td>09:34</td>
<td>09:00</td>
</tr>
<tr>
<td>Suburban</td>
<td>12:00</td>
<td>11:09</td>
</tr>
<tr>
<td>Rural</td>
<td>12:33</td>
<td>11:35</td>
</tr>
</tbody>
</table>

In addition, the Department has chosen to analyze the five year baseline for Fire risk at the daytime (08:00-20:59) and nighttime (21:00-07:59) level, then establishing Benchmarks (Objectives) at this level for each of the urban, suburban and rural service areas. Fire turnout times will be reduced to 2:20 during the daytime and 2:50 during the nighttime in the service areas.

<table>
<thead>
<tr>
<th>Wildland Fire 1st Arriving Apparatus</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline (2011-2015)</td>
<td>Benchmark</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Day</td>
<td>Night</td>
<td>Day</td>
<td>Night</td>
</tr>
<tr>
<td>Urban</td>
<td>09:34</td>
<td>10:13</td>
<td>09:00</td>
<td>09:57</td>
</tr>
<tr>
<td>Suburban</td>
<td>12:00</td>
<td>11:04</td>
<td>11:43</td>
<td>10:43</td>
</tr>
<tr>
<td>Rural</td>
<td>12:59</td>
<td>10:32</td>
<td>12:27</td>
<td>09:58</td>
</tr>
</tbody>
</table>

**Table 16** above has the Total Response Time (TRT) Baselines that were identified and the reduction time that was found when the TRT’s Turnout at 90% fractal was identified and compared to the Departments established turnout time Benchmark of Day 2:30 and Night 2:50. This established how much time is needed to be reduced from the TRT Baseline establishing the Departments TRT Benchmark for the Department’s 1st arriving Apparatus Wildland.
The Department dispatches the closest available apparatus and one of three Brush Trucks located at Station 6, Station 10 and Station 4. Brush Trucks are cross-staffed with personnel from the fire apparatus in the station.

Table 17 above represents Wildland 1st Arriving Apparatus on scene by Travel Time and Total Response Time for Distribution of resources with the annual 90% fractal for five years. The Concentration of resources with the annual 90% fractal would best be represented by Fire ERF Table 10.1 displayed below.
Wildland 1st Arriving Apparatus and ERF Total Response Times have been tracked and analyzed from 2011-2015, with the results plotted for the 2011-2014 Baseline and the 2015 Wildland 1st Arriving Apparatus and ERF responses versus the Baseline and Benchmark results, with the results plotted for the 2011-2015 Baseline results are on p.144 Appendix 11 Fire 1st Arrival. The representation of Wildland response data is shown with a break down to a 1/16th of a mile and identifies the number of responses within each 1/16th of a mile area. The ability for the Department to meet the 90% fractal for the Departments Benchmark is represented in green, yellow represents meeting the Departments Baseline at the 90%, orange represents meeting the CFAI 90% Baseline and red represents response areas below any of the establish success rates.

<table>
<thead>
<tr>
<th>Year</th>
<th>Station 1</th>
<th>Station 2</th>
<th>Station 3</th>
<th>Station 4</th>
<th>Station 5</th>
<th>Station 6</th>
<th>Station 7</th>
<th>Station 8</th>
<th>Station 9</th>
<th>Station 10</th>
</tr>
</thead>
</table>

In Table 18 above, the five-year (2011-2015) combined Baseline (present performance) at 90% is 14:04 for the arrival of the ERF. In addition this data signifies each station’s (Hazard Zones) ability to meet the CFAI Emergency ERF Total Response Time Baseline of 16:40 for urban, 16:40 for suburban, and 21:52 for rural. (FESSAM p.70-71) or less 90% of the time. The Department has chosen to analyze the five year baseline for Fire risk level, then establishing Benchmarks (Objectives) at this level for each of the urban, suburban and rural service areas. Fire turnout times will be reduced to 2:20 in the service areas.
In addition, the Department has chosen to analyze the five year baseline for Fire risk at the daytime (08:00-20:59) and nighttime (21:00-07:59) level, then establishing Benchmarks (Objectives) at this level for each of the urban, suburban and rural service areas. Fire turnout times will be reduced to 2:20 during the daytime and 2:50 during the nighttime in the service areas.

- **Urban**
  - Baseline: 13:54
  - Benchmark: 12:37
- **Suburban**
  - Baseline: 18:20
  - Benchmark: 15:27
- **Rural**
  - Baseline: 17:58
  - Benchmark: 16:38

<table>
<thead>
<tr>
<th></th>
<th>Baseline (2011-2015)</th>
<th>Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Day</td>
<td>Night</td>
</tr>
<tr>
<td>Suburban</td>
<td>18:20</td>
<td>13:19</td>
</tr>
<tr>
<td>Rural</td>
<td>18:13</td>
<td>17:05</td>
</tr>
</tbody>
</table>

**Table 19** above has the Total Response Time (TRT) Baselines that were identified and the reduction time that was identified when the TRT’s Turnout at 90% fractal was identified and compared to the Departments established turnout time Benchmark of Day 2:30 and Night 2:50. This established how much time was needed to be reduced from the TRT Baseline establishing the Departments TRT Benchmark for the Department’s ERF arrival.

In 2011, the Department completed a triage assessment in the Wildland-Urban Interface of over 1100 residences. While identifying possible areas of concern for wildland fire threats, it allowed personnel to educate homeowners on how to implement mitigation measures to reduce the threat to their property in the event of a wildland fire. See **Figure 1.12**.
Technical Rescue will be analyzing data from dispatch codes:

- **Low Risk (35F)** - Motor Vehicle Accident with extrication indicated, head on auto/auto, high speed, major accident. The Department dispatches one Extrication apparatus, one ALS apparatus, two additional apparatus, Battalion Chief, Safety Officer, and an Ambulance.

- **Low Risk (36F)** - Water Rescue to include Ice and Swift water type rescue. The Department dispatches one ALS apparatus, two BLS apparatus, Battalion Chief, Safety Officer, and an Ambulance.

- **Low Risk (37F)** – Technical Rescue to include Confined Space, Trench Rescue, and Rope Rescue). The Department dispatches three Technical Rescue apparatus, one ALS apparatus, and one BLS apparatus, Battalion Chief, Safety Officer, Ambulance and Press Information Officer.
Table 20 Illustrates Response versus Risk Level

Under the High/Specialty Risk the incidents are zero to three of these a year total. Divided under the urban, suburban and rural areas this does not allow for enough data to establish a benchmark. Therefore, the Department does not establish a Benchmark for this risk level.
### Table 21

**WATER RESCUE CRITICAL TASKS**

(an * asterisk represents an effective response force critical task)

<table>
<thead>
<tr>
<th>Staffing</th>
<th>Function</th>
<th>Responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>*Safety Officer</td>
<td>1. Identify all hazards 2. Ensure proper PPE is utilized</td>
</tr>
<tr>
<td>1</td>
<td>*Entry person</td>
<td>1. Secure person in the water and return them to shore</td>
</tr>
<tr>
<td>1</td>
<td>*Back-up</td>
<td>1. Standby to rescue/assists the entry person</td>
</tr>
<tr>
<td>2</td>
<td>*Line Handler</td>
<td>1. Man the lines</td>
</tr>
<tr>
<td>3</td>
<td>Medical Team</td>
<td>1. Standby for treatment</td>
</tr>
</tbody>
</table>

### Table 22

**TRENCH RESCUE CRITICAL TASKS**

(an * asterisk represents an effective response force critical task)

<table>
<thead>
<tr>
<th>Staffing</th>
<th>Function</th>
<th>Responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>*Tech. Rescue Safety Officer</td>
<td>1. Identify all hazards 2. Ensure proper PPE is utilized</td>
</tr>
<tr>
<td>2</td>
<td>Rigging Team</td>
<td>1. Responsible for all rope systems</td>
</tr>
<tr>
<td>2</td>
<td>Shoring Team</td>
<td>1. Responsible for assembling, placing and removing shoring devices</td>
</tr>
</tbody>
</table>
### ROPE RESCUE CRITICAL TASKS

(An * asterisk represents an effective response force critical task)

<table>
<thead>
<tr>
<th>Staffing</th>
<th>Function</th>
<th>Responsibilities</th>
</tr>
</thead>
</table>
| 1        | *Tech. Rescue Group Supervisor | 1. Action Plan Development  
|          |                        | 2. Action Plan Implementation                        |
| 1        | *Tech. Rescue Safety Officer | 1. Identify all hazards  
|          |                        | 2. Ensure proper PPE is utilized                      |
| 6        | Support Team           | Manage the following  
|          |                        | 1. Rope Handlers  
|          |                        | 2. Equipment Haulers                                  |
|          | Rigging Team/Rig Attendants | 1. Responsible for all rope systems                    |
| 1        | *Attendant              | 1. and extricate the victim                            |
| 1        | Edge Person             | 1. Litter Placement  
|          |                        | 2. Positioning high directional                        |
|          |                        | 3. relaying communication                              |

### CONFINED SPACE RESCUE CRITICAL TASKS

(An * asterisk represents an effective response force critical task)

<table>
<thead>
<tr>
<th>Staffing</th>
<th>Function</th>
<th>Responsibilities</th>
</tr>
</thead>
</table>
| 1        | *Tech. Rescue Group Supervisor | 1. Action Plan Development  
|          |                        | 2. Action Plan Implementation                        |
| 1        | *Tech. Rescue Safety Officer | 1. Identify all hazards  
|          |                        | 2. Ensure proper PPE is utilized                      |
| 4        | Support Team           | Manage the following  
|          |                        | 1. SCBA Manifold  
|          |                        | 2. Air Monitor  
|          |                        | 3. Ventilation  
|          |                        | 4. Lockout/Tag-out                                    |
| 2        | Rigging Team           | 1. Responsible for all rope systems                    |
| 4        | *Entry Team            | 1. enter the confined space and extricate the victim   |
In Table 23 above, five-year (2011-2015) combined Baseline (present performance) at 90% is 10:02 for the arrival of the Technical Rescue 1st Arriving Apparatus. Also this data signifies each station’s (Hazard Zones) ability to meet the CFAI Emergency ERF Total Response Time Baseline of 8:52 for urban, 10:10 for suburban, and 16:53 for rural. (FESSAM p.70-71) or less 90% of the time.

The Department has chosen to analyze the five year baseline for Technical Rescue risk level, then establishing Benchmarks (Objectives) at this level for each of the urban, suburban and rural service areas. Technical Rescue turnout times will be reduced to 2:20 in the service areas.

<table>
<thead>
<tr>
<th>Department</th>
<th>Station 1</th>
<th>Station 2</th>
<th>Station 3</th>
<th>Station 4</th>
<th>Station 5</th>
<th>Station 6</th>
<th>Station 7</th>
<th>Station 8</th>
<th>Station 9</th>
<th>Station 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>10:02</td>
<td>5:59</td>
<td>10:02</td>
<td>10:15</td>
<td>7:27</td>
<td>13:54</td>
<td>4:18</td>
<td>00:00</td>
<td>7:27</td>
<td>6:14</td>
</tr>
<tr>
<td>2012</td>
<td>9:06</td>
<td>7:41</td>
<td>4:37</td>
<td>7:51</td>
<td>8:12</td>
<td>10:17</td>
<td>6:27</td>
<td>7:28</td>
<td>8:57</td>
<td>5:00</td>
</tr>
<tr>
<td>2013</td>
<td>9:03</td>
<td>6:41</td>
<td>6:45</td>
<td>14:53</td>
<td>9:55</td>
<td>9:03</td>
<td>7:37</td>
<td>5:48</td>
<td>11:29</td>
<td>00:00</td>
</tr>
<tr>
<td>2014</td>
<td>8:43</td>
<td>7:46</td>
<td>8:25</td>
<td>5:00</td>
<td>11:30</td>
<td>8:43</td>
<td>7:42</td>
<td>6:04</td>
<td>00:00</td>
<td>5:39</td>
</tr>
<tr>
<td>2015</td>
<td>10:21</td>
<td>3:58</td>
<td>19:20</td>
<td>15:33</td>
<td>00:00</td>
<td>10:11</td>
<td>7:13</td>
<td>00:00</td>
<td>5:49</td>
<td>7:34</td>
</tr>
<tr>
<td>2011-2015</td>
<td>10:02</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In addition, the Department has chosen to analyze the five year baseline for Technical Rescue risk at the daytime (08:00-20:59) and nighttime (21:00-07:59) level, then establishing Benchmarks (Objectives) at this level for each of the urban, suburban and rural service areas. Technical Rescue turnout times will be reduced to 2:20 during the daytime and 2:50 during the nighttime in the service areas.
Table 24 above, has the Total Response Time (TRT) Baselines that were identified and the reduction time that was identified when the TRT’s Turnout Time at 90% fractal was identified and compared to the Departments established turnout time Benchmark of Day 2:30 and Night 2:50. This established how much time was needed to be reduced from the TRT Baseline establishing the Departments TRT Benchmark for the Department’s 1st arrival apparatus.
<table>
<thead>
<tr>
<th>Total Response Time</th>
<th>Suburban</th>
<th>17:44</th>
<th>11:06</th>
<th>16:19</th>
<th>0:00</th>
<th>17:44</th>
<th>18:23</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERF Concentration</td>
<td>Rural</td>
<td>18:21</td>
<td>0:00</td>
<td>10:28</td>
<td>15:07</td>
<td>18:21</td>
<td>11:53</td>
</tr>
</tbody>
</table>

In Table 25 above, Technical Rescue (TR) 1st Arriving Apparatus Total Response Times have been tracked and analyzed from 2011-2015, with the results plotted for the 2011-2015 Baseline results are on p.145 Appendix 12. T/R ERF are on p.146 Appendix 13. The high risk only has zero to three incidents annual and when these are divided between urban, suburban and rural there is not enough data to establish a true Benchmark therefore, the Department has not established the benchmark for this risk level.

The representation of TR response data is shown with a break down to a 1/16th of a mile and identifies the number of responses within each 1/16th of a mile area. The ability for the Department to meet the 90% fractal average for the Departments Benchmark is represented in green, yellow represents meeting the Departments Baseline at the 90%, orange represents meeting the CFAI 90% Baseline and red represents response areas below any of the establish success rates.

All Department personnel have been trained to the awareness and operations levels as identified in NFPA 1670 for rope rescue, confined space, and trench rescue. The Officers and Engineers assigned to Engine 5, Pumper Ladder 8, and Rescue 8 have been trained to the technical level as identified in NFPA 1670 for rope rescue, confined space and trench rescue. Additionally, the Training Officer and the Firefighter assigned to Pumper Ladder 8 has been trained to the same standard. All firefighters participate in Department training, in the use of lifeline kits for high angle, confined space and trench rescue.

The Department dispatches the closest available apparatus in addition to the four Technical Rescue Apparatus at Station 3, 5, 6, 7, and 8. These apparatus are fully staffed with a tractor-trailer rig parked at Station 2 that transports the shoring lumber along with extra equipment. The Department will analyze the data to continue to improve the performance in technical rescue.
An Effective Response Force providing sufficient personnel and equipment within the prescribed time frame, capable of performing the critical tasks required of the incident is an important factor in success. In Table 26 on p.119, the five-year combined Baseline (present performance) at 90% is 16:46 for the effective response force arrival on the scene of a technical rescue incident.

### Technical Rescue Total Response Time

**Effective Response Force (ERF) Baseline**

<table>
<thead>
<tr>
<th>Department</th>
<th>Station 1</th>
<th>Station 2</th>
<th>Station 3</th>
<th>Station 4</th>
<th>Station 5</th>
<th>Station 6</th>
<th>Station 7</th>
<th>Station 8</th>
<th>Station 9</th>
<th>Station 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>16:36</td>
<td>00:00</td>
<td>18:23</td>
<td>16:36</td>
<td>00:00</td>
<td>13:47</td>
<td>13:43</td>
<td>00:00</td>
<td>00:00</td>
<td>13:58</td>
</tr>
<tr>
<td>2013</td>
<td>16:00</td>
<td>9:37</td>
<td>11:58</td>
<td>00:00</td>
<td>15:07</td>
<td>17:59</td>
<td>11:30</td>
<td>10:03</td>
<td>16:30</td>
<td>00:00</td>
</tr>
<tr>
<td>2014</td>
<td>19:39</td>
<td>14:31</td>
<td>19:39</td>
<td>10:57</td>
<td>10:28</td>
<td>19:46</td>
<td>8:23</td>
<td>15:52</td>
<td>00:00</td>
<td>8:21</td>
</tr>
<tr>
<td>2015</td>
<td>18:27</td>
<td>7:32</td>
<td>19:29</td>
<td>11:06</td>
<td>00:00</td>
<td>14:42</td>
<td>00:00</td>
<td>00:00</td>
<td>14:24</td>
<td>12:02</td>
</tr>
<tr>
<td>2011-2015</td>
<td>16:56</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In Table 26 above, the five-year (2011-2015) combined Baseline (present performance) at 90% is 16:46 for the arrival of the ERF, which is a gross deviation from the CFAI Standards. Also this data signifies each station’s (Hazard Zones) ability to meet the CFAI Emergency ERF Total Response Time Baseline of 16:40 for urban, 16:40 for suburban, and 21:52 for rural. (FESSAM p.70-71) or less 90% of the time.

The Department has chosen to analyze the five year baseline for Technical Rescue risk level, then establishing Benchmarks (Objectives) at this level for each of the urban, suburban and rural service areas. Technical Rescue turnout times will be reduced to 2:20 in the service areas.

### Technical Rescue ERF 24/7 Moderate Risk

<table>
<thead>
<tr>
<th></th>
<th>Baseline (2011-2015)</th>
<th>Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban</td>
<td>16:30</td>
<td>15:38</td>
</tr>
<tr>
<td>Suburban</td>
<td>17:44</td>
<td>15:05</td>
</tr>
<tr>
<td>Rural</td>
<td>18:21</td>
<td>17:53</td>
</tr>
</tbody>
</table>

In addition, the Department has chosen to analyze the five year baseline for Technical Rescue risk at the daytime (08:00-20:59) and nighttime (21:00-07:59) level, then establishing
Standards Of Cover

Benchmarks (Objectives) at this level for each of the urban, suburban and rural service areas. Technical Rescue turnout times will be reduced to 2:20 during the daytime and 2:50 during the nighttime in the service areas.

<table>
<thead>
<tr>
<th>Technical Rescue ERF Moderate Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline (2011-2015)</td>
</tr>
<tr>
<td>Day</td>
</tr>
<tr>
<td>Urban</td>
</tr>
<tr>
<td>Suburban</td>
</tr>
<tr>
<td>Rural</td>
</tr>
</tbody>
</table>

**Table 27** above has the Total Response Time (TRT) Baselines that were identified and the reduction time that was found when the TRT’s Turnout Time at 90% fractal was identified and compared to the Departments established turnout time Benchmark of Day 2:30 and Night 2:50. This established how much time needed to be reduced from the TRT Baseline establishing the Departments TRT Benchmark for the Department’s ERF arrival.

**Hazardous Material** responses will be analyzing data from dispatch codes:

- Low Risk (40I) – Haz Mat Investigation will respond with one apparatus responding.
- Moderate Risk (40F) – Haz Mat Full Response will respond with one Advanced Life Support (ALS) Apparatus, two Basic Life Support (BLS) Apparatus, a Safety Officer and two Battalion Chiefs.

<table>
<thead>
<tr>
<th>Risk Level Haz-Mat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Risk</td>
</tr>
<tr>
<td>40-I</td>
</tr>
<tr>
<td>One Apparatus (To Include Auto Aid)</td>
</tr>
</tbody>
</table>

**Table 28** above Illustrates Response versus Risk Level
Under the High/Specialty Risk the incidents are zero to three of these a year total. Divided under the urban, suburban and rural areas this does not allow for enough data to establish a benchmark. Therefore, the Department does not establish a Benchmark for this risk level.

Table 29

<table>
<thead>
<tr>
<th>Staffing</th>
<th>Function</th>
<th>Responsibilities</th>
</tr>
</thead>
</table>
| 1        | *Incident Command    | 1. Incident Command  
2. Product Identification  
3. Scene Evacuation  
4. Isolate Scene |
| 1        | *Safety Officer      | 1. Scene Safety                                       |
| 2        | Decontamination      | 1. Set up decontamination procedures                 |
| 2        | *Entry Team          | 1. extricate the victim                               |
| 3        | *RIT Team            | Standing by for emergency rescue                     |

Hazardous Material Total Response Time

<table>
<thead>
<tr>
<th>1st Arriving Apparatus Baseline (Low Risk)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Department</strong></td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>2011</td>
</tr>
<tr>
<td>2012</td>
</tr>
<tr>
<td>2013</td>
</tr>
<tr>
<td>2014</td>
</tr>
<tr>
<td>2011-2015</td>
</tr>
</tbody>
</table>

Table 30

In Table 30, the five-year (2011-2015) combined Baseline (present performance) at 90% is 10:07 for the arrival of the Hazardous Material 1st Arriving Apparatus. In addition this data signifies each station’s (Hazard Zones) ability to meet the CFAI Emergency ERF Total Response Time Baseline of 8:52 for urban, 10:10 for suburban, and 16:53 for rural. (FESSAM p.70-71) or less 90% of the time.
The Department has chosen to analyze the five year baseline for Hazardous Material risk, then establishing Benchmarks (Objectives) at this level for each of the urban, suburban and rural service areas. Hazardous Material turnout times will be reduced to 2:20 in the service areas.

<table>
<thead>
<tr>
<th>Haz Mat 1st Arriving Apparatus 24/7 (Low Risk)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline (2011-2015)</td>
</tr>
<tr>
<td>Urban</td>
</tr>
<tr>
<td>Suburban</td>
</tr>
<tr>
<td>Rural</td>
</tr>
</tbody>
</table>

In addition, the Department has chosen to analyze the five year baseline for Hazardous Material risk at the daytime (08:00-20:59) and nighttime (21:00-07:59) level, then establishing Benchmarks (Objectives) at this level for each of the urban, suburban and rural service areas. Technical Rescue turnout times will be reduced to 2:20 during the daytime and 2:50 during the nighttime in the service areas.

<table>
<thead>
<tr>
<th>Haz Mat ERF Moderate Risk (Moderate Risk)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline (2011-2015)</td>
</tr>
<tr>
<td>Day</td>
</tr>
<tr>
<td>Urban</td>
</tr>
<tr>
<td>Suburban</td>
</tr>
<tr>
<td>Rural</td>
</tr>
</tbody>
</table>

*Under Suburban and Rural Night Haz Mat ERF there was no responses in over five years. Therefore the Department established both Benchmarks from the Daytime Benchmark for the Rural area.

<table>
<thead>
<tr>
<th>Haz Mat 1st Arriving Apparatus Low Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline (2011-2015)</td>
</tr>
<tr>
<td>Day</td>
</tr>
<tr>
<td>Urban</td>
</tr>
<tr>
<td>Suburban</td>
</tr>
<tr>
<td>Rural</td>
</tr>
</tbody>
</table>

*Under Suburban and Rural Night Haz Mat 1st Arriving Apparatus there was no responses in over five years. Therefore the Department established the Benchmark from the Nighttime Benchmark from the Rural Daytime Benchmark.
Table 30 above has the Total Response Time (TRT) Baselines that was identified and the reduction time that was identified when the TRT’s Turnout Time at 90% fractal was identified and compared to the Departments established turnout time Benchmark of Day 2:30 and Night 2:50. This established how much time needed to be reduced from the TRT Baseline establishing the Departments TRT Benchmark for the Department’s Haz-Mat 1st Arriving Apparatus and ERF.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Alarm Handling</strong></td>
<td>24/7</td>
<td>0:57</td>
<td>0:55</td>
<td>0:57</td>
<td>0:49</td>
<td>0:41</td>
</tr>
<tr>
<td><strong>Turnout Time</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dept. 24/7</td>
<td>2:52</td>
<td>2:48</td>
<td>2:53</td>
<td>2:56</td>
<td>2:55</td>
</tr>
<tr>
<td></td>
<td>NIGHT 2:52</td>
<td>2:48</td>
<td>2:52</td>
<td>0:00</td>
<td>3:08</td>
<td>2:33</td>
</tr>
<tr>
<td><strong>Travel Time</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Travel Time</strong></td>
<td>1st Unit Distribution</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Urban</td>
<td>5:44</td>
<td>5:06</td>
<td>4:54</td>
<td>8:11</td>
<td>5:43</td>
</tr>
<tr>
<td></td>
<td>Suburban</td>
<td>3:23</td>
<td>2:13</td>
<td>2:43</td>
<td>3:23</td>
<td>2:54</td>
</tr>
<tr>
<td></td>
<td>Rural</td>
<td>9:02</td>
<td>5:05</td>
<td>12:29</td>
<td>7:33</td>
<td>2:57</td>
</tr>
<tr>
<td></td>
<td>1st Unit ERF Concentration</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Urban</td>
<td>8:52</td>
<td>8:44</td>
<td>10:25</td>
<td>9:00</td>
<td>8:52</td>
</tr>
<tr>
<td></td>
<td>Suburban</td>
<td>11:24</td>
<td>0:00</td>
<td>7:14</td>
<td>11:24</td>
<td>6:12</td>
</tr>
<tr>
<td></td>
<td>Rural</td>
<td>14:48</td>
<td>10:28</td>
<td>14:48</td>
<td>7:54</td>
<td>0:00</td>
</tr>
<tr>
<td><strong>Total Response Time</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Response Time</strong></td>
<td>1st Unit On Scene Distribution (Low Risk)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Urban</td>
<td>8:17</td>
<td>8:17</td>
<td>6:45</td>
<td>11:50</td>
<td>8:00</td>
</tr>
<tr>
<td></td>
<td>Suburban</td>
<td>6:01</td>
<td>5:20</td>
<td>5:59</td>
<td>6:01</td>
<td>5:34</td>
</tr>
<tr>
<td></td>
<td>Rural</td>
<td>12:01</td>
<td>8:51</td>
<td>15:05</td>
<td>10:07</td>
<td>4:23</td>
</tr>
<tr>
<td></td>
<td>Total Response Time ERF Concentration (Moderate Risk)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Suburban</td>
<td>14:15</td>
<td>0:00</td>
<td>9:46</td>
<td>14:15</td>
<td>9:32</td>
</tr>
<tr>
<td></td>
<td>Rural</td>
<td>17:51</td>
<td>13:50</td>
<td>17:51</td>
<td>11:11</td>
<td>0:00</td>
</tr>
</tbody>
</table>
Table 31 above, represents both Hazardous Material 1st apparatus on scene by Travel Time and Total Response Time for Distribution of resources. With the annual 90% fractal for five years and the Hazardous Material ERF arrival on scene by Travel Time and Total Response Time for Concentration of resources with the annual 90% fractal for five years.

Hazardous Material 1st Arriving Apparatus and ERF Total Response Times have been tracked and analyzed from 2011-2015, with the results plotted for the 2011-2015 Baseline and the 2016 Hazardous Material 1st Arriving and ERF responses versus the Baseline and Benchmark results. Hazardous Material 1st Arriving Apparatus Total Response Times have been tracked and analyzed from 2011-2015, with the results plotted for the 2011-2015 Baseline results are on p.147 Appendix 14. ERF responses are on p.148 Appendix 15. The representation of the Department’s Hazardous Material response data is shown with a break down to a 1/16th of a mile and identifies the number of responses within each 16th of a mile area. The ability for the Department to meet the 90% fractal average for the Departments Benchmark is represented in green, yellow represents meeting the Departments Baseline at the 90%, orange represents meeting the CFAI 90% Baseline and red represents response areas below any of the establish success rates.

All designated personnel will participate in and maintain training at the operations level for responding to Hazardous Materials incidents. Personnel that respond at the Response Chief level are required to complete Hazardous Material Incident Commander training.

Department personnel will respond in a DEFENSIVE mode taking appropriate measures to avoid coming in contact with the released substance or taking actions to mitigate a release that would place them in danger of coming into contact with the released substance. The primary function of the Operations level responder is to isolate the release from a safe distance, keep it from spreading, and to protect exposures including the environment. If the situation is hazardous beyond the Departments capabilities, then the request for the City of Spokane Fire Department Hazardous Material will be made.
In Table 32 on p.129, the Department’s five-year (2011-2015) combined Baseline (present performance) at 90% is 14:15 for the arrival of the ERF. Also this data signifies each station’s (Hazard Zones) ability to meet the CFAI Emergency ERF Total Response Time Baseline of 16:40 for urban, 16:40 for suburban, and 21:52 for rural. (FESSAM p.70-71) or less 90% of the time.

The Department has chosen to analyze the five year baseline for Hazardous Material ERF risk, then establishing Benchmarks (Objectives) at this level for each of the urban, suburban and rural service areas. Hazardous Material turnout times will be reduced to 2:20 in the service areas.

<table>
<thead>
<tr>
<th>Department</th>
<th>Station 1</th>
<th>Station 2</th>
<th>Station 3</th>
<th>Station 4</th>
<th>Station 5</th>
<th>Station 6</th>
<th>Station 7</th>
<th>Station 8</th>
<th>Station 9</th>
<th>Station 10</th>
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<tbody>
<tr>
<td>2011</td>
<td>14:15</td>
<td>8:55</td>
<td>8:42</td>
<td>00:00</td>
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<td>00:00</td>
<td>9:16</td>
<td>7:43</td>
<td>14:15</td>
<td>00:00</td>
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<tr>
<td>2012</td>
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<td>00:00</td>
<td>9:32</td>
<td>7:41</td>
<td>00:00</td>
<td>10:16</td>
<td>10:50</td>
<td>00:00</td>
<td>7:08</td>
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</tr>
<tr>
<td>2013</td>
<td>14:15</td>
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<td>00:00</td>
</tr>
<tr>
<td>2014</td>
<td>17:51</td>
<td>9:46</td>
<td>9:28</td>
<td>13:33</td>
<td>17:51</td>
<td>00:00</td>
<td>18:07</td>
<td>8:05</td>
<td>00:00</td>
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<tr>
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<td>10:02</td>
<td>13:33</td>
<td>12:10</td>
<td>8:05</td>
<td>9:29</td>
</tr>
<tr>
<td>2011-2015</td>
<td>13:50</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Haz Mat ERF 24/7 (Moderate Risk)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline (2011-2015)</td>
</tr>
<tr>
<td>Urban</td>
</tr>
<tr>
<td>Suburban</td>
</tr>
<tr>
<td>Rural</td>
</tr>
</tbody>
</table>

In addition, the Department has chosen to analyze the five year baseline for Fire risk at the daytime (08:00-20:59) and nighttime (21:00-07:59) level, then establishing Benchmarks (Objectives) at this level for each of the urban, suburban and rural service areas. Hazardous Material turnout times will be reduced to 2:20 during the daytime and 2:50 during the nighttime in the service areas.
<table>
<thead>
<tr>
<th>Haz Mat ERF Moderate Risk (Moderate Risk)</th>
<th>Baseline (2011-2015)</th>
<th>Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Day</td>
<td>Night</td>
</tr>
<tr>
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<td>11:27</td>
<td>12:10</td>
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<tr>
<td>Suburban</td>
<td>14:15</td>
<td>00:00</td>
</tr>
<tr>
<td>Rural</td>
<td>17:51</td>
<td>00:00</td>
</tr>
</tbody>
</table>

*Under Suburban and Rural Night Haz Mat ERF there was no responses in over five years. Therefore the Department established both Benchmarks from the Daytime Benchmark for the Rural area.

**Table 33** above has the Total Response Time (TRT) Baselines that was identified and the reduction time that was identified when the TRT’s Turnout Time at 90% fractal was identified and compared to the Departments established turnout time Benchmark of Day 2:30 and Night 2:50. This established how much time needed to be reduced from the TRT Baseline establishing the Departments TRT Benchmark for the Department’s Hazardous Material ERF arrival.

**References**

1. Washington State Hazard Mitigation Plan  November 2011
Appendix
Appendix 1 Residential Building Density
Appendix 2 Assessed Value
Appendix 3 Commercial Occupancy Code
Commodities Transport

+1 Risk when one or more of the following are present: Railroad, Interstate, State Highway, Gas Pipeline

Appendix 4 Commodities Transport
Fire Flow Availability

+1 Risk: when a hydrant with a flow of 1000 gpm at 20psi is not present

Appendix 5 Fire Flow Availability
Appendix 6 Accumulated Risk Level
Appendix 7 2011-2015 EMS 1st Arrival Responses
Appendix 8 2011-2015 EMS ERF Responses
Appendix 9 2011-2015 Fire 1st Arrival
Appendix 10 2011-2015 Fire ERF Arrival
Appendix 11 2011-2015 Wildland Fire 1st Arrival
Appendix 12 2011-2015 Tech Rescue/Special Ops 1st Arrival
Appendix 13 2011-2015 Tech Rescue/Special Ops ERF Arrival
Appendix 14 2011-2015 Hazardous Material 1st Arrival
Appendix 15 2011-2015 Hazardous Material ERF Arrival
Appendix - A
Hazard Planning Zones
(Stations First Response Boundaries)

Hazard Planning Zone #1 - Station #1:
Start at 1200 N/Boone and 8300 E/Vista, East on 1200 N/Boone to 9500 E/Locust, North on 9500 E/Locust to 2000 N/Indiana, East on 2000 N/Indiana to 11100 E/Pierce, South on 11100 E/Pierce to 1200 N/Boone, East on 1200 N/Boone to 11500 E/Bowdish, South on 11500 E/Bowdish to 800 N/Broadway, East on 800 N/Broadway to 11900 E/Union, South on 11900 E/Union to 0 N/Sprague, East on 0 N/Sprague to 12300 E/Pines, South on 12300 E/Pines to 400 S/4th, West on 400 S/4th to 11100 E/Pierce, South on 11100 E/Pierce to 1600 S/16th, West on 1600 S/16th to 9100 E/Argonne, North on 9100 E/Argonne to 0 N/Sprague, West on 0 N/Sprague to 8300 E/Vista, North on 8300 E/Vista to 1200 N/Boone

Hazard Planning Zone #2 - Station #2:
Start at 1600 N/Mission and 6700 E/Therian, North on 6700 E/Therian to 3200 N/Euclid, East on 3200 N/Euclid to 7100 E/Coleman, North on 7100 E/Coleman to 3600 N/Glass, East on 3600 N/Glass to 7500 E/Park, North on 7500 E/Park to 4800 N/Wellesley, East on 4800 N/Wellesley to 12300 E/Pines, South on 12300 E/Pines to 4400 N/Rich, West on 4400 N/Rich to 11900 E/Union, South on 11900 E/Union to 0000 N/Garland, West on 4000 N/Garland to 11500 E/Bowdish, South on 11500 E/Bowdish to 3200 N/Euclid, West on 3200 N/Euclid to 10700 E/University, South on 10700 E/University to 2800 N/Buckeye, West on 2800 N/Buckeye to 9900 E/Woodruff, South on 9900 E/Woodruff to 2000 N/Indiana, West on 2000 N/Indiana to 9500 E/Locust, South on 9500 E/Locust to 1200 N/Boone, West on 1200 N/Boone to 7500 E/Park, North on 7500 E/Park to 1600 N/Mission, West on 1600 N/Mission to 6700 E/Therian

Hazard Planning Zone #3 - Station #3:
Start at 18700 E/Barker and 3600 N/Glass, East on 3600 N/Glass to 22300 E/Arden, South on 22300 E/Arden to 3200 E/Euclid, East on 3200 E/Euclid to 23100 E/Garry, South on 23100 E/Garry to 2800 N/Buckeye, West on 2800 N/Buckeye to 23900 E/Stevenson, North on 23900 E/Stevenson to 3200 N/Euclid, East on 3200 N/Euclid to 25100 E/Starr, North on 25100 E/Starr to 3600 N/Glass, East on 3600 N/Glass to 25500 E/Canal, North on 25500 E/Canal to 4000 N/Garland, East on 4000 N/Garland to 27100 E/Stateline Road, South on 27100 E/Stateline Road to 800 S/8th, West on 800 S/8th to 26700 E/Idaho Road, South on 26700 E/Idaho Road to 1600 S/16th, West on 1600 S/16th to 25900 E/Vincent, South on 25900 E/Vincent to 2000 S/20th, West on 2000 S/20th to 25300 E/Starr, South on 25300 E/Starr to 2800 S/28th, West on 2800 S/28th to 24700 E/Murray, North on 24700 E/Murray to 2400 S/24th, West on 2400 S/24th to 23900 E/Stevenson, North on 23900 E/Stevenson to 2000 S/20th, West on 2000 S/20th to 25300 E/Molter, North on 25300 E/Molter to 1600 S/16th, West on 1600 S/16th to 21900 E/Harvard, North on 21900 E/Harvard to 0 N/Sprague, West on 0 N/Sprague to 20300 E/Campbell, North on 20300 E/Campbell to 1200 N/Boone, West on 1200 N/Boone to 19100 E/McMillan, North on 19100 E/McMillan to 2400 N/Montgomery, West on 2400 N/Montgomery to 18700 E/Barker, North on 18700 E/Barker to 3600 N/Glass.
Standards of Cover

**Hazard Planning Zone #4 - Station #4:**

Start at 6400 N/Francis and 17900 E/Long, East on 6400 N/Francis to 18700 E/Barker, North on 18700 E/Barker to 7200 N, East on 7200 N to 19500 E/Hodges, North on 19500 E/Hodges to 8000 N/Lincoln, East on 8000 N/Lincoln to 21100 E/Kenney, South on 21100 E/Kenney to 6400 N/Francis, East on 6400 N/Francis to 22300 E/Arden, North on 22300 E/Arden to 6600 N, East on 6600 N to 27200 E/Lyndon, North on 27200 E/Lyndon to 7200 N, East on 7200 N to 24300 E/Simpson, North on 24300 E/Simpson to 7600 N, East on 7600 N to 24700 E/Murray, North on 24700 E/Murray to 8000 N/Lincoln, East on 8000 N/Lincoln to 27100 E/Stateline Road, South on 27100 E/Stateline Road to 4000 N/Garland, West on 4000 N/Garland to 25500 E/Canal, South on 25500 E/Canal to 3600 N/Glass, West on 3600 N/Glass to 25100 E/Starr, South on 25100 E/Starr to 3200 N/Eucild, West on 3200 N/Eucild to 23900 E/Stevenson, South on 23900 E/Stevenson to 2800 N/Buckeye, West on 2800 N/Buckeye to 23100 E/Garry, North on 23100 E/Garry to 3200 N/Eucild, West on 3200 N/Eucild to 22300 E/Arden, North on 22300 E/Arden to 3600 N/Glass, West on 3600 N/Glass to 19500 E/Hodges, North on 19500 E/Hodges to 4000 N/Garland, West on 4000 N/Garland to 17900 E/Long, North on 17900 E/Long to 6400 N/Francis.

**Hazard Planning Zone #5 - Station #5:**

Start at 13900 E/Evengreen and 5600 N/Rowan, East on 5600 N/Rowan to 14300 E/Best, North on 14300 E/Best to 6000 N/Central, East on 6000 N/Central to 15500 E/Sullivan, South on 15500 E/Sullivan to 5600 N/Rowan, East on 5600 N/Rowan to 17100 E/Flota, North on 17100 E/Flota to 6400 N/Francis, East on 6400 N/Francis to 17900 E/Long, South on 17900 E/Long to 4000 N/Garland, East on 4000 N/Garland to 19500 E/Hodges, South on 19500 E/Hodges to 3600 N/Glass, West on 3600 N/Glass to 18700 E/Barker, South on 18700 E/Barker to 2400 N/Montgomery, West on 2400 N/Montgomery to 18300 E/Greenacres, North on 18300 E/Greenacres to 2700 N/Buckeye, West on 2700 N/Buckeye to 17900 E/Long, South on 17900 E/Long to 2400 N/Montgomery, West on 2400 N/Montgomery to 16700 E/Sunnyvale, South on 16700 E/Sunnyvale to 1200 N/Boone, West on 1200 N/Boone to 15900 E/Moor, South on 15900 E/Moor to 800 N/Broadway, West on 800 N/Broadway to 15500 E/Sullivan, South on 15500 E/Sullivan to 400 N/Valleyway, West on 400 N/Valleyway to 14700 E/Adams, North on 14700 E/Adams to 1200 N/Boone, West on 1200 N/Boone to 14300 E/Best, North on 14300 E/Best to 1600 N/Mission, West on 1600 N/Mission to 13000 E/Evengreen, North on 13000 E/Evengreen to 5600 N/Rowan.

**Hazard Planning Zone #6 - Station #6:**

Start at 4300 E/Havanna and 1200 N/Boone, East on 1200 N/Boone to 4700 E/Custer, North on 4700 E/Custer to 1000 N/Mission, East on 1600 N/Mission to 5900 E/Fancher, North on 5900 E/Fancher to 2400 N/Montgomery, East on 2400 N/Montgomery to 6300 E/Eastern, North on 6300 E/Eastern to 2800 N/Buckeye, West on 2800 N/Buckeye to 6700 E/Thiemann, South on 6700 E/Thiemann to 1600 N/Mission, East on 1600 N/Mission to 7500 E/Park, South on 7500 E/Park to 1200 N/Boone, East on 1200 N/Boone to 8300 E/Vista, South on 8300 E/Vista to 0 N/Sprague, East on 0 N/Sprague to 9100 E/Argonne, South on 9100 E/Argonne to 1600 S/16th, West on 1600 S/16th to 8300 E/Vista, South on 8300 E/Vista to 2000 S/20th, West on 2000 S/20th to 7900 E/Ellis, South on 7900 E/Ellis to 4300 N/Havana, North on 4300 N/Havana to 1200 N/Boone.
Standards of Cover

Hazard Planning Zone #7 - Station #7:
Start at 11500 E/Union and 400 S/4th, East on 400 S/4th to 12700 E/Pines, North on 12700 E/Pines to 0 N/Sprague, East on 0 N/Sprague to 12700 E/Vercler, North on 12700 E/Vercler to 800 N/Broadway, East on 800 N/Broadway to 13100 E/McDonald, North on 13100 E/McDonald to 1200 N/Boone, East on 1200 N/Boone to 13900 E/Evergreen, North on 13900 E/Evergreen to 1600 E/Mission, East on 1600 N/Mission to 14300 E/Best, South on 14300 E/Best to 1200 N/Boone, East on 1200 N/Boone to 14700 E/Adams, South on 14700 E/Adams to 400 N/Valleyway, East on 400 N/Valleyway to 15100 E/Progress, South on 15100 E/Progress to 400 S/4th, East on 400 S/4th to 15500 E/Sullivan, South on 15500 E/Sullivan to 800 S/8th, East on 800 S/8th to 17100 E/Flora, South on 17100 E/Flora to 4400 S/44th, West on 4400 S/44th to 15500 E/Sullivan, North on 15500 E/Sullivan to 2800 S/28th, West on 2800 S/28th to 13500 E/Blake, North on 13500 E/Blake to 2400 S/24th, West on 2400 S/24th to 13100 E/McDonald, North on 13100 E/McDonald to 2000 S/20th, West on 2000 S/20th to 13700 E/Vercler, North on 13700 E/Vercler to 1600 S/16th, West on 1600 S/16th to 12300 E/Pines, North on 12300 E/Pines to 1200 S/12th, West on 1200 S/12th to 11900 E/Union, North on 11900 E/Union to 400 S/4th.

Hazard Planning Zone #8 - Station #8:
Start at 9900 E/Woodruff and 2800 N/Buckeye, East on 2800 N/Buckeye to 10700 E/University, North on 10700 E/University to 3200 E/Euclid, East on 3200 E/Euclid to 11500 E/Bowdish, North on 11500 E/Bowdish to 4000 N/Garland, East on 4000 N/Garland to 11500 E/Union, North on 11500 E/Union to 4400 N/Rich, East on 4400 N/Rich to 1200 E/Pines, North on 1200 E/Pines to 5600 N/Rowan, East on 5600 N/Rowan to 13900 E/Evergreen, South on 13900 E/Evergreen to 1200 N/Boone, West on 1200 N/Boone to 13100 E/McDonald, South on 13100 E/McDonald to 800 N/Broadway, West on 800 N/Broadway to 12700 E/Vercler, South on 12700 E/Vercler to 0 N/Sprague, West on 0 N/Sprague to 11900 E/Union, North on 11900 E/Union to 80 N/Broadway, West on 80 N/Broadway to 11500 E/Bowdish, North on 11500 E/Bowdish to 1200 N/Boone, West on 1200 N/Boone to 11100 E/Pierce, North on 11100 E/Pierce to 2000 N/Indiana, West on 2000 N/Indiana to 9900 E/Woodruff, North on 9900 E/Woodruff to 2800 N/Buckeye.

Hazard Planning Zone #9 - Station #9:
Start at 9500 E/Locust and 1600 S/16th, East on 1600 S/16th to 11100 E/Pierce, North on 11100 E/Pierce to 400 S/4th, East on 400 S/4th to 11500 E/Union, South on 11500 E/Union to 1200 S/12th, East on 1200 S/12th to 12300 E/Pines, South on 12300 E/Pines to 1600 S/16th, East on 1600 S/16th to 12700 E/Vercler, South on 12700 E/Vercler to 2000 S/20th, East on 2000 S/20th to 13100 E/McDonald, South on 13100 E/McDonald to 2400 S/24th, East on 2400 S/24th to 15500 E/Blake, South on 15500 E/Blake to 2800 S/28th, East on 2800 S/28th to 15500 E/Sullivan, South on 15500 E/Sullivan to 4400 S/44th, West on 4400 S/44th to 9300 E/Argonne, South on 9300 E/Argonne to 4800 S/48th, West on 4800 S/48th to 8700 E/Sargent, North on 8700 E/Sargent to 4400 S/44th, West on 4400 S/44th to 8300 E/Vista, North on 8300 E/Vista to 4200 S/42nd, East on 4200 S/42nd to 9500 E/Locust, North on 9500 E/Locust to 3600 S/36th, East on 3600 S/36th to 9900 E/Woodruff, North on 9900 E/Woodruff to 2800 S/28th, West on 2800 S/28th to 9500 E/Locust, North on 9500 E/Locust to 1600 S/16th.

Hazard Planning Zone #10 - Station #10:
Start at 400 N/Valleyway and 15100 E/Progress, East on 400 N/Valleyway to 15500 E/Sullivan, North on 15500 E/Sullivan to 800 N/Broadway, East on 800 N/Broadway to 15900 E/Moore, North on 15900 E/Moore to 1200 N/Boone, East on 1200 N/Boone to...
Standards of Cover

16700 E/Sunnyvale, North 16700 E/Sunnyvale to 2400 N/Montgomery, East on 2400 N/Montgomery to 17900 E/Long, North on 17900 E/Long to 2800 N/Buckeye, East on 2800 N/Buckeye to 18300 E/Greenacres, South on 18300 E/Greenacres to 2400 N/Montgomery, East on 2400 N/Montgomery to 19100 E/McMillan, South on 19100 E/McMillan to 1200 N/Boone, East on 1200 N/Boone to 20300 E/Campbell, South on 20300 E/Campbell to 0 N/Sprague, East on 0 N/Sprague to 21900 E/Harvard, South on 21900 E/Harvard to 1600 S/16th, West on 1600 S/16th to 17100 E/Flora, North on 17100 E/Flora to 800 S/8th, West on 800 S/8th to 15500 E/Sullivan, North on 15500 E/Sullivan to 400 S/4th, West on 400 S/4th to 15100 E/Progress, North on 15100 E/Progress to 400 N/Valleyway