2014 Annual Report

Celebrating 130 Years of Service to Spokane

Spokane
FIRE DEPARTMENT®

2014 – CELEBRATING 130 YEARS OF SERVICE

On August 24th of 2014, the Spokane Fire Department reached its 130th year of existence serving Spokane's residents and visitors. The Spokane Fire Department is a proud organization whose roots lead back to that August day in 1884 when a small group of citizens joined together for the purpose of fighting fires, having learned the need first-hand the previous winter.

Over the last 130 years the Spokane Fire Department has been an integral part of the fabric of the community. The outstanding work of the Spokane Fire Department over the last 130 years has occurred because of the efforts and dedication of all of its members, not any one individual. However, there have been many individual sacrifices made during our history. Seventeen members of the Spokane Fire Department have made the ultimate sacrifice, giving their lives in the line of duty. To them and their families we owe our sincere gratitude and deepest sympathy. The challenge to all current and future personnel who wear the Spokane Fire Department uniform is to do their part to ensure that another name is never added to that honored list.

As we embark on the next 130 years of service, Spokane Fire Department will continue to work to ensure that we Make a Difference in Lives in Spokane, Every Day.

Bobby Williams
Fire Chief

TABLE OF CONTENTS

2014 – Celebrating 130 Years of Service i
Table of Contents ii
List of Figures iv
List of Tables v
Preface vii
Agency Overview 1
Line of Duty Deaths 1884 – 2014 2
Significant Influences During 2014 3
2014 Budget Information 11
Deployment Overview 13
Annual Performance Report 15
Response Performance Objectives 15
Geographic Analysis – Response Time Performance 20
Response Information 22
Incident Activity 22
Incident Breakdown 25
Unit Hour Utilization (UHU) 27
Incident Concentration 28
Promotions and New Hires 29
Retirements 30
Spokane Fire Department Meritorious Awards 31
Special Recognitions 31
Distinguished Conduct Award 34
Meritorious Service Award 35
The Community Service Award 36
Other Awards Received by SFD Members during 2014 Include: 37
Conclusion 38
Status in Achieving Department's Performance Objectives 38

Status of Department's Performance Versus National Standards 38
Monitoring Performance 39
Predictable Consequences 40
Response Performance and Outcomes 40
Spokane Fire Department – Resources and Policy Statement 48
Organizational Structure 48
Facilities 48
Response Resources 50
Policy Statement 51

LIST OF FIGURES

Figure 1: Station 9 Location 3
Figure 2: Funds Managed by SFD 11
Figure 3: SFD Fund Allocation 11
Figure 4: 2014 Breakdown of Budgeted Positions 12
Figure 5: 2014 SFD Station Information 13
Figure 6: 90th Percentile Response Time Performance Map 20
Figure 7: 50% Percentile/ Average Response Time Performance Map 21
Figure 8: 2014: Incidents by Fire Station Service Area 23
Figure 9: 2014 Incidents by Hour of Day 23
Figure 10: 2014 Incidents by Day of Week 24
Figure 11: 2014 Incidents by Hour of Day 24
Figure 12: 2014 Responses by Unit 26
Figure 13: Unit Hour Utilization (UHU) 27
Figure 14: Incident Concentration Map 28
Figure 15: Fire Growth vs. Reflex Time 42
Figure 16: Emergency Cardiac Care Sequence of Events 44
Figure 17: Spokane Fire Department Organizational Chart 48
Figure 18: Spokane Fire Department Organizational Structure 48
Figure 19: Fire Station Locations 49

LIST OF TABLES

Table 1: Last Alarm Memorial 2
Table 2: ARU Response Statistics 6
Table 3: Budgeted Positions 14
Table 4: Incident Call Types 15
Table 5: 2014 Calls for Service Dispatched for the Spokane Fire Department 22
Table 6: 2014 Promotions and New Hires 29
Table 7: 2014 Retirements 30
Table 8: Performance vs. National Standards 39
Table 9: Consequence of Fire Extension in Residential Structures 2003 - 2007 42
Table 10: Minimum Firefighting Personnel Needed Based Upon Level of Risk 46
Table 11: Station Apparatus and Personnel 50
Table 12: Low Rise Residential Structure Fire 54
Table 13: High Rise Residential Structure Fire 54
Table 14: Moderate Risk Commercial Structure Fire 55
Table 15: High Risk Commercial Structure Fire 55
Table 16: Grass/Brush Fire (not threatening structures) 55
Table 17: Vehicle Fire (not threatening structures) 56
Table 18: Emergency Medical (non-life-threatening) 56
Table 19: Emergency Medical (life-threatening) 56
Table 20: Motor Vehicle Accident (with patient extrication) 56
Table 21: Motor Vehicle Accident (no patient extrication) 57
Table 22: Hazardous Materials 57
Table 23: Technical Rescue 57
Table 24: Marine Rescue 58
Table 25: Low Rise Residential Fire (structure under 55 feet in height) 58
Table 26: High Rise Residential Fire (structure over 55 feet in height) 58
Table 27: Moderate Risk Commercial Fire 59

Table 28: High Risk Commercial Fire 59
Table 29: Grass/Brush Fire (not threatening structures) 59
Table 30: Vehicle Fire (not threatening structures) 60
Table 31: Emergency Medical (non-life-threatening) 60
Table 32: Emergency Medical (life-threatening) 60
Table 33: Motor Vehicle Accident (with patient extrication) 61
Table 34: Motor Vehicle Accident (no patient extrication) 61
Table 35: Hazardous Materials 61
Table 36: Technical Rescue 62
Table 37: Marine Rescue 62

PREFACE

The City of Spokane Fire Department is required by RCW Chapter 35.103 to adopt and maintain a written statement or policy that establishes the following:

- The existence of a fire department
- Services that the fire department is required to provide
- The basic organizational structure of the fire department
- The expected number of fire department employees
- Functions that fire department employees are expected to perform

It is further required to establish response performance objectives for the various emergency services it provides. The city must report its performance against these established objectives annually and describe consequences that are predictable for those objectives it is not currently meeting. This document constitutes the required annual report as defined by statute.

AGENCY OVERVIEW

The Spokane Fire Department (SFD) has existed as a fire protection agency within the State of Washington since 1884. The fire department is a unit of the City of Spokane general government as required of first class cities under Chapter 35.22 RCW. The City of Spokane is the second largest city in the State of Washington, located adjacent to the Idaho border, and has a Washington Survey and Rating Bureau (equivalent to the Insurance Services Office) rating of three.

The Spokane Fire Department's service area is approximately 69.5 square miles and consists of a mix of urban, suburban, industrial, and wildland areas.

The primary services provided by the Spokane Fire Department include:

- Fire Suppression
- First Response Basic Life Support (BLS) Emergency Medical Services
- First Response Advanced Life Support (ALS) Emergency Medical Services
- Public Education
- Fire Prevention (Inspection, Fire Protection Engineering Services, Investigations)
- Hazardous Materials "Specialist Level" Response
- Special Rescue (Marine, Technical, and USAR)

LINE OF DUTY DEATHS 1884 – 2014

"Our hearts are saddened by the tragic death of a veteran firefighter. Such an incident serves to remind us of the fact that there are citizens who will face the unexpected in the line of duty, whether it be the taming of a fire or the protection of the citizens of the community.

"These men are dedicated to our welfare, beyond the ordinary call of duty. Let us in turn make known to them our deep appreciation for their dedication to the loving service of their fellow citizens."

Father Barry
Fire Department Chaplin
1980

Table 1: Last Alarm Memorial

1.	Captain George T. Chaplain	Station 2	May 25, 1894
2.	Firefighter John F. Lynch	Station 3	October 8, 1902
3.	Firefighter Herman A. Mero	Station 2	March 6, 1905
4.	Firefighter Henry J. Maynard	Station 5	July 25, 1909
5.	Firefighter E. G. Deardorf	Station 9	September 21, 1914
6.	Lieutenant Warren S. Willis	Station 5	January 11, 1920
7.	Firefighter William A. Hutchinson	Station 4	May 3, 1924
8.	Alarm Operator Charles Bunnell	Alarm Board	October 6, 1930
9.	Firefighter Thomas E. Sparrow	Station 16	July 15, 1939
10.	Alarm Operator Jesse L. Booher	Alarm Board	February 25, 1942
11.	Captain Walter F. Gustafson	Station 7	December 26, 1944
12.	Superintendent of Alarms George H. Stewart		February 2, 1947
13.	Captain Leonard W. Doyle	Station 4	June 2, 1956
14.	Firefighter Leroy A. Mackey	Station 4	January 19, 1966
15.	Captain Robert G. Hanna	Station 4	March 2, 1980
16.	Firefighter Paul J. Heidenreich	Station 1	September 12, 1982
17.	Fire Equipment Operator John Knighten	Station 4	June 30, 2013

SIGNIFICANT INFLUENCES DURING 2014

Firefighting Capability Restored to Fire Station 9

At the recommendation of the 2013 Fire Task Team Report, the Mayor proposed and the City Council approved the addition of four (4) firefighter positions in the 2014 adopted budget. Engine 9 was removed from service at Station 9 (18th & Bernard) in 2013 due to budget reductions and Rescue 1 was relocated from Station 1 to Station 9 in order to maintain EMS first-response capabilities in Station 9's first due response area. The Budget action provided funding for a firefighter per shift to place Engine 9 back in service for firefighting capabilities. Station personnel also cross staff Rescue 9.

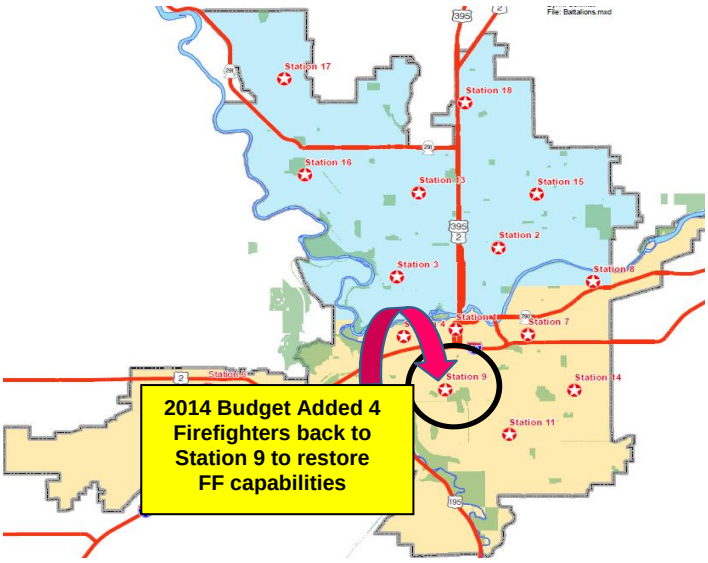


Figure 1: Station 9 Location

Supplemental Response Agreement with Fire District 3 for SW Spokane to Improve Insurance Ratings

At the recommendation of the 2013 Fire Task Team Report, the City signed an Interlocal Agreement with Fire District 3 for Supplemental Response to the SW portion of Spokane. The purpose of the agreement was to meet the Washington Survey and Rating requirement for all structures to be located within 5 road miles of a fire station, which was not being achieved by SFD's current station locations. FD 3's station 35 is within fire road miles of much of the Eagle Ridge subdivision and adding one of their units to a structure fire response would help achieve insurance rating reductions for most of the area. With an agreement being approved by both parties and orientations

conducted between the two organizations, the supplemental response began on February 3, 2014.

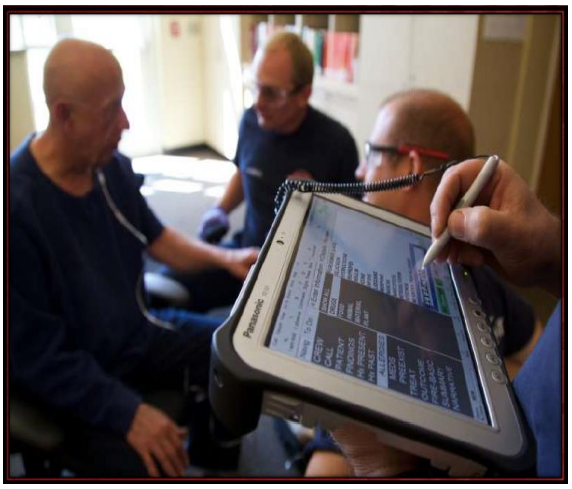
Launch of the PulsePoint Application

On Valentine's Day 2014, SFD joined the other Spokane County fire service agencies in launching the lifesaving app called PulsePoint. In doing so, Spokane became one of only a small, but growing, group of innovative departments in the world to integrate PulsePoint in their communities.

Citizens who are CPR trained can download the app and when a 911 call is received in the CCC reporting someone unconscious, unresponsive and likely needing CPR, software running on the app will send an alert to nearby citizen rescuers. By using GPS and location technology in today's mobile devices, the app only notifies those nearby to incidents so they can go and help and it also identifies the closest AED locations. With about 1000 lives a day lost to Sudden Cardiac Arrest (SCA), this app can help improve the survival rate from SCA.

The App has been successfully used in Spokane by a citizen who initiated life saving measures on a non-breathing infant.

EPCR – Electronic Patient Care Reporting system Implementation



Beginning in early 2014, members of SFD's EMS and IT Divisions began preparing for and implementing the ePCR program that began in the spring of 2014. This project was a transition from a traditional paper report system for EMS incidents to a paperless, computer based EMS reporting system using "SafetyPad" software. All station personnel are now utilizing the ePCR system during the delivery of EMS services. The program allows greater interaction among community EMS partners and provides for future EMS system analysis and continual improvement. FF/PM Tim Loncon received the 2014 1st Quarter Citywide Employee of the Quarter award for his efforts in coordinating this program and its implementation.

Rescue Task Force (RTF) Implementation

A yearlong project team researched and designed the SFD's RTF Program for response to Active Shooter situations. The RTF concept integrates law enforcement and fire service resources into a single unit for deployment into high-risk situations to protect and save lives of potentially wounded victims from the consequences of an active shooter. The intra-agency team specified and purchased equipment, designed training and large-scale drills and operating procedures to further prepare public safety first responders for active shooter response. FEO/ PM Kyle Chase was the SFD lead for this program and was nominated for the 2014 2nd Quarter Citywide Employee of the Quarter award.

Extension of Alternative Response Unit (ARU) Program

Through a cooperative labor/ management effort, the trial ARU program started during 2013 was extended for several years. The outside of the box program for SFD and most of the fire service, was implemented to help deal with the rapidly rising number of non-life-threatening medical calls. The ARU's are staffed with one person who works nontraditional shifts (during our peak activity times ~ 8 am to 6 pm). The units primarily respond on non-life-threatening incidents to keep our larger apparatus and personnel available for more critical incidents.

Table 2: ARU Response Statistics

Unit	Period in Service	Number of 10 hr Shifts in Service	Total Responses	Average Responses	Responses Handled Alone	% Handled Alone vs. Total Responses	Average Calls Handled Alone/Shift
ARU 1	Jan 1 – Mar 14	45	239	5.3	144	60%	3
ARU 11	Jan 1 – Mar 14	31	106	3.4	62	58%	2
ARU 13	Jan 1 – Mar 14	39	216	5.5	135	63$	3
2014 ARU Trial Totals:		115	561	4.8	341	60%	3
SQ-1	Jun 17 – Dec 31	114	1,182	10.4	670	57%	6
ARU-2	Jun 17 – Dec 31	116	1,044	9.0	552	53%	5
ARU 4	Jun 17 – Dec 31	112	1,073	9.6	670	62%	6
ARU Full Time Operation Tools		342	3,299	9.6	1892	57%	6
All ARU Units 2014		457	3860	7.2	2233	59%	5.7

% of Total Call Stats				% of Non-Life-Threatening (NLT) Call Stats			
2014 total calls for SFD	Ave. calls/day for SFD	Ave. total calls/day handled by ARUs (after trial)	Ave. daily call volume handled by ARUs (after trial)	2014 total NLT calls for SFD	Ave. NLT calls/day for SFD	Ave. NLT calls/day handled by ARUs (after trial)	% of NLT calls/day handled by ARUs
35,536	**97**	**29**	**30%**	**16,858**	**46.2**	**28.9**	**63%**

Day of Week Stats				Hour of Day Stats			
2014 NLT calls that occurred on Sun, Mon, & Sat	2014 NLT calls that occurred on Tue, Wed, Thu, & Fri	2014 Total NLT calls handled by ARUs on days worked (T, W, Th, F)	% NLT calls handled by ARUs on days worked (T, W, Th, F)	2014 total NLT calls handled by ARUs	2014 NLT calls that occurred outside ARU hours	2014 NLT calls that occurred during ARU hours (8 a.m. – 6 p.m.)	% NLT calls handled by ARUs during ARU hours
7,240	**9,618**	**3,860**	**40%**	**3,860**	**8,635**	**8,223**	**47%**

Funding for replacement of Firefighting Gear, Fire Apparatus, Fire Equipment, etc.

As recommended as an immediate need by the 2013 Fire Service Task Team, during the summer of 2014, the Mayor's office and City Council worked to identify and approve a funding strategy and dollars for these critical items. Beginning in August, the first of five (5) annual allocations was authorized so the FD could begin purchases. Over the five year period, almost $17 million will allow for the purchase of 2 ladders, 2 pumper-ladders, 8 engines, a rescue unit and a variety of other needed items. A number of FD committees were formed to determine the details and work on specs for the apparatus and equipment that will be purchased. One of the first purchases made was for Personal Protective Equipment (PPE) that saw SFD's turnout gear color transition back to Black.

Receipt of $2 Million SAFER Grant

The Spokane Fire Department submitted a grant application for the FY 2013 Staffing for Adequate Fire and Emergency Response (SAFER) Grant during the late summer of 2013 for a total of 12 firefighter positions to be deployed as follows:

- 8 Firefighters to staff 4 ARU seven days per week, 10 hours per day
- 4 Firefighters to restore firefighting capability at Fire Station 9

After initial notification that SFD's SAFER grant application was not accepted, the City was advised that the application was reconsidered and on Friday, September 26, 2014, the City received official notification that the $2 million grant (over a 2 yr. period) had been approved.

While 8 of the Firefighter positions were approved for staffing ARU's, in the period between grant application and grant approval, the City Council approved the 2014 budget with the addition of 4 firefighter positions to restore firefighting capabilities at Fire Station 9. As a result of this action, the 4 firefighter positions requested in the SAFER Grant for the same purpose, could not be approved due to supplanting but FEMA did indicate their willingness allow for use of the 4 positions in other ways that improved staffing (with FEMA's advanced approval).

Through a labor/ management agreement, the remaining four (4) FF positions were coupled with four (4) additional FF positions (funded from FD overtime funds) to staff a two-person Attack unit to begin providing service to SW Spokane in the spring of 2015. The Mayor and City Council were supportive of the overall program and the SAFER grant was officially accepted by the City in late November. The unexpected grant resulted in SFD conducting interviews for new FF to begin a new recruit class right after the beginning of 2015.

Spokane Firefighters Memorial Project

While not a City or Fire Department funded project, 2014 saw the kickoff of a yearlong program to remember SFD members who have died in the Line of Duty. Spearheaded by Lt. Greg Borg, his wife Sue and daughter Sarah, the purpose of the project was to dedicate plaques to remember the 17 members of the Spokane Fire Department who have made the ultimate sacrifice of giving their lives in the Line of Duty for our community. This had been a long term dream of Greg's and we are appreciative of the efforts put forward for this project so we as a community will remember these 17 individuals and what they did for Spokane. The dedication of these plaques during the last 12 months, on the anniversary of the death of the SFD member, has brought our Fire Department family closer together, has helped us all learn more about our history and given the recognition due to the 17 members and their families. As you transverse the city, keep your eyes open for these plaques and take a minute to read the stories of the brave members of SFD who Died in the Line of Duty.

Smoke Alarm Canvassing and Installation Project

While smoke alarms have proven that they save lives, many homes in Spokane either do not have them installed or are not properly functioning. In recognition of the fact, the SFD, Red Cross and Gonzaga U partnered to focus education and installation efforts in the Logan Neighborhood, a high fire incident area of Spokane. Nearly two-thirds of home fire deaths result from fires in either homes with no alarms or homes with no working alarms. The presence of a working smoke alarm cut the chances of dying in a house fire in half. Therefore, the SFD led the effort to create a project where door-to-door canvassing was used to target high-risk neighborhoods and provide educational information and install smoke alarms. On Friday, October 10th, the agencies accomplished the targeted goal of distributing information about smoke alarms to every residential structure in the Logan Neighborhood. Free installation of smoke alarms occurred on that day as well as other days in October thus improving the life safety of residents in Logan. This project is now the model for other targeted areas in Spokane and has been picked up by the Red Cross for use in other parts of the United States. Fire Marshal Lisa Jones coordinated this program for SFD and was nominated for the 2014 3rd Quarter Citywide Employee of the Quarter award.

Fire Service Task Team

A Fire Service Task Team was formed to take a long-term, strategic view of how the City could optimize fire and EMS to citizens.

The Fire Service Task Team report was presented to the Mayor in August 2013, identifying 31 recommendations. Some recommendations that were implemented are listed above. Work continued during 2014 towards the implementation of other recommendations that will likely occur in 2015 or beyond.

- The concept of implementation of a Nurse line that could handle certain types of calls placed to 9-1-1 and eliminate a response by field personnel is being pursued.
- Funding is being solicited from Insurance providers towards implementation of alternative transportation methods to alternative locations other than ER, to improve outcomes and help reduce overall health care system costs.

- SFD's CARES is being expanded and further integrated with Hot Spotters and other community health programs to address patients' needs and minimize repetitive calls/care.
- SFD labor and management have been working with Valley Fire Department, as well as Fire Districts 8 and 9 on draft agreements toward the implementation of Automatic Aid agreements to implement the "closest unit dispatch" concept. It is anticipated that implementation of agreements will occur in 2015.
- Funding has been secured and planning has occurred with the City's Signals & Lighting Department towards purchase and installation of Traffic Pre-emption Devices that will allow emergency vehicles to switch traffic lights to green along response routes to help improve "code" responses.
- During 2014, SFD worked with Streets and several other City Departments to improve the capacity/ capability for fire apparatus to utilize bridges that previously had restricted use. All but one bridge can now be utilized for emergency responses thus improving response routes that can be utilized by SFD.
- During 2014 the City secured funding toward the completion of the road connection between the Indian Trail and Five Mile areas of the city so that overall emergency response times can be improved. Design will occur in 2015 with anticipated construction during 2016.

2014 BUDGET INFORMATION

2014 Total Positions
312.25

Fire/EMS Positions
292.5

CCC Positions
19.75

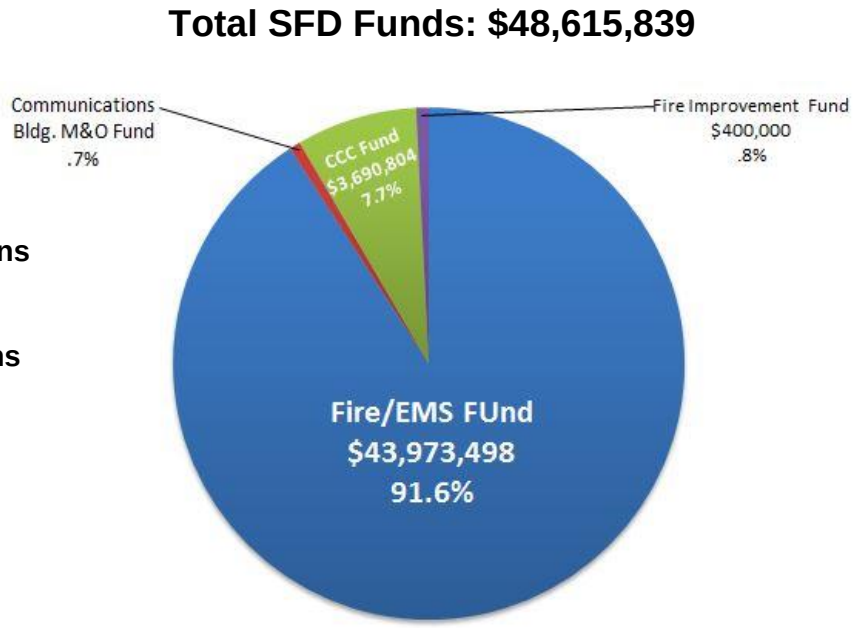


Figure 2: Funds Managed by SFD

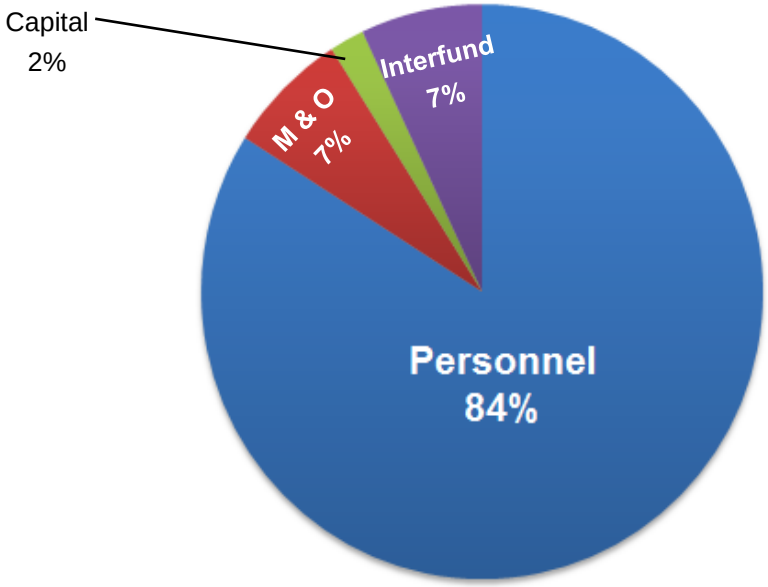


Figure 3: SFD Fund Allocation

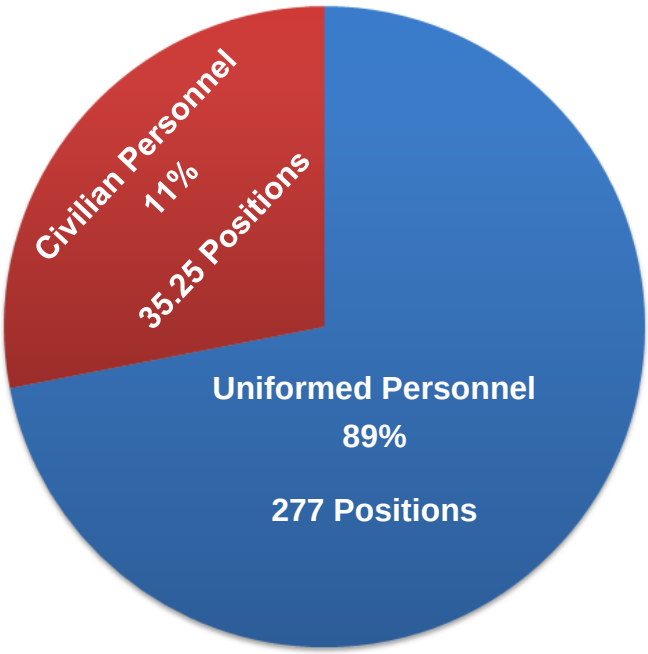


Figure 4: 2014 Breakdown of Budgeted Positions

DEPLOYMENT OVERVIEW

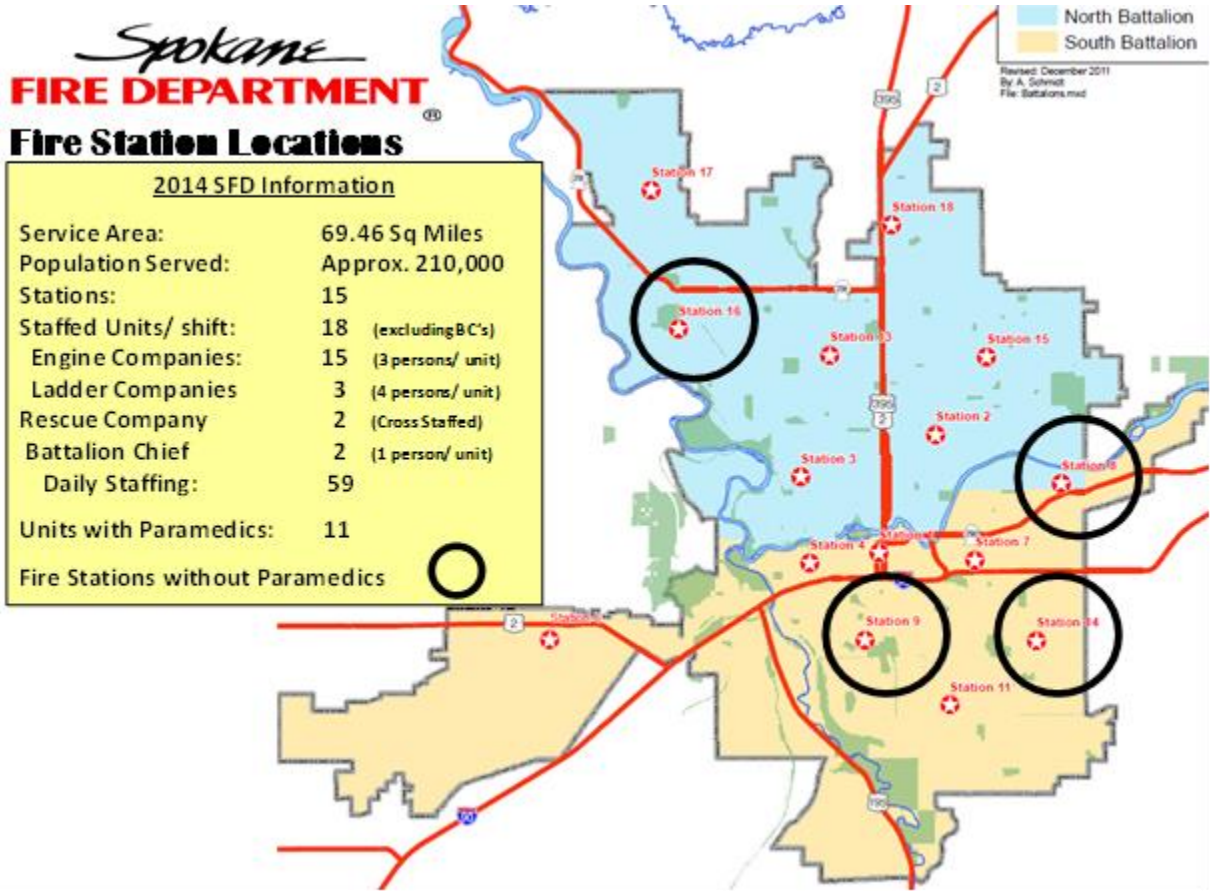


Figure 5: 2014 SFD Station Information

2014 Spokane Fire Station Staffing

Table 3: Budgeted Positions

	Cpt.	Lt.	FEO	FF	BC	Total	Daily Staffing
Engine Ladder	0	4	4	4		12	3
Ladder 1	4	0	4	8		16	4
Engine 2	0	4	4	4		12	3
Ladder 2	1	3	4	8		16	4
Engine 3	1	3	4	4		12	3
Engine 4	0	4	4	4		12	3
Ladder 4	1	3	8	4		16	4
Engine 6	1	3	4	4		12	3
Engine 7	1	3	4	4		12	3
Engine 8	1	3	4	4		12	3
Rescue/Engine 9	1	3	4	4		12	3
Engine 11	1	3	4	4		12	3
Engine 13	1	3	4	4		12	3
Engine 14	1	3	4	4		12	3
Engine 15	1	3	4	4		12	3
Engine 16	1	3	4	4		12	3
Engine 17	1	3	4	4		12	3
Engine 18	1	3	4	4		12	3
S20					4	4	1
S21					4	4	1
Relief BC					1	1	
Relief						19	
Total Station Personnel						**256**	**59**
Squad 1*							1
ARU 2*							1
ARU 4*							1
Other Officer Positions							
EMS	1	1				2	
Training	1	1				2	
SIU	1	1				2	
Total	21	57	76	99	9	**262**	

ANNUAL PERFORMANCE REPORT

Response Performance Objectives

The following describes the adopted response time performance objectives established by the Spokane Fire Department and its performance during the evaluation period. The evaluation period is from January 1, 2014, through December 31, 2014, and includes evaluation of only potentially life-threatening emergency responses.

Note: *Since the intent of this document is to report on normalized performance, beginning with the 2013 report, data outliers have been excluded in calculations. The category of incident call type included within the performance calculation is identified within each measurement section. Additionally, historical performance measurement data for 2011 and 2012 has been adjusted for each measure based on the specific call types included and the exclusion of data outliers.*

Table 4: Incident Call Types

Fire and Misc. Types		Medical Types	
00	Investigations		
11C	Structure Fire Commercial	31A	EMS Alpha Response
11F	Structure Fire Full	31B	EMS Bravo Response
11S	Structure Fire Single	31C	EMS Charlie Response
11W	Structure Fire Working	31D	EMS Delta Response
13S	Vehicle Fire	31E	EMS Echo Response
14E	Brush Fire Extreme	46A	MVA Alpha
14H	Brush Fire High	46B	MVA Bravo
14L	Brush Fire Low	46D	MVA Delta
14M	Brush Fire Moderate		
14S	Brush Fire Single		
18F	Alarm System Full		
18S	Alarm System Single		
35F	Extrication		
36F	Water Rescue		
37F	Tech Rescue		
40F	Hazmat Full		
40I	Hazmat Investigation		
40T	Hazmat Team		

Dispatch time

The Spokane Fire Department has adopted a dispatch time standard of sixty (60) seconds, 90% of the time.

Actual department performance for the review period:

- The Spokane Fire Department met the Dispatch time objective **97.4%** of the time. The Fire Department Dispatch time was 50 seconds, 90% of the time.

Performance based on approximately 62,382 priority incidents with all call types.

2008	2009	2010	2011*	2012*	2013	2014
59.9%	58.9%	59.7%	72.8%	96.5%	94.6%	97.4%

Note: *Implemented Automated Voice and Quick Dispatch System – August 29, 2011.*

Turnout Time

The Spokane Fire Department has adopted a turnout time standard of ninety (90) seconds, 90% of the time.

Actual department performance for the review period:

- The Spokane Fire Department met the turnout time objective **61.0%** of the time. The Fire Department turnout time was two minutes eleven seconds, or 132 seconds, 90% of the time.

Performance based on approximately 11,913 priority incidents with call type 11C, 11F, 11W, 13S, 31C, 31D, & 31E.

2008	2009	2010	2011*	2012*	2013	2014
61%	61%	63.5%	71.8%	72.4%	66.3%	61.0%

Response time for arrival of the first arriving engine company at a priority fire suppression incident

The Spokane Fire Department has adopted a response time objective of eight minutes and thirty seconds (8:30) for the first arriving fire engine, 90% of the time.

Actual department performance for the review period:

- The Spokane Fire Department met the response time objective **93.1%** of the time. The Fire Department's response time for the first arriving fire engine to priority fire suppression incidents was 7 minutes 49 seconds, 90% of the time.

Performance based on approximately 462 Incidents with call types: 11C, 11F, 11W & 13S.

2008	2009	2010	2011*	2012*	2013	2014
90.6%	87.1%	88.0%	96.6%	97.2%	95.4%	93.1%

Response time for arrival of the full first alarm assignment at a structure fire incident

The Spokane Fire Department has adopted a response time objective of eleven (11:00) minutes for the arrival of the full first alarm assignment at structure fire incidents, 90% of the time.

Actual department performance for the review period:

- The Spokane Fire Department met the response time objective **84.8%** of the time. The Fire Department's response time for the first full alarm assignment to a structure fire was 11 minutes 41 seconds, 90% of the time.

Performance based on approximately 165 structure fire incidents with call type 11C, 11F & 11W.

2008	2009	2010	2011*	2012*	2013	2014
83%	78%	87.6%	85.3%	92.4%	85.2%	84.8%

Response time for the first fire department medical unit at a life-threatening emergency medical (EMS) incident

The Spokane Fire Department has adopted a response time objective of eight minutes and thirty seconds (8:30) for the arrival of the first fire department unit at life-threatening emergency medical incidents, 90% of the time.

Actual department performance for the review period:

- The Spokane Fire Department met the response time objective **94.2%** of the time. The Fire Department's response time for the first arriving fire department unit responding to a life-threatening emergency medical incident was 7 minutes 35 seconds, 90% of the time.

Performance based on approximately 10,983 EMS incidents with call type 31C, 31D & 31E.

2008	2009	2010	2011*	2012*	2013	2014
94.8%	94.7%	96.1%	94.7%	96.1%	95.3%	94.2%

Response time for the first fire department advanced life support medical unit at a life threatening emergency medical (EMS) incident

The Spokane Fire Department has adopted a response time objective of eight minutes and thirty seconds (8:30) for the arrival of the first fire department advanced life support unit at life-threatening emergency medical incidents, 90% of the time.

Actual department performance for the review period:

- The Spokane Fire Department met the response time objective **91.4%** of the time. The Fire Department's response time for the first arriving fire department advanced life support unit responding to a life-threatening emergency medical incident was 8 minutes 17 seconds, 90% of the time.

Performance based on approximately 9,223 EMS incidents with call type 31C, 31D, & 31E.

2008	2009	2010	2011*	2012*	2013	2014
94.4%	91.5%	92.1%	91.1%	94.0%	93.1%	91.4%

Response time for arrival of the first fire department unit at a technical rescue incident

The Spokane Fire Department has adopted a response time objective of eight minutes and thirty seconds (8:30) for the arrival of the first fire department unit at a technical rescue incident, 90% of the time.

Actual department performance for the review period:

- The Spokane Fire Department met the response time objective **67.6%** of the time. The Fire Department's response time for the first unit to arrive at a technical rescue incident was 14 minutes 46 seconds, 90% of the time.

Performance based on approximately 34 technical rescue incidents with call type 35F & 37F.

2008	2009	2010	2011*	2012*	2013	2014
100%	95.6%	96.5%	100%	94.9%	91.1%	67.6%

Response time for arrival of the first fire department unit at a marine technical rescue incident

The Spokane Fire Department has adopted a response time objective of eight minutes and thirty seconds (8:30) for the arrival of the first fire department unit at a marine technical rescue incident, 90% of the time.

Actual department performance for the review period:

- The Spokane Fire Department met the response time objective **84.2%** of the time. The Fire Department's response time for the first arriving unit at a marine rescue incident was 9 minutes 21 seconds, 90% of the time.

Performance based on approximately 19 marine rescue incidents with a call type of 36F.

2008	2009	2010	2011*	2012*	2013	2014
41%	73%	96.5%	77.3%	90.5%	70.0%	84.2%

Response time for arrival of the first fire department unit at a hazardous materials incident

The Spokane Fire Department has adopted a response time objective of nine (9:00) minutes for the arrival of the first fire department unit at a hazardous materials incident, 90% of the time.

Actual department performance for the review period:

- The Spokane Fire Department met the response time objective **83.0%** of the time. The Fire Department's response time for the first arriving unit at a hazardous materials incident was 9 minutes 48 seconds, 90% of the time.

Performance based on approximately 47 hazardous materials incidents with call type 40F & 40T.

2008	2009	2010	2011*	2012*	2013	2014
92%	96%	98.3%	94.4%	91.7%	90.4%	83.0%

Geographic Analysis – Response Time Performance

The maps below show the city response time performance for priority incidents within specific geographic regions. Response service is uniformly provided throughout the majority of the service area with the significant exception of the south-southwest portion of the city west of the river and on Five Mile Prairie.

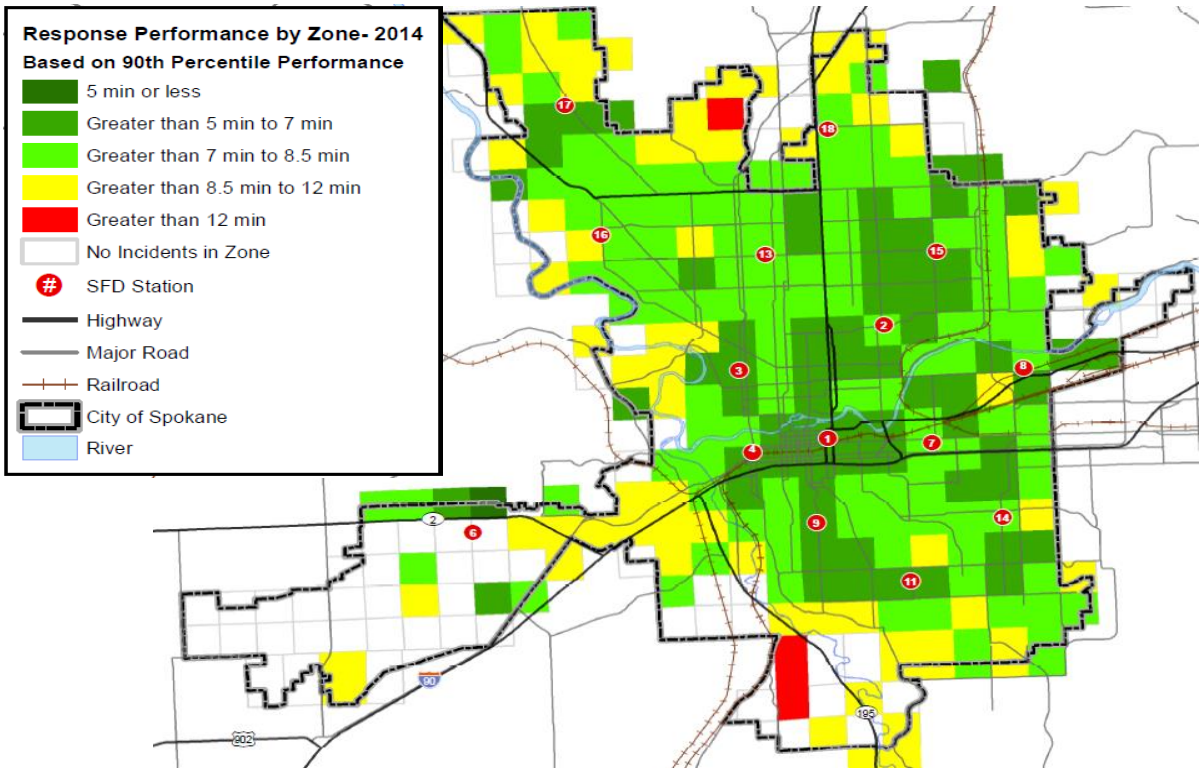


Figure 6: 90th Percentile Response Time Performance Map

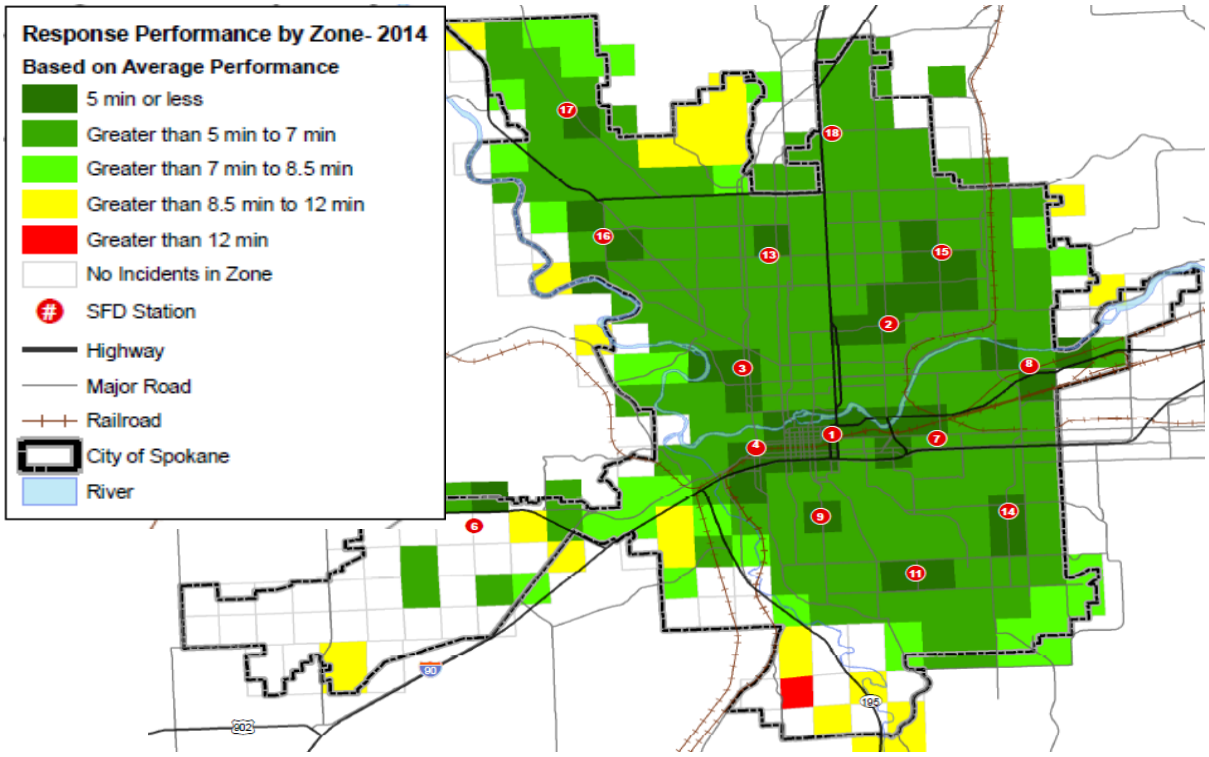


Figure 7: 50% Percentile/ Average Response Time Performance Map

RESPONSE INFORMATION

Incident Activity

Table 5: 2014 Calls for Service Dispatched for the Spokane Fire Department

Medical		# of Calls Incidents	% of EMS Incidents	% of Total Incidents	2013 Incidents	% Change vs 2014
Code	**Description**					
31A	EMS Alpha Response	4,589	14.86%	12.93%	4,489	2.23%
31B	EMS Bravo Response	12,278	39.76%	34.59%	10,816	13.52%
31C	EMS Charlie Response	5,591	18.11%	15.75%	4,805	16.36%
31D	EMS Delta Response	5,497	17.80%	15.48%	5,791	-5.08%
31E	EMS Echo Response	442	1.43%	1.25%	425	4.00%
31F	EMS Second Alarm Response	0	0.00%	0.00%	0	0.00%
46A	MVA Alpha	1,471	4.76%	4.14%	1,563	-5.89%
46B	MVA Bravo	775	2.51%	2.18%	623	24.40%
46D	MVA Delta	236	0.76%	0.66%	212	11.32%
Total EMS Incidents		**30,879**	**100.00%**	**86.99%**	**28,724**	**7.50%**
Fire and Misc.		**# of Calls Incidents**	**% of Fire & Misc.**	**% of Total Incidents**	**2013 Incidents**	**% Change vs 2014**
Code	**Description**					
00	Investigation	31	0.67%	0.09%	53	-41.51%
01	CISD	0	0.00%	0.00%	0	0.00%
11C	Structure Fire Commercial	100	2.16%	0.28%	32	212.50%
11F	Structure Fire Full	197	4.26%	0.55%	250	-21.20%
11S	Structure Fire Single	1,182	25.58%	3.33%	1,110	6.49%
11W	Structure Fire Working	76	1.65%	0.21%	126	-39.68%
13S	Vehicle Fire	142	3.07%	0.40%	158	-10.13%
14E	Brush Fire Extreme	0	0.00%	0.00%	2	-100.00%
14H	Brush Fire High	44	0.95%	0.12%	16	175.00%
14L	Brush Fire Low	45	0.97%	0.13%	43	4.65%
14M	Brush Fire Moderate	25	0.54%	0.07%	24	4.17%
14S	Brush Fire Single	44	0.95%	0.12%	36	22.22%
18F	Alarm System Full	1,418	30.69%	3.99%	1,266	12.01%
18S	Alarm System Single	453	9.81%	1.28%	436	3.90%
35F	Extrication	40	0.87%	0.11%	48	-16.67%
36F	Water Rescue	25	0.54%	0.07%	16	56.25%
37F	Tech Rescue	5	0.11%	0.01%	12	-58.33%
39H	Rescue Task Force	1	0.02%	0.00%	0	0.00%
40F	Hazmat Full	49	1.06%	0.14%	52	-5.77%
40I	Hazmat Investigation	303	6.56%	0.85%	276	9.78%
40T	Hazmat Team	1	0.02%	0.00%	3	-66.67%
50S	Service Call	439	9.50%	1.24%	466	-5.79%
Total Fire and Misc. Incidents		**4,620**	**100.00%**	**13.01%**	**4,425**	**4.41%**
Total EMS Incidents		**30,879**		**86.99%**	**28,724**	**7.50%**
2014 Total Incidents Dispatched by the CCC		**35,499**		**100.00%**	**33,149**	**7.09%**

Note: *Call totals include all incidents to which SFD resources were dispatched regardless of whether they were within the City of Spokane city limits or the unit went enroute.*

2014 Incidents broken down by fire station service area, month of year, day of week and hour of the day are shown in the following charts.

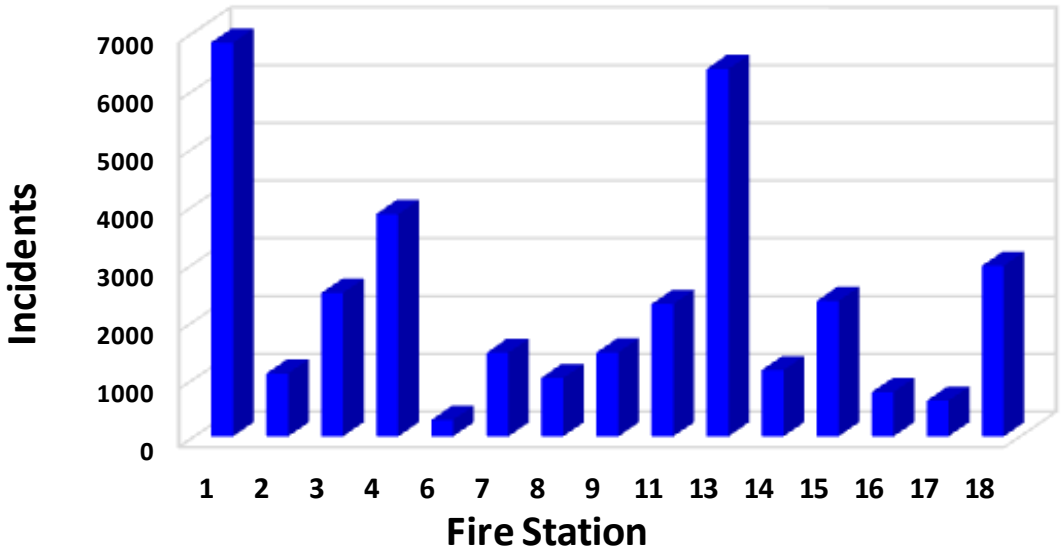


Figure 8: 2014: Incidents by Fire Station Service Area

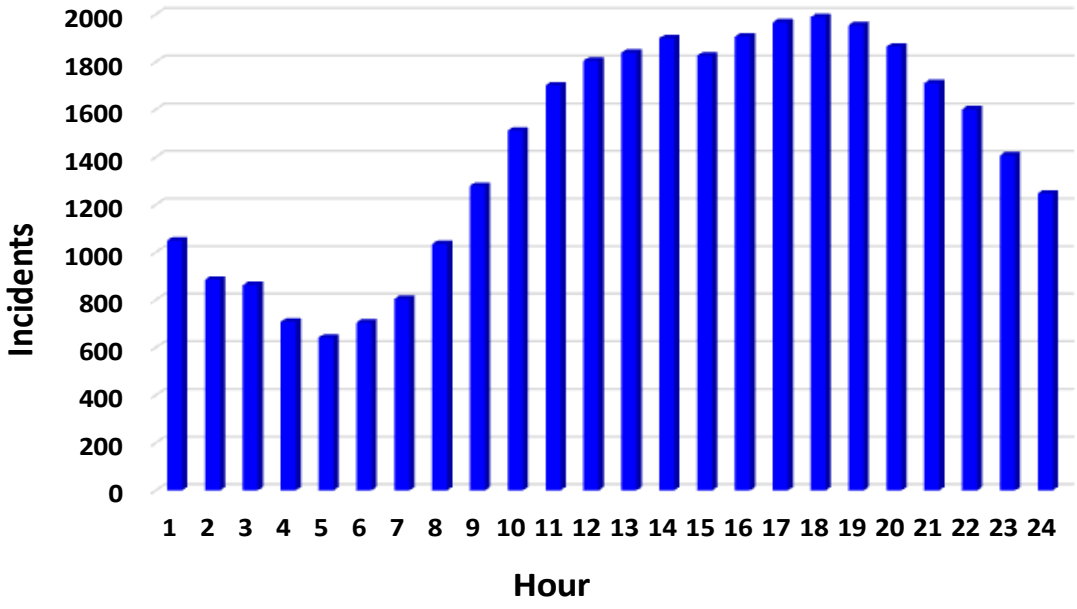


Figure 9: 2014 Incidents by Hour of Day

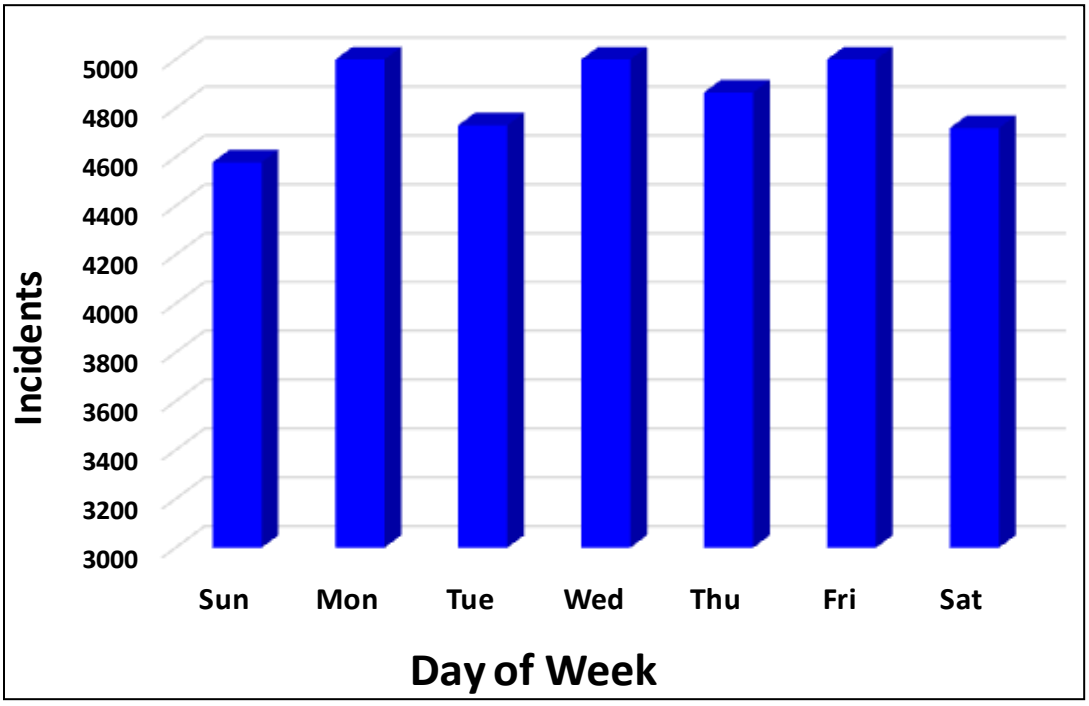


Figure 10: 2014 Incidents by Day of Week

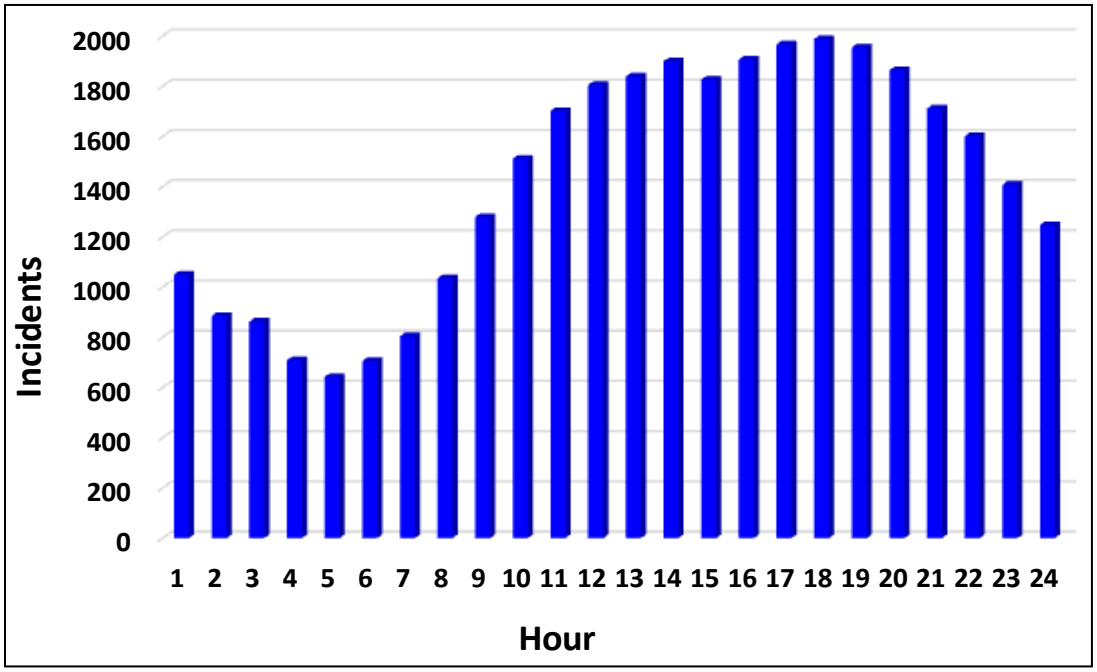


Figure 11: 2014 Incidents by Hour of Day

Incident Breakdown

2014 Responses by Unit are shown in the following charts. Workload varied considerably between units.

Notes:

- At the recommendation of the 2013 Fire Task Team Report, the Mayor proposed and the City Council approved the addition of four (4) firefighter positions in the 2014 adopted budget. Engine 9 was removed from service at Station 9 (18th & Bernard) in 2013 due to budget reductions and Rescue 1 was relocated from Station 1 to Station 9 in order to maintain EMS first-response capabilities in Station 9's first due response area. The Budget action provided funding for a firefighter per shift to place Engine 9 back in service for firefighting capabilities. Station personnel also cross staff Rescue 9.
- Through a cooperative labor/ management effort, the trial ARU program started during 2013 was extended for several years. Three (3) ARU's were staffed with one person who works nontraditional shifts (during our peak activity times ~ 8 am to 6 pm) during various periods in 2014. The units primarily respond on non-life-threatening incidents to keep our larger apparatus and personnel available for more critical incidents.

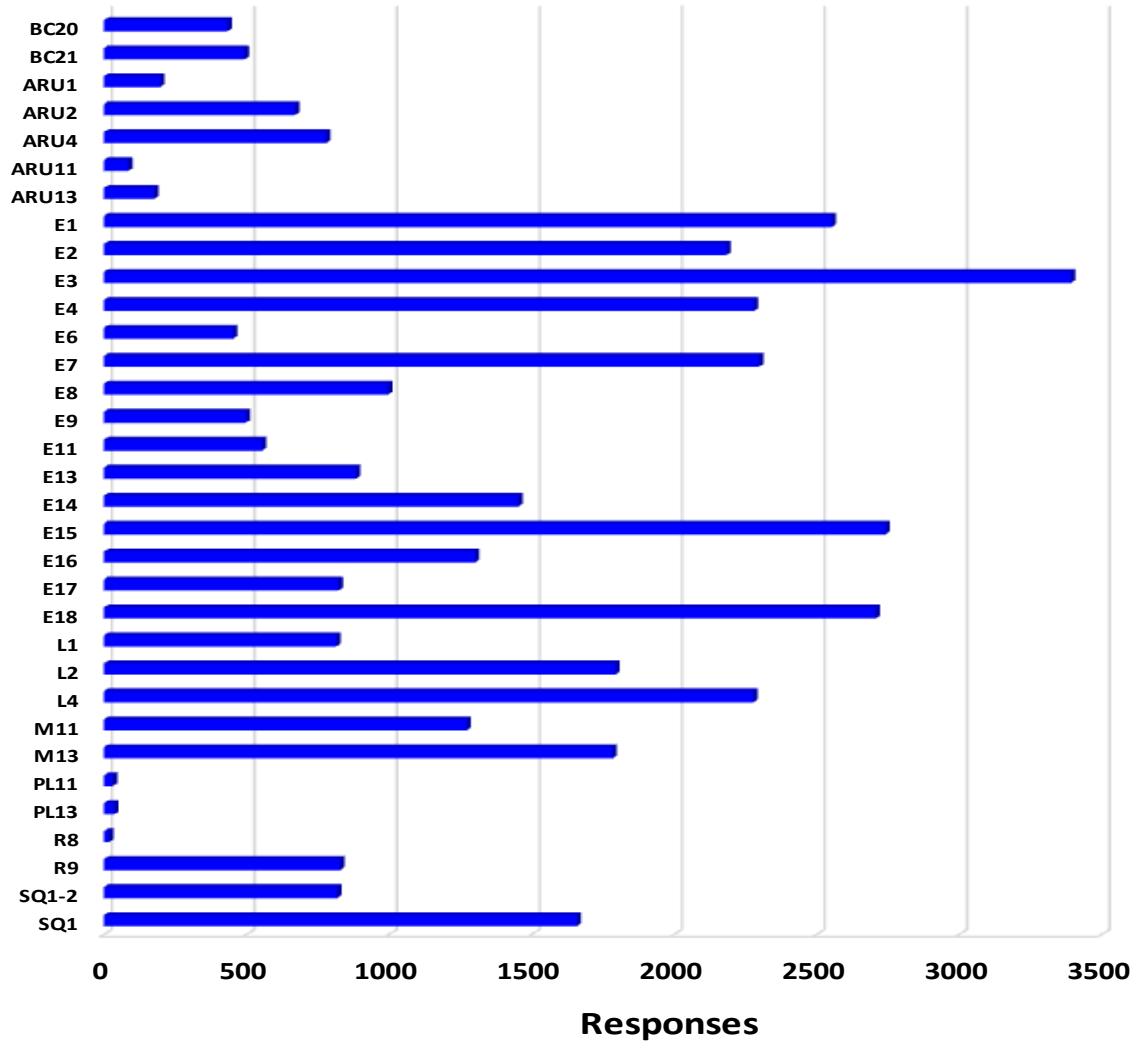


Figure 12: 2014 Responses by Unit

Unit Hour Utilization (UHU)

The time committed to responses by each unit is illustrated below. Unit hour utilization represents the amount of a unit's available time committed on responses. It does not include time committed to other non-response activities.

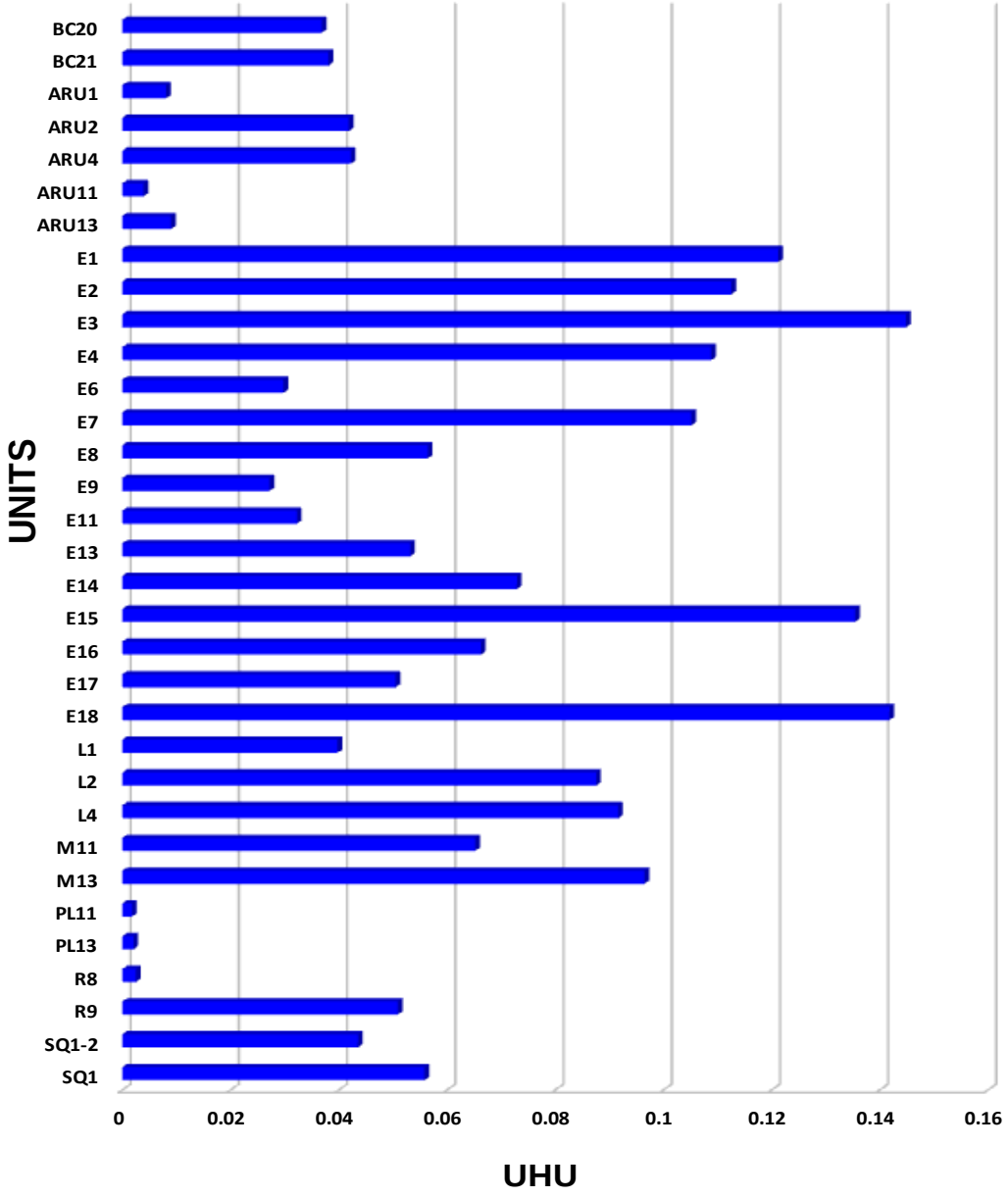


Figure 13: Unit Hour Utilization (UHU)

INCIDENT CONCENTRATION

Response activity tends to be greatest in areas of higher population density. The City of Spokane incident concentration for 2014 follows this trend, as shown in the following map.

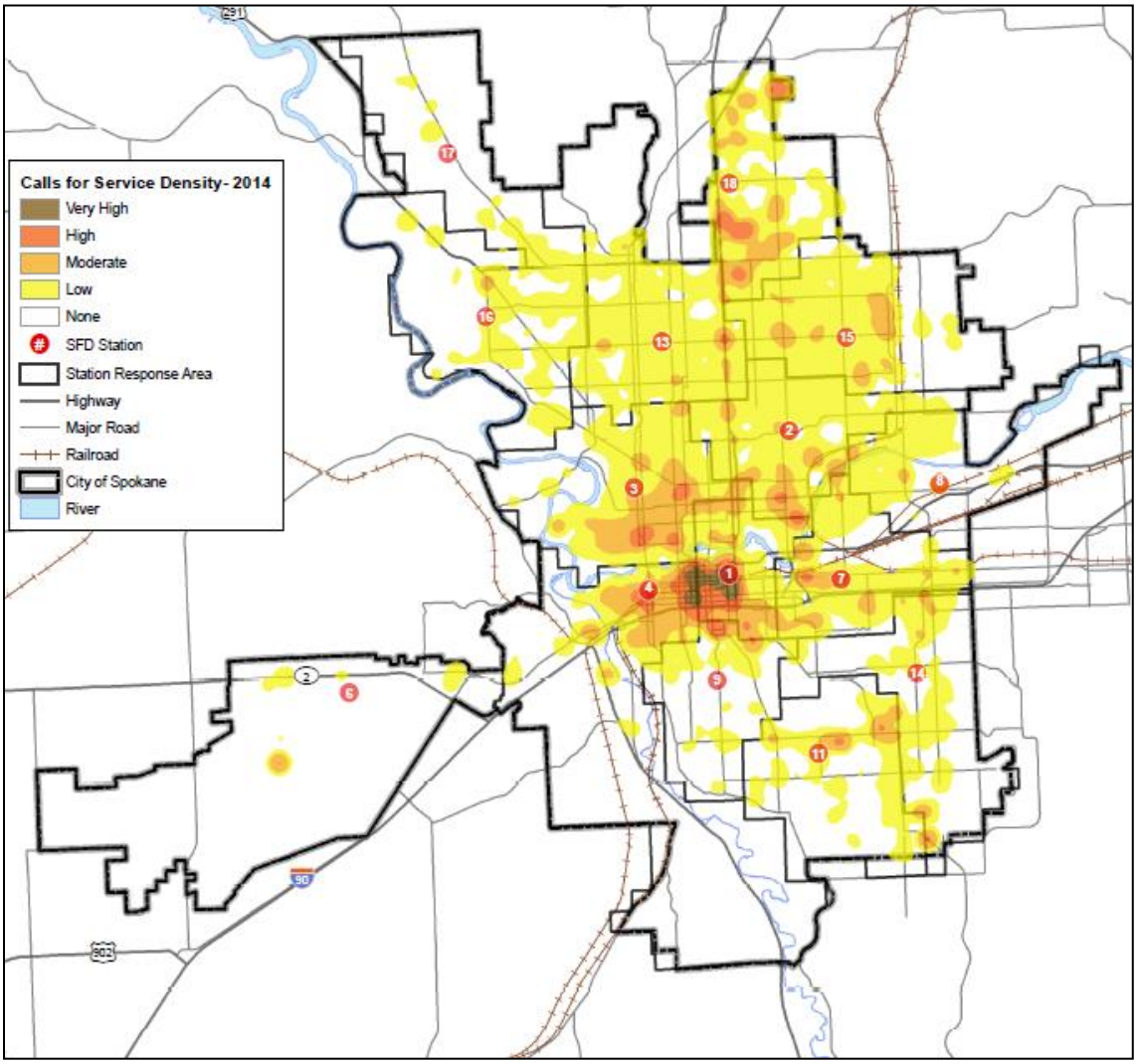


Figure 14: Incident Concentration Map

PROMOTIONS AND NEW HIRES

Table 6: 2014 Promotions and New Hires

Rank	Name	Date of Promotion/Hire
Battalion Chief	Ryan Reding	06/08/2014
	Chris Phillips	12/19/2014
	Chad Childears	12/21/2014
Captain	Dan Renner	06/09/2014
	Dave Heizer	06/16/2014
	Don Waller	12/19/2014
	Paul Binkoski	12/20/2014
	Cathy Baskins	12/20/2014
	Dave Stockdill	12/21/2014
Lieutenant	Mike Kulsrud	02/08/2014
	Paul Peterson	06/09/2014
	Paul Gortler	06/17/2014
	Pat Walsh	06/19/2014
	Ethan Verduin	12/19/2014
	Eric Staggs	12/20/2014
	Kyle Chase	12/20/2014
	Shane Sanders	12/21/2014
Fire Equipment Operator	Jeremy Mulvey	01/06/2014
	Dave Swoboda	06/02/2014
	Jeremy Sander	06/09/2014
	Jeff Harris	06/17/2014
	Brian Turpen	12/20/2014
	Pat Moore	12/21/2014
Firefighters	Lee Venning	03/03/2014
	Jhareme Fuller	03/03/2014
	Brian Roepcke	03/03//2014
	Charlie Cohen	03/03/2014
	Joe DesJardin	03/24/2014
	Justin Freeman	03/24/2014
	Micah Edwards	03/24/2014
	Brennen Cooke	03/24/2014
	Matt Norton	03/24/2014
	Dustin Miller	03/24/2014
	Nathan Denison	03/24/2014
	Clifford York	03/24/2014
	Brock Douglas	03/24/2014
	Matt Kronvall	03/24/2014
	Brian Underhill	03/24/2014
	Andrew Roginski	03/24/2014
	Conner Foxworth	03/24/2014
Communications Specialist	Cassidy Haas	01/05/2014
Asst. Director Integrated Medical Services	Mike Lopez	05/19/2014
CARES Manager	Jamie Wiggins	12/22/2014

RETIREMENTS

Table 7: 2014 Retirements

Rank	Name	Date of Promotion/Hire
Battalion Chief	Bob Green	2014
Battalion Chief	Clive Jones	2014
Fire Captain	Mike Rose	2014
Fire Captain	Scott Kline	2014
Fire Lieutenant	Chuck Mauro	2014
Fire Equipment Operator	Mike Baechler	2014
Communications Specialist	Jon Kolp	2014

SPOKANE FIRE DEPARTMENT MERITORIOUS AWARDS

Presented June 19, 2014

Special Recognitions

- Local 29 Meritorious Service Award – Presented to SFD member Eric Staggs for the work that he put forth on behalf of the Local during the last year.
- Spokane Valley Fire Department Fire Chief Bryan Collins – Presented to Chief Collins for his leadership and tenacity to implement the PulsePoint Program in Spokane County.

The remaining awards and recognitions are from events that have occurred in 2013 and early 2014 year. This selection process involves SFD members who work in the field submitting a nomination to the committee made up of Local 29 and SAFO members and the committee thoroughly evaluating the nomination based on criteria.

Recipients: Tom Terry, SFD Lt. Bridget Luby, Fairchild AFB Fire Department Division Chief Jeff Sanborn

Spokane County Truck Operator Tom Terry was one of the first people on scene of a Hwy 195 head on wreck on June 18, 2013, as it happened in front of him. After calling for help, Tom used his fire extinguisher from the county truck to put the fire out on the female driver's car.

Off duty SFD paramedic/RN Luby was also driving through and immediately assessed the situation. Terry informed her that the lady driver was in bad shape and could hear her moaning so they knew she was still alive. Luby checked for a pulse then moved to a position to take control of her airway to allow her to breathe. Then she asked for our help in getting the passenger door open, but it was too damaged and wouldn't open. They broke the rear passenger side window, and opened the door to gain access to the driver and that is when Division Chief Sanborn arrived to assist Luby. He got in the car and stabilized the driver's head while Luby was instructing the arriving SFD companies with what she needed. She started an IV and also participated in a rapid sequence induction and successful intubation of the patient. Terry stayed at the lady's car while the chief and Luby stabilized the patient. The two professional rescuers and the citizen are all receiving awards for their actions.

Tom and Chief Sanborn received the Citizen Life Saving while Lt Luby received the Department’s Life Saving Award.

Recipients: Deaconess Physicians Khalid Shirzad, Glen Gardner and Alex Reichard

The incident occurred in the early morning hours of October 4th 2013 at the Purina Mill's Plant, over 60 feet above the ground.

The team of Physicians was faced with a patient who was trapped in an industrial horizontal auger, 60 feet atop a building in freezing temperatures and a patient that was suffering symptoms of shock due to traumatic blood loss. The decision was made to amputate the patient's trapped leg and take measures to immediately extricate and transport him to the hospital. The Doctor's left their duties at the hospital and responded to the scene. They assessed the patient and then performed the procedure to free the victim. According to Chief Leavenworth, there is no doubt that the patient lived due to the teamwork and capability brought to the scene by the physicians. For their efforts the Doctors were awarded the Citizen Life Saving Award.

Recipients: Rachel Clement & Hayden Halsted (CPR) and Kelsi Wellens- (AED user)

On March 13th 2013, the Fire Department was dispatched to the downtown YMCA for what was believed to be an unconscious person. On arrival of SFD Engine 2, the staff at the "Y" met the company and told them that CPR was in progress. This was unknown to responders before their arrival.

Three citizen heroes that were nearby and had heard the patient make a sound and fall against the stairs. They moved him to the top of the stairs and found him pulseless and apneic. CPR was initiated and the AED from the facility was used. The patient was shocked once by the AED and CPR was continued by staff until SFD's arrival when the AED advised that there was no shock needed and pulses were felt. When Engine 2 arrived, ALS treatment was started and they confirmed a return of spontaneous circulation and the life supportive measures continued throughout the transport. The patient survived thank to these three heroes. For their actions they were awarded the Citizen Life Saving Award.

Recipients: Carol L. Ehrhart-Avery and Alissa M. Taylor

On September 10th 2013, near Mission and Trent, both of these women unselfishly attended to a critically injured motorcyclist as they were passing by the scene of an auto vs. motorcycle collision. They rendered aid by applying a tourniquet to the motorcyclist's injured leg and helped treat the patient while awaiting Fire Department's arrival.

The collision was actually a result of motorcyclist versus a pickup truck. The motorcyclist sustained a full amputation of the leg as a result of the collision and also received a serious head injury. The amputation resulted in the potential for serious blood loss and the collapse of the circulatory system. These two civilians immediately took action in the attempt to save the citizen's life. Their actions were bold, swift and courageous as they were also treating the patient in the middle of a high speed corridor. For their actions they were awarded the Citizen Life Saving Award.

Recipient: Craig Randleman

On the afternoon of April 3, 2014, SFD Engine 2 responded to a dog bite call in the on East Bridgeport. Upon arrival they found an 8 yr. old female that had been badly mauled and suffered serious wounds to her arms and head. While making the initial assessment on the patient, they were informed of a second victim that was located in an alley near the scene. The second victim by the name of Craig Randleman was found on the ground, also with serious bite wounds to his arms, face and head. It was only through witness accounts that we learned of Craig's heroic and selfless actions. Actions that in our opinion saved a little girls life!

Upon hearing the little girl’s screams and witnessing the mauling, Craig grabbed a shovel that was close at hand, and ran to the girl’s rescue with no concern for his own safety. It was only after several strikes with the shovel, that the dog released the girl and turned on Craig. While on scene, Craig never shared any sense of regret, or complained of his injuries. His only concern throughout this incident was that of the child's wellbeing! Although it's seems rare these days that someone is so willing to come to the rescue of a complete stranger, Craig reminds us that there are still true heroes among us! For his actions Craig received the Citizen Life Saving Award.

Recipient: Konstantin Mayshuk

On February 13th SFD Engine 8 responded to a call in east Spokane for 48 year old Male with Chest Pain. Upon entry to the home the crew found 14-year old Konstantin Mayshuk doing CPR on his father. Konstantin had just recently learned to do CPR in his school.

After extensive medical interventions by EMS personnel, the patient had a spontaneous return of circulation and was transported to SHMC where he made a full recovery following surgical interventions. Konstantin stepped up when it really mattered and due to his quick action his father is still here with us today. For his action, he received the Citizen Life Saving Award.

Recipient: Shelby Morgan

On February 6th, 15 y/o Shelby Morgan participated in CPR Training at her school. On February 10th, she witnessed her grandfather collapse in his Shadle Park neighborhood home.

The end of the story is that her grandfather, Dick Morgan, is alive and one very proud and thankful grandfather. He is alive today due to Shelby's quick actions, her competence and her love for her grandfather. Fore Shelby's actions she received the Citizen Life Saving Award.

Recipient: Officer Jake Jenson

On January 25th, Spokane Police Officer Jake Jenson arrived on the scene of what 911 callers had thought was a horrible car accident. What Officer Jenson discovered when he arrived was that an adult male was badly injured after a detonation of an explosive device.

Having had tactical medical training and equipment, he immediately identified that the victim's left hand had been amputated with no identifiable structures below the long bones. Officer Jenson acted quickly to apply two appropriately placed and adequately tightened tourniquets to the injured arm, effectively eliminating blood loss and fully treating the injury. These actions stabilized the patient's condition to an extent that he was transported safely with stable vitals to a trauma system activation at SHMC. This treatment is exactly what was necessary for the injury and saved significant tissue, and possibly a patient's life. For his actions Officer Jenson received the Life Saving Award.

Distinguished Conduct Award

Awarded to any member of SFD who acts with professionalism and efficiency when faced with a specific danger and/or adversity.

Recipient: SFD Fire Equipment Operator Dan Wolfe

On January 24th, FEO Dan Wolfe was driving an ARU to pick up another SFD Paramedic from the hospital after a medical incident. Dan is usually the FEO on SFD Engine 3 and normally is not assigned near an ARU. But in this incident, he was helping out and decided to routinely drive up to the hospital and pick up the medic in the SUV.

While Dan was at a stoplight, a woman with a 7-month old pulseless, apneic baby pulled up next to Dan screaming for help. FEO Wolfe calmly got the woman and his vehicle out of traffic and called for the appropriate response and started C.P.R. Dan did an excellent

job in a most stressful situation, and definitely a situation that all of us would consider a nightmare. For his actions Dan received the Distinguished Conduct award.

Meritorious Service Award

May be presented to any member of SFD who performs one or more of the following:

- An act of intelligence and valuable service, demonstrating special dedication or perseverance.
- Highly credible acts of fire service over an extended period of time.
- Continuous professionalism, as indicated by superiors and performance evaluations, or who has, in a specific instance, performed his/her duties in an admirable manner.
- Submission of a device or method designed to increase efficiency in an administrative or tactical procedure, which is subsequently adopted by the Fire Chief

Recipient: FEO Kevin Haughton

Kevin has been the operational head of the Spokane Fire Department Honor Guard almost since its inception. As such he has put in many hours for training and organizing the unit. He has done the bulk of equipment procuring and handles all scheduling of SFD's Honor Guard.

This is an exhausting undertaking in itself but Kevin is also one of, if not the most, active members regarding attending the funeral services of other departments whether they are Fire Service or Law Enforcement. For his efforts, Kevin was presented the Meritorious Service Award.

Recipients: SFD Paramedics Kyle Chase and Bob Nixon

Kyle was selected to attend the "EMS Today" conference in Baltimore to represent the SFD. Like others before him, he reported that he had learned a significant amount of information pertaining to aspects of EMS; however, it did not stop there. One course Kyle attended stuck him as extremely unique but timely–The Concept for Rescue Task Forces (RTF) – offering immediate help to those wounded in a mass shooting incident.

Kyle saw the immediate benefit to Spokane and upon his return, he presented The RTF program to Assistant Chief Schaeffer and others for possible implementation. Initially, the idea was met with resistance due to other competing projects, but Kyle's resilience and commitment led him to take the majority of the project management on himself. He

researched the program with Bob Nixon's assistance, attended additional training in King County, collaborated with colleagues in SWAT, and taught the concepts system-wide. He developed the SFD's program from the ground up. FEO/PM Chase and FF/PM Nixon truly owned the program and are responsible for its lifesaving potential for Spokane, thus are deserving of commendation. Both received Meritorious Service Awards for their efforts.

Recipients: Deputy Chiefs Bob Hanna and Dave Leavenworth

Deputy Chief Bob Hanna was awarded a Meritorious Service Award in appreciation for his service to SFD and the community. Having “retired” last year, Bob promised to stay on during a temporary transition that has already lasted over 6-months. During his tenure in the organization he has had to deal with the tragedy of the loss of his father, SFD Captain Robert Hanna, who died in the line of duty on March 2nd, 1980. Bob rose through the ranks of SFD filling all operations positions, as well as spending time on special assignments in the Special Investigation Unit and the Training Division. Chief Hanna and his family hold a special place in SFD’s History and it was a pleasure to recognize Bob for his distinguished service.

Deputy Chief Dave Leavenworth was recognized with a Meritorious Service Award in appreciation for his dedicated: 30 years, 7 months and 27 days with the City of Spokane. Having come to us initially from Portland International Airport Fire Department, he has filled all of the Operations positions including special assignments to the EMS Division and most recently retiring as the Training Chief.

Recipient: Dr. Scott Edminster

Dr. Edminster served as the medical director for the SFD for 17 years and has been an integral part of developing the SFD’s EMS System’s capability and excellent quality of care. He has serviced with passion for medicine that was only equaled by his compassion for the people in our community requiring emergency care. For his dedication to EMS and the community, Dr. Edminster was awarded the Meritorious Service Award.

The Community Service Award

The Community Service Award recognizes a member of the community who has made an outstanding contribution to fire and life safety through education, public relations, and public service

Recipient: Karen Kearney

Karen is constantly dedicated to the SFD's mission and personnel. She worked relentless work on the LODD Memorial Program and SFD Foundation. Her specific contribution included establishing the non-profit foundation for the LODD project, plus fund-raising and coordination of the events that led to the program's initial funding. For her support and contribution to SFD, Karen was presented the Community Service Award.

Other Awards Received by SFD Members during 2014 Include:

- 2014 Spokane County EMS Council Awards:
- Dave Leavenworth – ALS Responder Award
- Mychael Isayev – Telecommunicator Award
- Washington State Fire Marshal's Association Fire Marshal of the Year
  - Fire Marshal Lisa Jones
- Spokane Lilac Festival and Downtown Exchange Club Firefighter of the Year
  - Kyle Chase

CONCLUSION

Status in Achieving Department's Performance Objectives

The Spokane Fire Department's adopted performance objectives are being met with these exceptions.

- Turnout time (Actual - 132 seconds, 90% of the time. Target - 90 seconds, 90% of the time)
- Arrival of the full first alarm assignment on a structure fire (Actual – 11:41, 90% of the time. Target - 11:00, 90% of the time).
- Arrival of the first fire department unit at a technical rescue incident (Actual – 14:46, 90% of the time. Target – 8:30, 90% of the time)
- Arrival of the first fire department unit at a marine rescue incident (Actual – 9:21, 90% of the time. Target – 8:30, 90% of the time)
- Arrival of the first fire department unit at a hazardous materials incident (Actual – 8:48, 90% of the time. Target – 8:30, 90% of the time)

Status of Department's Performance Versus National Standards

The National Fire Protection Association (NFPA) is a non-profit organization that, as a part of its mission, develops standards that are utilized by the fire service. Unless adopted by federal, state, or local law, NFPA standards are voluntary and therefore are not mandated on individual agencies. They act as a guide or best practice.

The NFPA Standard that is utilized by career fire departments for evaluation of response capabilities is NFPA 1710, "*Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public by Career Fire Departments.*" This standard contains numerous performance objectives for staffing and service delivery times.

The Department's turnout time, fire, and emergency medical service response time performance objectives are not the same as those outlined in NFPA 1710. The Department's performance objectives, in most cases, include longer times than those in 1710. A comparison is shown in the following table. All times are measured at the 90th percentile.

Table 8: Performance vs. National Standards

Performance Element	Spokane Objective	2014 Spokane Actual	NFPA 1710 Objective
Dispatch Time	60 seconds	50 seconds	60 seconds
Turnout Time on priority incidents	90 seconds	132 seconds	Fire - 80 seconds EMS - 60 seconds
First unit arrival on a priority fire incident	8 min 30 sec	7 min 49 sec	5 minutes
Full first alarm assignment at a structure fire	11 minutes	11 min 41 sec	9 minutes
First unit at a priority emergency medical incident	8 min 30 sec	7 min 35 sec	5 minutes
First ALS unit at an emergency medical incident	8 min 30 sec	8 min 17 sec	9 minutes

Given the current resources and funding levels, the Department would not be able to achieve NFPA 1710 standard compliance for staffing or services delivery performance objectives except for the first advanced life support unit arrival at an emergency medical incident.

Monitoring Performance

The Department routinely monitors its performance in relation to performance objectives. Utilizing computer modeling and analysis, the Department regularly evaluates modifications to apparatus and personnel deployment to assess possible service delivery improvements. The Department is committed to providing the best service possible to the community, with the resources provided.

PREDICTABLE CONSEQUENCES

The following describes the sequence of events involved with a fire in a structure and with cardiac arrest, a significant medical emergency. These explain the importance of response time in creating an effective outcome to an emergency and the results if response is delayed.

Response Performance and Outcomes

The ultimate goal of any emergency service delivery system is to provide sufficient resources (personnel, apparatus, and equipment) to the scene of an emergency in time to take effective action to minimize the impacts of the emergency. This need applies to fires, medical emergencies, and any other emergency situation to which the fire department responds.

Dynamics of Fire in Buildings

Most fires within buildings develop in a predictable fashion, unless influenced by highly flammable material. Ignition, or the beginning of a fire, starts the sequence of events. It may take several minutes or even hours from the time of ignition until a flame is visible. This smoldering stage is very dangerous, especially during times when people are sleeping, since large amounts of highly toxic smoke may be generated during this phase.

Once flames do appear, the sequence continues rapidly. Combustible material adjacent to the flame heat and ignite, which in turn heats and ignites other adjacent materials if sufficient oxygen is present. As the objects burn, heated gases accumulate at the ceiling of the room. Some of the gases are flammable and highly toxic.

The spread of the fire from this point continues quickly. Soon the flammable gases at the ceiling as well as other combustible material in the room of origin reach ignition temperature. At that point, an event termed “flashover” occurs; the gases and other material ignite, which in turn ignites everything in the room. Once flashover occurs, damage caused by the fire is significant and the environment within the room can no longer support human life.

Flashover usually occurs about five to eight minutes from the appearance of flame in typically furnished and ventilated buildings. Since flashover has such a dramatic influence on the outcome of a fire event, the goal of any fire agency is to apply water to a fire before flashover occurs.

Although modern codes tend to make fires in newer structures more infrequent, today's energy-efficient construction (designed to hold heat during the winter) also tends to confine the heat of a hostile fire. In addition, research has shown that modern furnishings generally burn hotter (due to synthetics).

In the 1970s, scientists at the National Institute of Standards and Technology found that after a fire broke out, building occupants had about 17 minutes to escape before being overcome by heat and smoke. Today, that estimate is as short as three minutes.1 The necessity of effective early warning (smoke alarms), early suppression (fire sprinklers), and firefighters arriving on the scene of a fire in the shortest span of time is more critical now than ever.

Perhaps as important as preventing flashover is the need to control a fire before it does damage to the structural framing of a building. Materials used to construct buildings today are often less fire resistive than the heavy structural skeletons of older frame buildings. Roof trusses and floor joists are commonly made with lighter materials that are more easily weakened by the effects of fire. "Light weight" roof trusses fail after five to seven minutes of direct flame impingement. Plywood I-beam joists can fail after as little as three minutes of flame contact. In addition, the contents of buildings today have a much greater potential for heat production than in the past. The widespread use of plastics in furnishings and other building contents rapidly accelerate fire spread and increase the amount of water needed to effectively control a fire. All of these factors make the need for early application of water essential to a successful fire outcome. A number of events must take place quickly to make it possible to achieve fire suppression prior to flashover. The following figure illustrates the sequence of events.

[1] National Institute of Standards and Technology, Performance of Home Smoke Alarms, Analysis of the Response of Several Available Technologies in Residential Fire Settings, Bukowski, Richard, et al.

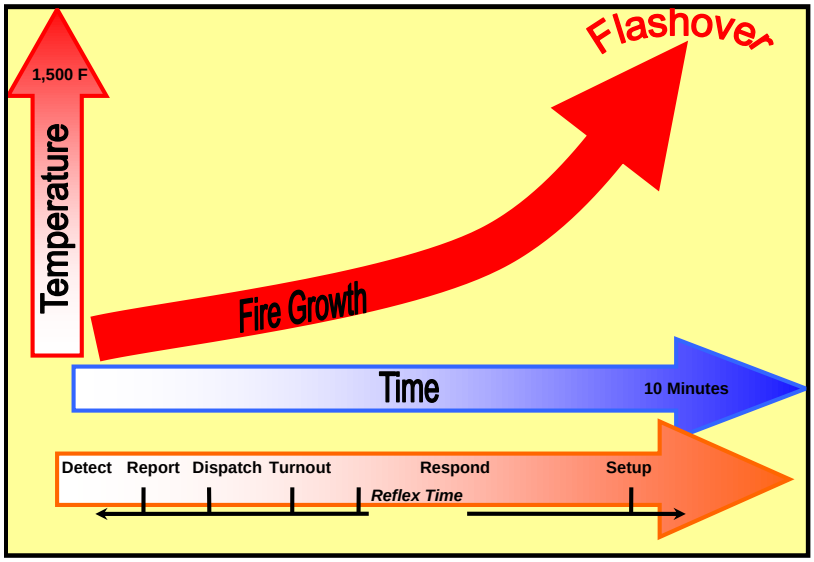


Figure 15: Fire Growth vs. Reflex Time

As is apparent by this description of the sequence of events, application of water in time to prevent flashover is a serious challenge for any fire department. It is critical, though, as studies of historical fire losses can demonstrate.

The National Fire Protection Association found that fires contained to the room of origin (typically extinguished prior to or immediately following flashover) had significantly lower rates of death, injury, and property loss when compared to fires that had an opportunity to spread beyond the room of origin (typically extinguished post-flashover). As evidenced in the following table, fire losses, casualties, and deaths rise significantly as the extent of fire damage increases.

Table 9: Consequence of Fire Extension in Residential Structures 2003 - 2007

	Rates per 1,000 Fires		
Extension	**Civilian Deaths**	**Civilian Injuries**	**Average Dollar Loss Per Fire**
Confined to room of origin or smaller	2.44	25.67	$5,317
Confined to floor of origin	16.18	72.79	$34,852
Confined to building of origin or larger	27.54	54.26	$60,064

Source: *National Fire Protection Association "Home Structure Fires", March 2010*

The reflex time continuum consists of six steps, beginning with ignition and concluding with the application of (usually) water. The time required for each of the six components

varies. The policies and practices of the fire department directly influence four of the steps, but two are only indirectly manageable. The six parts of the continuum are:

1. Detection: The detection of a fire may occur immediately if someone happens to be present or if an automatic fire detection or fire suppression system is functioning. Otherwise, detection may be delayed, sometimes for a considerable period.

2. Report: Today most fires are reported by telephone to the 9-1-1 center. Call takers must quickly elicit accurate information about the nature and location of the fire from persons who are apt to be excited. A citizen well trained in how to report emergencies can reduce the time required for this phase.

3. Dispatch: The dispatcher must identify the correct fire units, subsequently dispatch them to the emergency, and continue to update information about the emergency while the units respond. This step offers a number of technological opportunities to speed the process including computer aided dispatch and global positioning systems.

4. Turnout: Firefighters must don firefighting protective clothing, assemble on the response vehicle, and begin travel to the fire. Good training and proper fire station design can minimize the time required for this step.

5. Travel: This is potentially the longest phase of the continuum. The distance between the fire station and the location of the emergency influences reflex time the most. The quality and connectivity of streets, traffic, driver training, geography, and environmental conditions are also factors.

6. Set up: Once firefighters arrive on the scene of a fire emergency, fire apparatus are positioned, breathing apparatus donned, hose lines stretched out, additional equipment assembled, and certain preliminary tasks are performed (such as ventilation) before entry is made into the structure and water is applied to the fire.

As is apparent by this description of the sequence of events, application of water in time to prevent flashover is a serious challenge for any fire department. It is reasonable though, to use the continuum as a tool in designing the emergency response system.

Emergency Medical Event Sequence

Cardiac arrest is generally used as the prototypical life-threatening medical event. A victim of cardiac arrest has mere minutes in which to receive definitive lifesaving care if there is to be any hope for resuscitation.

Heart attack survival chances fall by seven to ten% for every minute between collapse and defibrillation. Consequently, American Heart Association guidelines now recommend the administration of cardiac defibrillation accompanied by effective cardio pulmonary resuscitation (CPR) as quickly as possible following cardiac arrest.

As with fires, the sequence of events that leads to emergency cardiac care can be visually shown, as in the following figure.

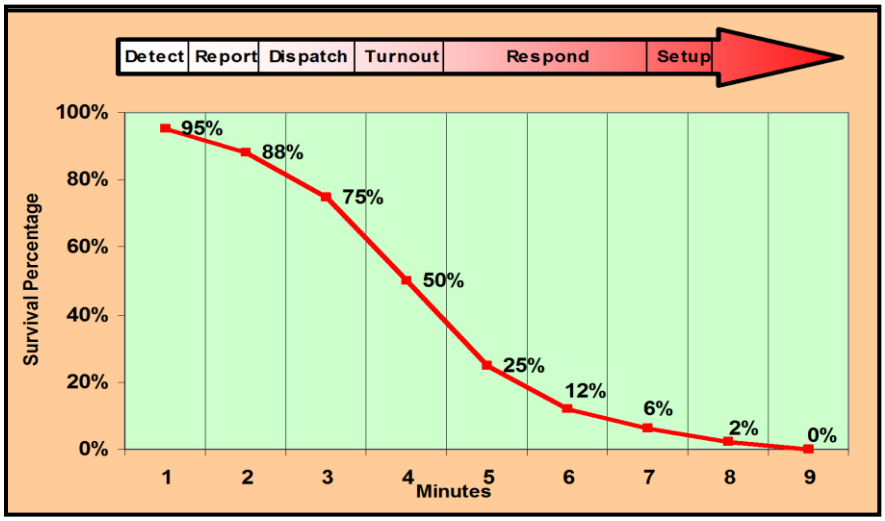


Figure 16: Emergency Cardiac Care Sequence of Events

Source: *American Heart Association*

The probability of recovery from cardiac arrest drops quickly as time progresses. The stages of medical response are very similar to the components described for a fire response.

Research stresses the importance of rapid cardiac defibrillation and administration of certain drugs as a means of improving the opportunity for successful resuscitation and survival. An Oregon fire department studied the effect of time on cardiac arrest resuscitation and found that nearly all of their “saves” were within 1.5 miles of a fire station, underscoring the importance of quick response.

Factors - People, Tools and Time

Time matters a great deal in the achievement of an effective outcome to an emergency event. Time, however, isn’t the only factor. Delivering sufficient numbers of properly trained and appropriately equipped personnel within the critical time period completes the equation.

For medical emergencies, this will vary based on the nature of the emergency. Most medical emergencies are not as time critical as structure fires. However, for serious trauma, cardiac arrest, or conditions that may lead to cardiac arrest, response time can be very critical.

Equally critical is delivering a sufficient complement of personnel to the scene to perform all concurrent tasks required to deliver quality emergency care. For a cardiac arrest, this can be up to six personnel: two to perform CPR, two to set up and operate advanced medical equipment, one to record the actions taken by emergency care workers, and one to direct and provide advanced patient care. Thus, for a medical emergency the real test of performance is the time it takes to provide the personnel and equipment needed to deal effectively with the patient's condition, not necessarily the time it takes for the first person to arrive.

Fire emergencies are even more resource critical. Again, the true test of performance is the time it takes to deliver sufficient personnel to initiate application of water on the fire. This is the only practical method to reverse the continuing internal temperature increases and ultimately prevent flashover. The arrival of one person with a portable radio does not provide fire intervention capability and should not be counted as "arrival" by the fire department.

Industry standards and worker safety regulations require that at least four personnel must be on scene to conduct interior firefighting operations. The initial arrival of effective resources should be marked as the point in time when at least four personnel, properly trained and equipped, have assembled at the fire.

Effective operations at the scene of fire emergencies also depend on the arrival of sufficient trained and equipped personnel to perform all of the duties and tasks required to control a fire event. Tasks that must be performed can be broken down into two key components: life safety and fire flow. Life safety tasks are based on the number of building occupants, their location, status, and ability to take self-preservation action. Life safety tasks involve the search, rescue, and evacuation of victims. The fire flow component involves delivering sufficient quantities of water to extinguish the fire and creating an environment within the building that allows entry by firefighters.

The number and types of tasks needing simultaneous action will dictate the minimum number of firefighters required to combat different types of fires. In the absence of adequate personnel to perform concurrent action, the command officer must prioritize the tasks, completing some in chronological order rather than at the same time, reducing overall fire emergency effectiveness. These tasks include:

- Command
- Fire Attack
- Ventilation
- Scene Safety
- Water Supply
- Back-up
- Search and Rescue
- Pump Operation

The following chart illustrates the fire ground staffing recommendations of the Commission on Fire Accreditation, International.

Table 10: Minimum Firefighting Personnel Needed Based Upon Level of Risk

Task	Maximum Risk	High Risk	Moderate Risk	Low Risk
Attack Line	4	4	2	2
Search and Rescue	4	2	2	
Ventilation	4	2	2	
Back-Up Line/Rapid Intervention	8	6	4	2
Pump Operator	1	1	1	1
Water Supply	1	1	1	
Utilities Support	1	1	1	
Command/Safety	2	2	2	1#
Forcible Entry	*			
Salvage	*			
Overhaul	*			
Communication	1*			
Operations Section Chief	1			
Logistics	1			
Planning	1*			
Staging	1*			
Rehabilitation	1			
Division/Group Supervisors	2*			
High Rise Evacuation	10*			
Stairwell Support	10*			
Totals:	53	19	15	6

 # Can often be handled by the first due officer.

** At maximum and high-risk fires, additional personnel may be needed.*

See the definitions on the previous page

The following definitions apply to the chart:

- **Low Risk** – Fires involving small sheds and other outbuildings, larger vehicles and similar. Characterized by sustained attack fire flows typically less than 250 gallons per minute.
- **Moderate Risk** – Fires involving single-family dwellings and equivalently sized commercial office properties. Sustained attack fire flows range between 250 gallons per minute to 1,000 gallons per minute.
- **High Risk** – Fires involving larger commercial properties with sustained attack fire flows between 1,000 gallons per minute and 2,500 gallons per minute
- **Maximum Risk** – Fires in buildings with unusual hazards such as high-rise buildings, hazardous materials facilities, very large buildings, and high life risk properties (nursing homes, hospitals, etc.). Though they may not require large sustained attack fire flows, they do require more personnel to perform tasks required for effective control.

SPOKANE FIRE DEPARTMENT – RESOURCES AND POLICY STATEMENT

Organizational Structure

The Spokane Fire Department operates under a hierarchical chain of command. The chain of command, or organizational chart, and authorized staffing are described in the following chart.

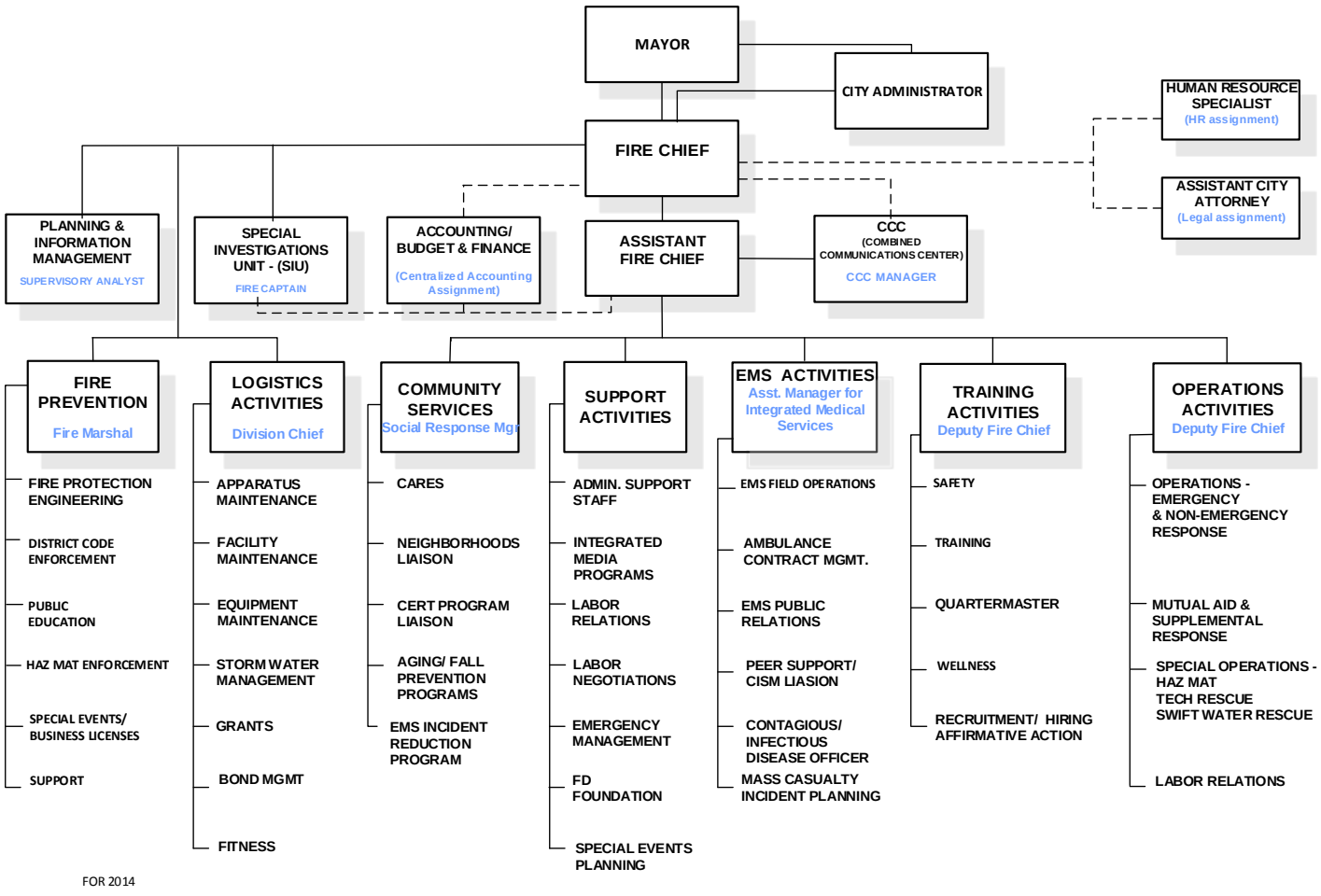


Figure 17: Spokane Fire Department Organizational Chart

Facilities

The Spokane Fire Department provides emergency response service from 15 Fire Stations. The following map shows Fire Station locations in relation to the city boundaries.

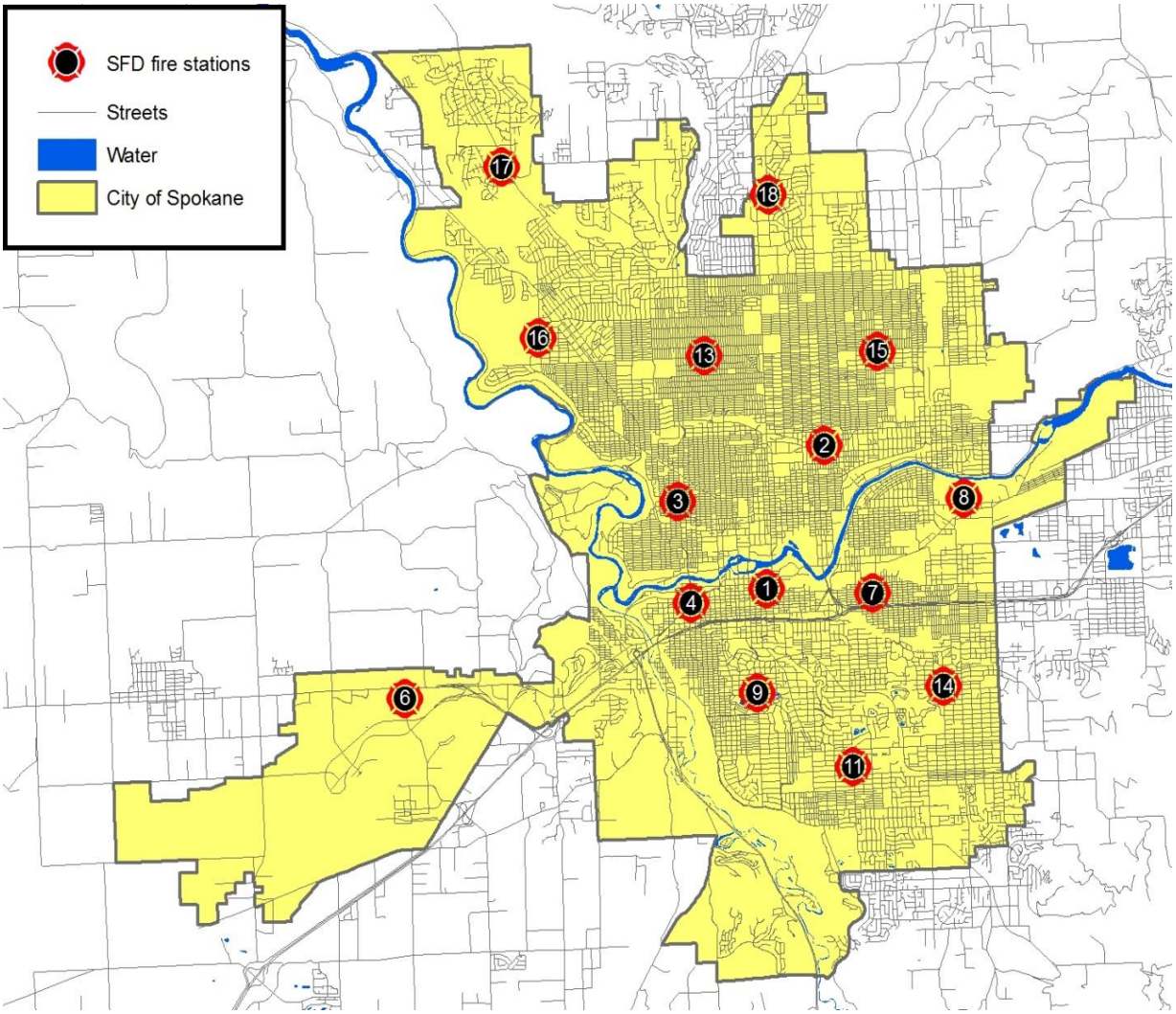


Figure 19: Fire Station Locations

Response Resources

The table below lists each station along with the apparatus and personnel assigned to them, type of unit, and level of emergency medical service capability. In total, during 2014 the SFD provided no less than 59 on-duty response personnel. “X” indicates the unit is cross-staffed by personnel as needed.

Table 11: Station Apparatus and Personnel

Station	Year	Apparatus	Unit #	Class	Staffing	ALS
1	2009	Pierce Pumper	E-1	Structural Engine	3	YES
	1994	Simon Duplex Aerial	L-1	Ladder	4	X
	2001	Kenworth Rescue	Hazmat 1	Hazardous Materials Unit	X	X
	2004	Ford F550 4x4	HAZ-1	Decontamination Unit	X	X
	2012	Ford F350 4x4	SQ-1	Squad	X	X
	2013	Chevy 2500 4x4 PU	BC-1	Battalion Chief	1	X
2	1992	Pierce Pumper	E-2	Structural Engine	3	YES
	2005	Pierce Platform	L-2	Ladder	4	X
	1999	Ford Explorer 4x4	ARU-2	Alternative Response Unit	X	YES
	2002	Ford F350 4x4	R-2	Rescue	X	X
3	2009	Pierce Pumper	E-3	Structural Engine	3	YES
	1991	Central States Pumper	E-55	Reserve Engine	X	X
4	2009	Pierce Pumper	E-4	Structural Engine	3	YES
	2004	Pierce Aerial	L-4	Ladder	4	X
	2000	International Tractor/Trailer	SU SAR	USAR	X	X
	1999	Ford Explorer 4x4	ARU-4	Alternative Response Unit	X	YES
	1987	Kenworth Rescue	R-4	Rescue	X	X
6	1990	Pierce Pumper	E-6	Structural Engine	3	YES
	2004	Ford F550 4x4	B-51	Brush Engine	X	X
	2004	Ford F550 4x4	B-6	Brush Engine	X	X
7	2001	Pierce Pumper	E-7	Structural Engine	3	YES
	2004	Ford F550 4x4	B-7	Brush Engine	X	X
	1992	Central States Pumper	E-51	Reserve Engine	X	X
8	2000	Pierce Pumper	E-8	Structural Engine	3	X
	1991	Central States Pumper	E-54	Reserve Engine	X	X
	2009	Dodge GE 5500 4x4	B-8	Brush Engine	X	X
9	2001	Pierce Rescue	R-9	Rescue	X	X
	1992	Central States Pumper	E-9	Structural Engine	3	X
	1978	American LAFRANCE Aerial	L-52	Reserve Ladder	X	X
11	1993	Pierce Pumper Ladder	PL-11	Ladder Structural Engine Combination	3	YES
	2003	Ford F550 4x4	B-11	Brush Engine	X	X
	1999	Ford F350 4x4	M-11	Medic Unit	X	X
	2006	Ford Explorer 4x4	ARU-51	Reserve Alternative Response Unit	X	YES
13	1992	Pierce Pumper Ladder	Pl-13	Ladder Structural Engine Combination	3	YES

	2002	Ford F350 4x4	M-13	Medic Unit	X	X
	2009	Chevy F2500 4x4 PU	BC-2	Battalion Chief	1	X
14	2000	Pierce Pumper	E-15	Structural Engine	3	X
	2004	Ford F550 4x4	B-14	Brush Engine	X	X
15	2009	Pierce Pumper	E-15	Structural Engine	3	YES
	2003	Ford F550 4x4	B-14	Brush Engine	X	X
16	2000	Pierce Pumper	E-16	Structural Engine	3	X
	1990	Chevrolet Suburban	R-16	Rescue	X	X
17	2000	Pierce Pumper	E-17	Structural Engine	3	X
	1999	Freightliner Pumper	E-57	Reserve Engine	X	X
	2004	Ford F550 4x4	B-17	Brush Engine	X	X
18	2000	Pierce Pumper	E1-8	Structural Engine	3	YES
	1978	American LaFrance Aerial	L-51	Reserve Ladder	X	X
	1992	Central States Pumper	E-52	Reserve Engine	X	X

Policy Statement

Emergency Response Functions

The primary emergency response functions performed by the Spokane Fire Department include the following:

1. Suppression of fires in buildings, vehicles, natural vegetation, and other property
2. Emergency medical response at both the basic life support and advanced life support levels
3. Technical rescue and extrication (USAR Type III)
4. Marine rescue
5. Hazardous materials emergency response and control (Type I)

Response Standards

There are several component parts to response standards for which objectives are established. The Spokane Fire Department has established the following response time objectives for its services.

- **Dispatch time** – the period of time from the receipt of the call into the Combined Communications Center (CCC) until the initial dispatch of the call to responders.
- **Turnout time** – the period of time from initial dispatch to initiation of travel toward the incident.
  - The Spokane Fire Department has adopted a turnout time standard of ninety (90) seconds, 90% of the time.
- **Response time for the first arriving engine company at a fire suppression incident** – the period from notification of fire department response personnel of the incident to the arrival of the first unit at the scene of the incident.
  - The Spokane Fire Department has adopted a response time objective of eight minutes and thirty seconds (8:30) for the first arriving fire engine, 90% of the time.
- **Response time for full first alarm assignment at a structure fire incident** – the period of time from notification of fire department response personnel of the incident to the arrival of all of the first alarm units at the scene of the incident.
  - The Spokane Fire Department has adopted a response time objective of eleven (11) minutes for the arrival of the full first alarm assignment at structure fire incidents, 90% of the time.
- **Response time for the first fire department medical unit at an emergency medical (EMS) incident** – the period from notification of fire department response personnel of the EMS incident to the arrival of the first fire department unit at the scene of the incident.
  - The Spokane Fire Department has adopted a response time objective of eight minutes and thirty seconds (8:30) for the arrival of the first fire department unit at life-threatening emergency medical incidents, 90% of the time.

- **Response time for the first fire department advanced life support medical unit at a priority emergency medical (EMS) incident** – the period from notification of fire department response personnel of the EMS incident to the arrival of the first fire department advanced life support unit at the scene of the incident.
  - The Spokane Fire Department has adopted a response time objective of eight minutes and thirty seconds (8:30) for the arrival of the first fire department advanced life support unit at life-threatening emergency medical incidents, 90% of the time.
- **Response time for arrival of the first fire department unit at a technical rescue incident** – the period from notification of fire department response personnel of the technical rescue incident to the arrival of the first fire department unit.
  - The Spokane Fire Department has adopted a response time objective of eight minutes and thirty seconds (8:30) for the arrival of the first fire department unit at a technical rescue incident, 90% of the time.
- **Response time for arrival of the first fire department unit at a marine technical rescue incident** – the period from notification of fire department response personnel of the marine rescue incident to the arrival of the first fire department unit.
  - The Spokane Fire Department has adopted a response time objective of eight minutes and thirty seconds (8:30) for the arrival of the first fire department unit, 90% of the time.
- **Response time for arrival of first fire department unit at a hazardous materials incident** – the period from notification of fire department response personnel of the hazardous materials incident to the arrival of the first fire department unit.
  - The Spokane Fire Department has adopted a response time objective of nine (9) minutes for the arrival of the first fire department unit, 90% of the time.

Critical Tasking

Critical tasks are those activities that must be conducted in a timely manner by firefighters at emergency incidents in order to control the situation, stop loss, and to perform necessary tasks required for a medical emergency. The Spokane Fire Department is responsible for assuring that responding companies are capable of performing all of the described tasks in a prompt, efficient, and safe manner.

- **Fires** – Critical tasking for fire operations is the minimum number of personnel to perform the tasks required to effectively control a fire in the listed risk category. Major fires (beyond first alarm) will require additional personnel and apparatus.
- **Emergency Medical** – Critical tasking for emergency medical incidents is the minimum number of personnel to perform the tasks required to support the identified strategy based on the department's adopted medical protocol.

Table 12: Low Rise Residential Structure Fire

Task	Number of Personnel
Command/Safety	3
Pump Operations	1
Attack Line	2
Search and Rescue	2
Ventilation	2
RIT	3
Other (hydrant and back up line)	3
Total	**16**

Table 13: High Rise Residential Structure Fire

Task	Number of Personnel
Command/Safety	3
Pump Operations	2
Attack Line	4
Search and Rescue	4
Ventilation	4
RIT	4
Other (hydrant and back up line)	4
Total	**25**

Table 14: Moderate Risk Commercial Structure Fire

Task	Number of Personnel
Command/Safety	3
Pump Operations	2
Attack Line	4
Search and Rescue	4
Ventilation	4
RIT	2
Other (hydrant and back up line)	4
Total	**23**

Table 15: High Risk Commercial Structure Fire

Task	Number of Personnel
Command/Safety	3
Pump Operations	2
Attack Line	4
Search and Rescue	4
Ventilation	4
RIT	4
Other (hydrant and back up line)	4
Total	**25**

Table 16: Grass/Brush Fire (not threatening structures)

Task	Number of Personnel
Command/Safety	1
Pump Operations	--
Attack Line	2
Other	--
Total	**3**

Table 17: Vehicle Fire (not threatening structures)

Task	Number of Personnel
Command/Safety	1
Pump Operations	1
Attack Line	1
Other	--
Total	**3**

Table 18: Emergency Medical (non-life-threatening)

Task	Number of Personnel
Patient Management	--
Patient Care	1-3
Documentation	0-1
Total	**1-3**

Table 19: Emergency Medical (life-threatening)

Task	Number of Personnel
Patient Management	--
Patient Care	1-3
Documentation	0-1
Total	**1-3**

Table 20: Motor Vehicle Accident (with patient extrication)

Task	Number of Personnel	
	Surface Street	Freeway
Scene Management	1	1
Patient Care	3	3
Extrication	4	4
Fire Protection	3	3
Documentation	1	1
Other (safety)	1	1
Total	**13**	**13**

Table 21: Motor Vehicle Accident (no patient extrication)

Task	Number of Personnel	
	Surface Street	Freeway
Scene Management	1	1
Patient Care	2	2
Extrication	--	--
Fire Protection	--	--
Documentation	--	--
Other (safety)	--	--
Total	**3**	**3**

Table 22: Hazardous Materials

Task	Number of Personnel
Command/Safety	4
Entry Team	2
Backup Team	2
Decontamination	4
Research	1
Support	6
Other (medical)	1
Total	**20**

Table 23: Technical Rescue

Task	Number of Personnel
Command/Safety	3
Operations	14
Patient Management	3
Documentation	1
Total	**21**

Table 24: Marine Rescue

Task	Number of Personnel
Command/Safety	3
Operations	14
Patient Management	3
Documentation	1
Total	**21**

Alarm Assignments

In order to ensure sufficient personnel and apparatus are dispatched to an emergency event, the following first alarm response assignments have been established. “Total Staffing Needed” is the number identified in the Critical Tasking analysis above.

Table 25: Low Rise Residential Fire (structure under 55 feet in height)

Unit Type	Number of Units	Total Personnel
Engine	3	9-11
Senior Ladder	1	4
Rescue	1	2
Squad		
Battalion Chief	2	2
	Total Staffing Provided	**17-19**
	Total Staffing Needed	**16**

Table 26: High Rise Residential Fire (structure over 55 feet in height)

Unit Type	Number of Units	Total Personnel
Engine	4	12-14
Senior Ladder	2	8
Rescue	1	2
Squad		
Battalion Chief	2	2
	Total Staffing Provided	**24-26**
	Total Staffing Needed	**25**

Table 27: Moderate Risk Commercial Fire

Unit Type	Number of Units	Total Personnel
Engine	4	12-14
Senior Ladder	2	8
Rescue	1	2
Squad		
Battalion Chief	2	2
	Total Staffing Provided	**24-26**
	Total Staffing Needed	**23**

Table 28: High Risk Commercial Fire

Unit Type	Number of Units	Total Personnel
Engine	4	12-14
Senior Ladder	2	8
Rescue	1	2
Squad		
Battalion Chief	2	2
	Total Staffing Provided	**24-26**
	Total Staffing Needed	**25**

Table 29: Grass/Brush Fire (not threatening structures)

Unit Type	Number of Units	Total Personnel
Engine	1	3
Senior Ladder		
Rescue		
Squad		
Battalion Chief		
	Total Staffing Provided	**3**
	Total Staffing Needed	**3**

Table 30: Vehicle Fire (not threatening structures)

Unit Type	Number of Units	Total Personnel
Engine	1	3
Senior Ladder		
Rescue		
Squad		
Battalion Chief		
	Total Staffing Provided	**3**
	Total Staffing Needed	**3**

Table 31: Emergency Medical (non-life-threatening)

Unit Type	Number of Units	Total Personnel
ARU	1	1
Engine	1	3
Senior Ladder		
Rescue		
Squad		
Battalion Chief		
	Total Staffing Provided	**1-3**
	Total Staffing Needed	**1-3**

Table 32: Emergency Medical (life-threatening)

Unit Type	Number of Units	Total Personnel
Engine	2	3
Senior Ladder		
Rescue		
Squad		
Battalion Chief		
	Total Staffing Provided	**3**
	Total Staffing Needed	**3**

Table 33: Motor Vehicle Accident (with patient extrication)

Unit Type	Number of Units		Total Personnel	
	Surface Street	Freeway	Surface Street	Freeway
Engine	1-2	1-2	6	6
Senior Ladder	1	1	4	4
Rescue	1	1	2	2
Squad				
Battalion Chief	2	2	2	2
	Total Staffing Provided		**14-16**	**14-16**
	Total Staffing Needed		**13**	**13**

Table 34: Motor Vehicle Accident (no patient extrication)

Unit Type	Number of Units		Total Personnel	
	Surface Street	Freeway	Surface Street	Freeway
Engine	1-2	1-2	6	6
Senior Ladder	1	1	4	4
Rescue	1	1	2	2
Squad				
Battalion Chief	2	2	2	2
	Total Staffing Provided		**14-16**	**14-16**
	Total Staffing Needed		**13**	**13**

Table 35: Hazardous Materials

Unit Type	Number of Units	Total Personnel
Engine	3	9
Senior Ladder	1	4
Rescue	1	2
Squad		
Hazardous Materials Unit	1	4 (Cross Staffed)
Battalion Chief	2	2
	Total Staffing Provided	**21**
	Total Staffing Needed	**20**

Table 36: Technical Rescue

Unit Type	Number of Units	Total Personnel
Engine	3	9
Senior Ladder	2	8
Rescue	1	2
Squad (tech rescue unit)	1	Cross Staffed
Battalion Chief	2	2
	Total Staffing Provided	**21-22**
	Total Staffing Needed	**21**

Table 37: Marine Rescue

Unit Type	Number of Units	Total Personnel
Engine	2	3
Senior Ladder	2	8
Rescue	1	2
Squad (marine rescue unit)	1	Cross Staffed
Battalion Chief	1	2
	Total Staffing Provided	**15**
	Total Staffing Needed	**15**