VI. FIRE AND RESCUE OPERATIONS

This chapter discusses the operations component of Portland Fire and Rescue (PF&R). Areas reviewed include incident command practices, staffing levels, deployment practices and risk assessment. An analysis of demand and workloads for the different stations and units of the PF&R, as well as an inter-jurisdictional comparison with other departments in the country, also is included. Special operations including the technical rescue and hazardous materials capabilities of the PF&R also are reviewed.

Previous TriData studies have found that many jurisdictions have weak or non-existent intergovernmental agreements with surrounding jurisdictions. This chapter includes a review of existing mutual aid agreements and determines what changes, if any, should be made.

In order to provide effective service, fire departments should maintain operational objectives that are consistent with the demands that exist within the community. Sometimes the decision about levels of service is not consistent with the level of risk and service demands. In many communities we have observed, decisions regarding service levels have not been made through a tactical risk analysis process; rather, it is often the result of incremental policymaking or based on "best case" alternatives developed in the wake of budget reductions.

OVERALL APPROACH TO OPERATIONS

Portland Fire & Rescue (PF&R) is operationally well-run and very effective in the extinguishment of fires. It is a philosophically aggressive agency in its approach to fighting fire and ensuring the safety of its employees. This philosophy is built upon the concept of "***Hit Hard, Hit Fast".*** PF&R has long been a trendsetter in this region regarding firefighting tactics, fire ground safety and incident management.

Overall, PF&R is characteristic of many metropolitan fire departments in western core-city communities, which have faced on-going population growth and escalating service demands. In the aftermath of 9/11, combined with the regions propensity for natural disasters, there has been a monumental increase in the planning and preparatory efforts. These rising demands and expanded preparedness efforts have been couched in a political environment that has limited and in some cases, reduced financial support. While the number of actual fires has decreased per capita, emergency medical services (EMS) and special service demands have steadily increased. PF&R has adjusted to these shifts and constantly pursues delivery methods that increase efficiency and improves services. In this chapter, we address these issues and present recommendations for changes to the operational structure, deployment and service enhancements necessary to meet community expectations and provide adequate employee safety.

RISK ASSESSMENT

The current risk for the Portland area is high in a number of respects. Call volumes for some units are high. This trend is compounded by the significant growth in the area both in residential development and commerce. The City's port facility and international airport create elevated service needs for both day-to-day response activity and their potential targeting for weapons of mass destruction including chemical, biological, radiological, nuclear, and explosives (CBRNE) incidents. (A more detailed analysis of risks is presented in Chapter III, Risk and Demand.)

The City's potential for natural disasters, including seismic events, winter storms and flooding all compounds the necessity for proper planning and sufficient resource capacity. The compact urban setting with the high potential for both natural and man-made disaster further elevates the importance of proper planning, intelligence surveillance and ultimately the sufficiency of the areas response capacity.

The City encompasses an area of nearly 150 square miles (including contract areas) that has a mix of heavily dense urban core settings along with suburban areas in its periphery. PF&R serves an estimated population of over 550,000 and this number increases significantly during normal business hours with the influx of workers and tourists into the downtown areas. Portland's efforts to enhance its livability as a community have resulted in dramatic population increases in recent years. In the 1990s the city's population increased by over 20 percent. This growth has resulted in significant urban densities that currently are estimated to average 3,700 people per square mile. This is a 50 percent increase in density than existed in 1980. In FY04–05 several of the busiest engine companies responded to nearly 3,000 calls each year. On any given day PF&R responds to 200 requests for assistance. Annual unit responses exceed 75,000, including approximately 2,500 fires each year. Historically, about one percent of PF&R incidents (25 annually) are "Greater Alarms", or major incidents requiring a second alarm or greater.

PF&R provides a full range of services to multiple-occupancy groups including high-rises, commercial/industrial, and residential structures. PF&R protects real property with an assessed valuation in 2005 estimated to be $36.1 billion and a real market value of $58.8 billion. Portland has two large rail yards, four smaller rail yards, substantial bulk fuel storage sites (tank farms), ammonia and chlorine facilities and multiple grain storage and handling facilities all of which pose significant hazards. PF&R also serves the Portland International Airport with structural and EMS protection, as well as the city's international shipping port and ship repair (dry dock) facilities. There are several major highways that run through the city. I-84 with its extension into Highway 26, runs east to west through the metroplex with extremely high traffic volumes. I-84 is the most significant east-west interstate roadway in the state of Oregon. I-5 travels in a north-south direction throughout the entire length of the city. I-5 is the most significant transportation corridor along the west coast, connecting California, Oregon and

Washington State. The intersection of these two major corridors occurs in the central downtown area. I-205 and I-405 are interstate systems within the metropolitan area providing downtown access and by-pass routing along the I-5 corridor. The risks associated with these roadways through the Portland metropolitan area are potentially problematic. These corridors are major truck routes, which carry the potential for hazardous payloads. The adjacency of these roadways to the river systems and the heavy concentration of commercial and residential occupancies throughout this area, compound the risk. There is also the potential for motor vehicle accidents with or without entrapment, car fires, and truck fires. Further, a large section of the roadway is elevated; access to it is limited for responding fire department apparatus, and in many areas of the roadway there is no reliable water source. PF&R also faces wildland interface fire risk throughout the City, specifically NW Portland.

PF&R uses a Risk, Hazard, and Value Evaluation (RHAVE) process to categorize and quantify its risk potential. This system looks at four general groupings, which include;

- Life Risk
- Community Economic Risk
- Environmental or Historical Risk
- Pure Dollar Loss

On the basis of an assessment completed in 2003, it was determined that 93 percent of Portland's buildings fell into the low risk category, and only 2.9 percent of the buildings were categorized as high risk. This assessment was completed for the city's nearly 39,000 commercial and multi-family structures. Portland has responded to these findings with enhanced and targeted code enforcement efforts, a stepped up company inspection process that focuses on fire safety and an extensive public education effort.

PF&R has quantified its risk potential and identified the locations of those occupancies with elevate loss potential in perhaps one of the most sophisticated and comprehensive approaches we have observed in our analysis of fire department operations. In addition, PF&R has prioritized its outreach and compliance efforts in addressing these risks and as a community are making significant progress in minimizing the potential losses that can occur.

OVERVIEW OF THE DEPARTMENT

The PF&R's operations personnel work a 53-hour week utilizing a three-platoon system. Operations personnel work a 24-hour duty shift followed by 48 hours off. The process is repeated throughout the year with approximately seven scheduled relief days (Kelly Days), dispersed throughout the cycle to equate to a 53-hour work week. This shift schedule is common in the fire service. The Bureau currently employ's approximately 700 employees of which 574 are assigned to the Emergency Operations Division.

The Department's rank structure is shown in Table 44. It is consistent with other larger metropolitan fire departments. The Division Chief is the ranking officer in the Emergency Operations Division. This is a uniformed position that works a 40-hour schedule. The Division Chief reports directly to the Fire Chief and has oversight of all emergency field activities within the Portland system. The oversight includes Fire and EMS delivery, EMS and special operations training, 911/dispatch, special operations and emergency management.

Table 44: Department Rank Structure

Rank
Fire Chief
Division Chief
Deputy Chief
Battalion Chief
Captain
Lieutenant
Firefighter, Paramedic, HM

Directly below the Division Chief are three Deputy Chiefs assigned to emergency response. They work a 24-hour shift schedule and have field supervision over one of the three shifts.

The minimum daily staffing for operations is 156/160 personnel (156 when Gresham staffs Station 45). They operate 29 engine companies, nine truck companies, and one technical rescue squad. The 160 personnel include three Battalion Chiefs and a Deputy Chief. All emergency response apparatus (engines, trucks and technical rescue squad) are staffed daily with a minimum of four personnel.

The City is divided into four districts; three are operational and one is administrative. District 2, 3, and 4 are each under the supervision of a Battalion Chief. Districts 2 and 4 include nine stations each and District 3 has 10. District 1, which is the administrative district, has Station 1 and Bureau Headquarters (BHQ). This district is managed by the on-duty emergency response Deputy Chief. (See the map of Districts in the previous chapter, Station and Apparatus Deployment.)

The division of the City into only three districts places too high a burden on the Battalion Chiefs to exercise proper administrative oversight and field supervision. Typically Battalion Chiefs in cities with call levels like Portland have oversight for fewer stations and resources. The span of control for a field officer usually should be limited to five to seven units. In Portland, Battalion Chiefs have 9 or 10 stations and as many as 14 units.

Recommendation 22: Reestablish a fourth district within the City and reinstate one additional Battalion Chief to each of the assigned shifts (three additional positions). PF&R should reconsider its past decision to eliminate the 4th District from the Emergency Operations

Division. The re-establishment of this grouping will improve the management oversight of the operations division and dramatically improve emergency field supervision. With a four-district operation each Battalion Chief will supervise seven fire stations, 10 emergency response units and approximately 50 personnel. This is the upper end of normal. The addition of a 4th District is not intended to displace or re-assign the function of the on-duty emergency response Deputy Chief. Our recommendation is to add the 4th District and maintain the emergency response Deputy Chief in their current capacity for citywide oversight and emergency response.

FACTORS INFLUENCING DEPLOYMENT

A number of sources have been cited to aid in benchmarking Portland. The factors influencing deployment include NFPA, ISO, response times and incident severity, two-in/two-out, and response complement. NFPA and ISO are discussed in-depth in the previous chapter.

Two-In/Two-Out – Emergency responders operate in dangerous environments where they are at high risk. To protect the heath, safety, and welfare of firefighters, the Department of Labor and the Occupational Safety and Health Administration (OSHA) have promulgated regulation 29 CFR 1910.134, also known as "2-in/2-out," which mandates that there must be a minimum of four personnel on the scene of a structural fire before personnel can initiate interior operations. A minimum of two firefighters must remain outside, properly equipped with full turnout gear and self-contained breathing apparatus (SCBA) to act as a rapid intervention crew/team (RIC/RIT) in the event the firefighters operating inside the structure become incapacitated or trapped.

Response Complement – *NFPA 1710*: Standard on the Organization and Deployment of Fire Suppression Operations by Career Fire Departments makes staffing recommendations for the number of firefighters to deploy to the scene. In addition this standard provides response time recommendations for the deployment of these resources.

> Section 5.2.3.1.1 Initial Arriving Company: The fire department's fire suppression resources shall be deployed to provide for the arrival of an engine company within a 4-minute response time and/or the initial full alarm assignment within 8-minute response time 90 percent of the incidents…

This section of the standard goes on to specify a minimum of 15 personnel deployed on the Initial Full Alarm Assignment and the functions they are assigned:

- Incident Commander (1 individual)
- Water Supply Line (1 operator)
- Fire Attack Hose Line (2 individuals)
- Back-up Hose Line (2 Individuals)
- Scene Support Personnel (2 individuals)
- Search and Rescue (2 individuals)
- Ventilation Team (2 individuals)

- Aerial Operator (1 individual)
- Fire Fighter Safety/Entry Team-RIC (2 individuals)

Another consideration is a safety officer, which would include the response complement to 16 personnel.

PF&R utilizes a deployment procedure that dispatches a total of 22 personnel to a reported residential structure fire. The complement of equipment dispatched on these assignments includes four engines, one truck, and two chief officers. On target hazards (buildings with a higher potential of life loss or significant hazard) the initial assignment is increased to four engines, two trucks, and two chief officers. This is a complement of 26 personnel. Given the number of greater alarms and the frequency of working fires, we would recommend that PF&R reevaluate its initial alarm assignments to residential (non-high rise) box alarms. While its complement of personnel and equipment dispatched is based on its "Hit Hard, Hit Fast" philosophy, it might want to consider reducing the response by one engine company to be available to respond to other calls. As noted in Chapter IV, Determining Resource Needs, other departments send between 12 and 20 personnel on low occupancy hazards.

Recommendation 23: Reevaluate the initial assignment of engines for structure fires to low hazard occupancies. Consider reducing the number of engines assigned to this type of box alarm from four units to three. The reduction of one engine company will reduce the total personnel responding to these alarms from 22 personnel to 18 personnel. The remaining complement is well within the NFPA 1710 guidelines and is sufficient for the high incidence of minor alarms, false calls, or good intent calls that make most of the fire activity in Portland. This approach will improve unit availability, response times, and employee safety resulting from fewer responses in an emergency mode (lights and sirens). The ability to upgrade a response on the basis of multiple calls into dispatch or upon initial size-up by the first arriving units will not hamper tactical activities or scene safety. That is, you can always call for a fourth for the same fire that needs it.

INTERJURISDICTIONAL COMPARISONS

This section discusses how Portland compares with similar fire departments in uniformed staffing, apparatus staffing, and operational budget. Other comparisons are made throughout the report.

Staffing –Table 45 shows levels of staffing for a comparison group of similar sized communities, mostly in the west. PF&R's uniformed personnel per 1,000 population is lower the average of the comparison group (1.2 vs. 1.5). The staffing table only takes into account resident population, which could affect staffing decisions by any department; that is, some are higher for visitors, but in general that is not the case.

Table 45: Uniformed Staffing Levels

Jurisdictions	Population served	Total Staffing	Uniformed FF (career)	Uniformed Personnel/ 1000 pop
Cincinnati, OH	330,000	839	797	2.4
Kansas City, MO	442,768	973	857	1.9
Seattle, WA	563,400	1,109	1,030	1.8
Denver, CO	557,478	954	910	1.6
Charlotte, NC	600,000	1,015	897	1.5
Portland, OR	**556,202**	**701**	**649**	**1.2**
Sacramento, CA	463,760	587	535	1.2
Long Beach, CA	475,460	555	495	1.0
Average	**498,634**	**842**	**771**	**1.5**

Minimum On-Duty Staffing – Minimum on-duty staffing is the total complement of officers and firefighters required to staff each station and fire apparatus on a daily basis. The number of firefighters needed per engine, truck company or special use vehicle (heavy rescue, hazardous materials, etc.) is a subject to significant debate in local government. Table 46 shows the minimum on-duty staffing in total and per 10,000 population. PF&R has 2.88 firefighters on-duty per 10,000 population, which is low across the comparison group. The average was 3.53 with the low being Sacramento at 2.59 and the high Cincinnati at 5.64. Excluding Cincinnati, the average is 3.02.

Table 46: Minimum On-Duty Staffing

Jurisdictions	Min On-Duty Staffing	Minimum On-Duty Staff/10,000 pop
Cincinnati, OH	186	5.64
Kansas City, MO	202	4.56
Denver, CO	204	3.66
Seattle, WA	204	3.62
Portland, OR	**160**	**2.88**
Long Beach, CA	134	2.82
Sacramento, CA	120	2.59
Average	**173**	**3.57**

All the cities used in the comparison group staff their engine and truck companies with a minimum of four firefighters. The difference in minimum on-duty staffing is a function of the density and number of stations, number of apparatus (including ambulances), number of battalions, and the number of other senior officers on-duty.

Cost Per Capita – For public managers, a measure of the relative cost efficiency of a fire department is the cost per capita of fire protection. This should be considered relative to the level and quality of service, though it is difficult to make meaningful comparisons of quality for fire departments. In considering the cost per capita for emergency services, one should also realize that larger jurisdictions that require more resources can sometimes achieve better cost ratios since the cost is spread over more residents. Economy of scale is a consideration in comparing cost per capita data.

The cost per capita of each jurisdiction was based on its operating budget, not including capital budgets. The operating budget includes personnel services, supplies, building maintenance expenditures, etc., which are annual appropriations for recurring costs that do not depreciate. Currently, PF&R per capita cost is $132, which is $27 less than the group average of $159, as seen in Table 47. The city and fire department should be proud of its ability to be cost efficient. Even when compared to other departments that do not provide EMS transport, it still ranks second lowest (with Charlotte having the lowest cost per capita).

Table 47: Fire Department Cost Per Capita

Jurisdictions	Operating Budget	Cost Per Capita
Seattle, WA	$121,001,373	$215
Cincinnati, OH	$ 58,400,000	$177
Kansas City, MO	$ 77,813,730	$176
Sacramento, CA	$ 77,005,280	$166
Denver, CO	$ 85,665,200	$154
Long Beach, CA	$ 63,900,000	$134
Portland, OR	**$ 73,220,759**	**$132**
Charlotte, NC	$ 77,196,770	$129
Average	**$79,275,389**	**$159**

INTERNAL COMMUNICATION

From an operational perspective, internal communications are exceptional in PF&R. All officers, paramedics and anyone with a committee assignment have E-mail access which serves as the primary vehicle for communicating information throughout the department. The fire chief conducts monthly video presentations (The Chief's Corner) that are aired throughout the Bureau to discuss key issues impacting the organization. The fire chief also holds weekly staff meetings with the Core Leadership Group that includes his two Division Chiefs, the Business Operations Manager, Fire Marshal and the Human Resources Coordinator . Typically the on-duty emergency response Deputy Chief is not included as part of the Core Leadership Team. We believe this approach toward the management of the organization and its internal communications should be revisited.

Include the emergency response Deputy Chief as part of the Core Leadership Team. The emergency response Deputy Chief meets with Core on the 4th Wednesday of every month.(This recommendation was made in the Organization and Management chapter.) The vital communication link that is provided with the ranking field officer and executive staff is invaluable. This provides access to critical information both up and down the structure. It also fosters greater inclusion of those mid-management levels within the executive level of the organization.

The Division Chief in charge of Emergency Operations (EOPS) holds a weekly EOPS meeting. He also meets with the emergency response Deputy Chief and the three on-duty Battalion Chiefs during their daily shift briefing. The EOPS Division Chief conducts stations visits on a regular basis, usually on Fridays. In addition, he meets weekly with the Special Operations Chief and the POEM representatives.

On a daily basis the emergency response Deputy Chief holds a coordination meeting with the three on-duty Battalion Chiefs. The Battalion Chiefs expressed difficulties in their ability to interact with their station officers and field personnel on a regular basis. There is no formal requirement for the battalion chiefs regarding station visits except for an annual station inspection and company evaluation drill. Most battalion chiefs indicated that they tried to visit each station on a weekly basis for a station meeting. Clearly there was a concern on the part of the battalion chiefs in their ability to interact with field personnel, discuss organization issues, and address concerns that may be raised. It was emphasized that in many instances there were conflicts and generally an inability to meet with their personnel on a regular basis. In fact, it was not uncommon for battalion chiefs to go as long as 2–3 weeks between station meetings.

Recommendation 24: Consider the utilization of telephone conference calling or web-based video conferencing to replace the daily deputy/battalion chief briefing meeting. The time commitment and the out of district impact of having the three on-duty battalion chiefs attend a daily meeting with the deputy chief is an inefficient use of staff time. Today's technology can support direct voice and/or video conferencing at little cost. This technology provides a whole array of additional communication and coordination options. For example, the dispatch liaison officer or Training staff can be brought in for a specific portion of the discussion. Select station officers may participate from their station, remaining in district, while contributing to the discussion on issues of relevance. In addition to scheduled daily meetings, spur of the moment calls that utilize cellular phones, can also facilitate information gathering and decision-making. Though face-to-face meetings provide value, we believe the daily meeting can be supplemented by conference calling or video-teleconferencing. The number of face-to-face meetings can be reduced significantly.

At each fire station a captain is designated as Administrative Commander for the station. This individual is responsible for coordinating station activities between the two other station officers (Lieutenants) on the opposite shifts. All internal written communications, schedules, policies, procedures and memorandums are transmitted to station personnel via e-mail and posted by the station captain in the appropriate manual.

PF&R does not conduct an annual performance review for line personnel. Employees only take part in a formal station inspection and company evaluation drill once each year. There is no review of individual performance, assessment of interpersonal skills, or an evaluation of other key attributes. Employees are not asked to establish goals nor does there exist a formal setting between supervisor and employee in order to review their performance or provide career development counseling.

Recommendation 25: Institute an annual performance appraisal process for line employees. Formal employee evaluations have been prudent to improve personnel development and the effectiveness of internal communications in many departments. Personnel assessments that reflect on both positive and negative activities also promote organizational objectives. Employees desire honest and constructive feedback on job performance. Young employees seek guidance from their supervisors regarding career advancement and the pursuit of formal training. It is important in today's work place that employees are offered counseling and mentoring on a routine basis and through a formalized one-on-one appraisal process. All non-represented (sworn and non-sworn) employees currently undergo annual performance evaluations. In addition, battalion chiefs participate in a similar process.

Labor-Management Relations – Labor/Management communications within PF&R appear to be extremely effective—among the best in fire departments we have evaluated. In accordance to the current Labor Agreement with the Portland Firefighters Association, a Labor Management Committee has been established. The committee is made up of the Fire Chief, the HRC, the Association President and five members from each party. This group meets on a monthly basis to discuss Bureau issues. The chair of this committee rotates monthly between labor and management In addition, the Fire Chief and the labor president meet weekly and on an annual basis, labor and management conduct a one-day retreat in which key issues are addressed, work plans developed and organizational priorities are discussed. Through these processes Labor is aware of the key issues facing the organization and has significant involvement in policy development and key decision making. Employee access through the Labor Management Committee along with the significant program work they are involved, appear healthy and provide input on the key issues. Kudos here.

INCIDENT COMMAND

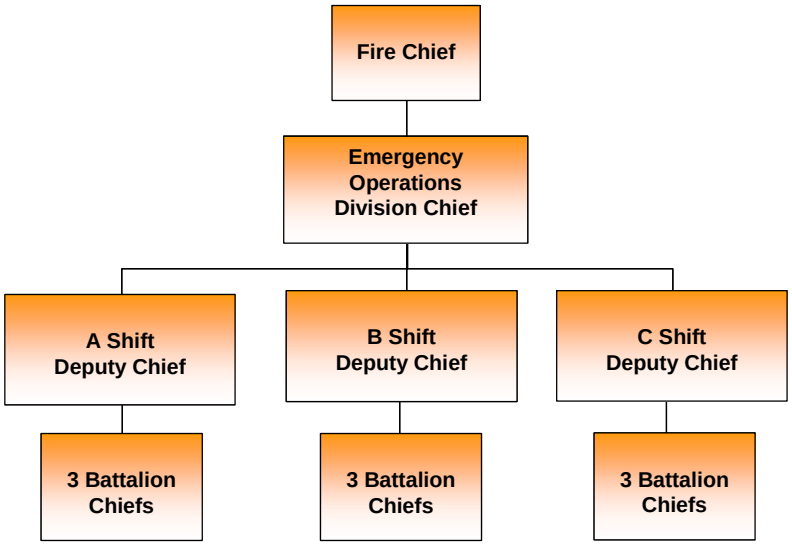
Deputy chiefs, battalion chiefs, and company officers handle most incident command responsibilities in PF&R. Additional command officers, such as the division chiefs, training officers and the fire chief may become involved as well depending on the nature of the incident. Overall, PF&R uses the incident management system routinely on multiple unit responses and appears to have well-defined procedures for command, which is excellent practice and good preparation especially for a major emergency. Safety and the establishment of Rapid Intervention Teams (RIT) have been incorporated into the command structure utilized. Two chief officers are dispatched as part of the initial assignment to all box alarms. The second arriving chief officer

(usually a battalion chief), is assigned to personnel accountability, safety, RIT operations or other functions as determined by command.

Deputy Chiefs – PF&R uses an on-duty emergency response deputy chief as the ranking officer for field operations. Deputy Chiefs work a 24-hour schedule and have administrative and field oversight over their assigned shift.

The battalion structure is shown in Figure 26 below.

Figure 26: Portland Operational Command Structure



Emergency Response Deputy Chiefs may respond to any call a battalion chief responds to in order to perform incident command functions. Generally, an emergency response deputy chief will not respond to calls unless it is a greater fire or other significant emergency. When the deputy chief does respond they have the option to assume the command of the incident or to support the battalion chief in charge in fulfilling a command position. While the deputy chief would potentially have an incident command function in a larger scale incident or event, he relies heavily on his battalion chiefs to manage the bulk of on-scene incident command duties.

PF&R's Incident Command System is consistent with the National Incident Management System (NIMS). The system is well established within the PF&R system and chief officer and company officers appear well versed in the use of this management tool and utilize the system to its optimum potential.

Battalion Chiefs –The battalion chiefs are in direct command of the battalions and shifts they are assigned. There are nine Battalion Chiefs who work the same work schedule as the firefighters (three battalion chiefs are on-duty at any given time). They respond to all major incidents. Often the company officer will initially establish command upon arrival at a scene, and the battalion chief will later assume command upon his arrival. This is especially true at structure

fires when companies become committed and company officers must shift their focus to fire suppression operations, search and rescue, and ventilation.

As indicated above, a box alarm indicating a structure fire generates an automatic response of two battalion chiefs. This change was recently implemented (September 2004) in order to assign one additional chief officer to be in-charge of Rapid Intervention Team (RIT) operations. As with the number of engines assigned to an initial residential box alarm, we question the actual benefit of automatically assigning a 2nd battalion chief to all box alarms. A review of alarm data indicates a high incidence of minor alarms, false calls or good intent calls that make up a significant portion of the fire activity within the Portland system. The assignment of two chief officers for every reported fire incident results in excessive emergency response travel and low or insignificant utilization of these limited resources.

Recommendation 26: Reevaluate the initial assignment of two battalion chiefs to box alarms involving residential structure fires, excluding high-rise structures. Though the establishment of a RIT team for all working fires is highly recommended, it is not necessary for a chief officer to be in charge of this activity. A company officer can assume this function and in the event that the scene evolves into a more complex incident, a chief officer may then assume this roll if desired. The ability to upgrade a response on the basis of multiple calls into dispatch or upon initial size-up by the first arriving units, will not delay significantly the response of a second chief officer for a small number of incidents where likely to be needed. Also, unless battalions are increased in number, having two respond to an incidents leaves a hole should a more significant incident roll in.

Each battalion chief is responsible for either nine or ten fire stations depending on the district to which they are assigned. On several occasions, the project team heard concerns about the response time for battalion chiefs. In a reviewing alarm data this concern was verified. In nearly 25 percent of all responses it takes over 12 minutes for the first arriving battalion chief to reach the scene. Battalion chiefs respond as part of the initial alarm assignment and should arrive on the scene within eight minutes of being dispatched. As stated in recommendations previously, reassigning districts and adding another battalion chief should help reduce response times for battalion chiefs.

OPERATIONS

As discussed previously, PF&R operates in four districts; they are depicted in Table 48.

Table 48: Battalion Divisions

District 1	District 2	District 3	District 4
Station 1	Station 3	Station 2	Station 4
	Station 6	Station 11	Station 5
	Station 8	Station 12	Station 9
	Station 14	Station 19	Station 10
	Station 16	Station 25	Station 13
	Station 17	Station 40	Station 15
	Station 22	Station 41	Station 18
	Station 24	Station 42	Station 20
	Station 26	Station 43	Station 23
		Station 45	

Captains and lieutenants are the first line supervisors in the command structure of the Bureau, and act as the officers on the engine and truck companies. They are also the lead officers in many special project areas and functions within the Bureau.

PF&R has a generally well-distributed complement of fire stations throughout the city. There are 29 engine companies all of which carry paramedics and serve as ALS engines—excellent practice for achieving a rapid ALS response that is better than most cities. All engines are equipped with thermal imaging cameras—again, among the best. There are nine truck companies, and five of these are staffed and equipped to provide Advance Life Support (ALS) EMS services. The city also operates a Technical Rescue unit from Station 1. This unit responds to special rescue situations and also serves as a truck company during fire incidents.

Typically Engine and truck companies have designated work assignments and duties.. All personnel at PF&R are trained to work on a truck or an engine. Both engines and trucks respond to and provide EMS services and this in fact dominates their overall workload. All truck companies carry hydraulic extrication equipment (Hurst Tools) and are dispatched to automobile accidents that involve entrapment or require extrication.

Engine Company Operations – Standard operating guidelines (SOGs) in large cities typically dictate that the first arriving engine company parks at the scene to leave room for the first arriving truck company to position and deploy the aerial device, if necessary. Procedurally, they provide an arrival report, conduct a preliminary investigation and assessment of the incident and take the steps necessary to mitigate the most critical action (occupant rescue or extinguishment). The second arriving engine normally provides staging at a hydrant and positions itself to give the first arriving truck access to the front of the structure. Similarly, the third arriving engine also stages at a location not to interfere with incoming truck companies and awaits instruction from command. The first arriving engine's investigation determines if the companies work in an offensive (aggressive interior attack) or defensive (exterior application of master streams) mode.

All other operational procedures for engine companies are standardized and follow tactical principles that include:

- Hoseline selection and use
- Foam capabilities
- Nozzle tip size
- Standpipe systems
- Water supply
- RIT Operations
- Pump operations
- Firefighter assignments

The Portland Operating Guidelines we observed for engine company operations were very much in line with these principles, were well-understood, and comprehensive in their scope.

Truck Company Operations – SOGs for the first, first-arriving truck company directs that unit to respond to the scene to position and operate its aerial device at the location of best advantage (except where specific positions have been assigned or pre-planned). Crews then perform forcible entry, primary and secondary searches (when necessary), control of utilities (gas, electric, etc.), property conservation, laddering, establishment of elevated master streams and ventilation of the structure. Other responding truck companies are directed to stage in the direction of travel behind staged engine companies and to assist with ventilation and other scene support functions.

The question of using two person EMS rescue companies (called "Rescues") has created much debate in the Portland system. In the past, as many as 12 rescues were operational and part of the available resources to handle daily service demands. At the time of our last Portland study in 1997, the number of rescues had been reduced to six. Today, the system operates with no rescues, but all engines have been up graded to provide ALS services and more than half of the truck companies have been staffed to this level, too.

Systems like PF&R that are charged with the delivery of Fire and EMS services are constantly faced with the question of how best to deploy resources. Fire response is based on getting multiple units (engines and trucks) with a sufficient number of personnel (at least 17, per Portland standards) to the scene within eight minutes. EMS delivery is based on getting two to four people to the scene in the same timeframe. Both service standards attempt to have at least one unit arrive on the scene within four to five minutes of being dispatched. EMS calls far out number fire incidents. In the Portland system, EMS accounts for over 67 percent of the total alarm activity. In addition, call volumes for EMS related calls have been increasing over the last 10 years while the number of fire-related calls has declined. Similarly, response times for medical emergencies have increased. It is estimated that approximately 32 percent, roughly one in every three responses, have a response time that exceeds the desired Portland response time

goal of 5 minutes and 20 seconds (5:20). If no changes are made, it is anticipated that this trend will continue as the population ages and there is a general tendency to utilize government-provided medical services. Similarly, greater code enforcement and monitoring processes along with the prevalence of built-in fire protection (automatic sprinklers) will continue to reduce the frequency and magnitude of fires.

From a pure business perspective, EMS service delivery is a much less expensive service to provide. EMS units are typically staffed with two personnel while fire apparatus are staffed with four. EMS vehicles are about one-third the cost to purchase and the operating and maintenance costs per mile is less than half the cost of engines and trucks. On average, residents pay a service fee for EMS services that result in a transport to the hospital (approximately $600 to $1000 per transport). Fire departments usually share in these revenues either as the transporting agency or as a result of a contractual arrangement with the franchised ambulance service operating within the city.

Recommendation 27: Consider a revision to the AMR contractual arrangement to get paid for its services. Alternatively, PF&R and the City of Portland might negotiate other concessions such as paramedic training.

Several engines have been identified with call volumes approaching or in excess of 3,000 responses per year. This equates to approximately eight to 10 responses each day for each of these units. This is a high workload and we recommend that up to six stations be considered for additional support. Units with the higher workloads are at Stations 41, 1, 11 and 28.

Recommendation 28: Add four, two-paramedic rescue units to better manage call activity and improve response times in the areas with the highest EMS call volume. Two rescue units should be located at Stations 1 and 41. The other two rescue units should be located at stations in District 3, such as 11 and 28. The reason to place rescue units at Stations 11 and 28 is because they are near major roads and intersections, and have good street access. Also, the demand and workload is increasing and there is a need for additional support. The ultimate decision for the latter two units is up to PF&R.

The concept of utilizing emergency response units that operate on work schedules other than the typical 24-hour shift cycle can add needed resources during critical timeframes and minimize the incremental cost of these additions. It is imperative that rescue companies be staffed with personnel who are cross-trained and equipped for both fire fighting and EMS activities. These units will have the greatest versatility and can be utilized in both fire and EMS situations. The 2-person units would not be deployed by themselves to a structure fire (this is concern raised about 2-person units, but is not the intent).

The most significant fires typically occur during the early morning hours after incidents are able to grow undetected. For this reason fire departments are required to be fully staffed and capable to respond throughout the night. EMS incidents have the highest frequency and concentration of occurrence during those hours of the day that people are active and conducting

business activities. This is generally during the 12-hour period between 9 A.M. to 9 P.M. The addition of these rescue units can provide increased resources during business hours so that fire units can conduct in-service training drills and conduct company inspections. Rescues that operate on a 12-hour schedule, four days a week (48-hour workweek), provide an alternative work schedule that often has appeal to employees with child care responsibilities or to single parents. It will be necessary to negotiate this alternative schedule with the Labor Union however; these will be new positions that would be added to the overall complement of the Bureau.

MUTUAL AID

PF&R has an excellent mutual and automatic aid system that involves several municipalities, a port authority, fire protection districts, counties and a city in the State of Washington. It involves various levels of cooperation and formalized agreements throughout the metropolitan area. It is a system that works, it's balanced, reliable, and offers the greatest potential for enhancing efficiency. The following list shows the primary agencies involved in the mutual aid system:

- Vancouver Washington Fire Department
- Oregon USAR
- Tualatin Valley Fire & Rescue
- Gresham Fire Department
- St Helens Fire Protection District
- Sandy Fire Department
- Lake Oswego Fire Department
- Multnomah Rural Fire Protection Districts #14 and #30
- Clackamas County Fire District #1
- Boring Rural Fire Protection District #59
- Maritime Fire Safety Association
- Multnomah County Fire Defense Board

City of Gresham – The arrangement with the City of Gresham included the co-location of personnel at Station 45 at the eastern city limits of Portland adjacent to Gresham. This arrangement provides the staffing of an ALS engine that serves areas in both cities. The terms of this agreement are somewhat unique. Both entities appeared satisfied with it. Engine 45 is operated by PF&R for seven months of the year and by Gresham the remaining five months of the year. This time-share is based on the call distribution handled by this unit. Approximately 60 percent of the call volume originates in Portland and 40 percent in Gresham. The Portland Fire Fighters Union raised concern regarding the different staffing levels maintained by each agency. PF&R utilizes a four-person staffing and Gresham three personnel. Gresham officials have indicated their desire to increase staffing to four, but at the current time there is no plan to increase these levels. This difference, however, has not seemed to pose a significant problem

operationally to date. This concept of co-location is being looked upon as a model by other neighbors, in the area.

In recent Portland budget strategy discussions, the concept of co-location with Gresham was being considered for elimination; the 12 personnel assigned to Station 45 would be reassigned to Station 27. Efforts should focus on deployment options that would improve but *not eliminate* the current arrangement – it seems cost effective.

Recommendation 29: Maintain the current joint operation/co-location agreement with the city of Gresham in the operation of Station 45. The current seven-month, five-month distribution seems cumbersome and there may be other options in which these efficiencies can be optimized. Both agencies draw their personnel from existing staffing levels and during the period they staff Station 45, the number of coverage personnel are reduced and overtime is utilized to cover any staffing shortages that results. Gresham has chosen its staffing period in those months where the use of personal leave is lowest. PF&R redeploys Station 45 personnel to cover staffing shortages when they are not assigned to this unit.

Two options may be considered in lieu of the current arrangement. One is to divide the shift assignments (A, B, & C) between the two agencies. In this arrangement PF&R will cover two of the three shifts and Gresham will cover the third. The problem here is carryover of shifts during an incident that spans shift change. Another option is to have Portland cover the assignment full time and Gresham would pay the monetary equivalent to offset its costs. This monetary equivalent is approximately the full cost of operating one of the recommended peak-period rescue companies for the full year. If Gresham only staffs with three and Portland wanted four-person coverage, Portland could staff as it wishes and use Gresham's funds to offset the cost. Portland might add a stipulation that any structure fire in which the fourth person in the engine allows it to start firefighting immediately instead of waiting would trigger an elevated payment from Gresham or be charged to the homeowner or business owner (not used often, but it would make the point on the value of four-person units).

Recommendation 30: Establish a work group involving PF&R and Gresham Fire personnel to re-visit the staffing schedule for Station 45.

Partnerships – When compared to best practices in other jurisdictions across the nation, the adequacy of the department's mutual aid agreements and policies is one of the best TriData has reviewed. The TriData project team sees no reason to change the present configuration of agreements or protocols in this area. Instead we believe significant opportunities exist with Tualatin Valley, Clackamas County, and the City of Vancouver to expand these agreements in providing joint staffing and co-location arrangements.

The delays in building Station 21 as well as intentionally delaying the relocation of Station 18 were both timely and justified. There is significant potential and logic in pursuing greater co-location and joint operations with mutual aid partners in this southwest area. In addition, the potential exists for further expansion of co-location efforts by adding the relocation

of Station 5 into the mix, as discussed in the previous chapter. Tualatin Valley Fire & Rescue (TVF&R) has expressed an interest in entering into high-level discussions regarding the joint planning, construction, and operations of facilities in this area.

Recommendation 31: The City of Portland and the Tualatin Valley Fire Protection District should convene a "blue ribbon committee" to discuss the possibilities of jointly planning, constructing, and co-locating stations in the vicinity of the boarder area along the southwest side of the city. The city committee should be appointed by the Commissioner in charge of PF&R to give it the political leverage it needs to discuss issues and make recommendations. This same committee should also review whether or not dispatch services should also be consolidated. Both PF&R and TVF&R are progressive organizations who continually strive to deliver high quality service while insuring fire fighter safety. The timing for these discussions is ideal and the needs for service enhancements in both jurisdictions are critical. The impacts of rapid growth in these areas have compounded the urgency of these talks and the establishment of a delivery system that provides suitable coverage with minimal redundancy. TVF&R utilizes peak period rescue units in this area and this concept should be expanded throughout the PF&R system. The concept of jointly operating from a central dispatching system is essential and the addition of Tualatin Valley into BOEC will provide an opportunity to revisit Fire and EMS dispatching activities.

Port of Portland – PF&R provides services to the Port of Portland. The Port maintains its own fire department with 36 personnel primarily to respond to aircraft emergencies. They operate ARFF vehicles (aircraft fire apparatus), one structural fire engine, and a rescue vehicle. On-duty staffing at the airport is typically ten personnel. PF&R jointly responds to fire incidents on airport property. Airport personnel typically handle EMS services, however, the city often provides back-up services to them. The city provides the primary response for structural fire fighting, hazardous materials incidents, technical rescue and marine fire fighting in the Port jurisdiction. PF&R inspection service provides all new construction plans review, and biannual fire prevention inspections. Because the Port is a governmental authority, the city does not receive any property tax revenue from them. PF&R expends significant resources and provides critical services with little remuneration.

Recommendation 32: Pursue a fee for service agreement with the Port of Portland for emergency response and inspection services at the Portland International Airport and the Port of Portland. The current mutual aid agreement provides little benefit to the City of Portland. The service response exchange is overwhelmingly tilted toward the airport with little provided from the airport into the City.

There is little doubt that the airport and shipping ports are vital economic engines for the city, region and State of Oregon. However, the Port relies on the PF&R for emergency response and benefits from the city's ISO insurance rating. The city should open discussions with Port officials to address this issue to be fair.

Recommendation 33: Consider evaluating and pursuing the benefits to the City of resource partnerships and joint staffing concepts with the Port of Portland. All Port properties are located within the City of Portland and therefore are the responsibility of PF&R. While Port

Fire provides both fire and EMS service to the PF&R, they are always subject to being freed up to revert back to their primary mission which is aircraft emergencies. The primary responsibility for coverage lies with the City and PF&R, and consequently the current intergovernmental agreement should be reevaluated. The evaluation needs to examine whether or not there is an equitable exchange of resources and revenues for services provided and rendered.

TRAINING

PF&R has an exceptional training division that operates under the direction of the Division Chief of Training and Safety. The division is broken into six areas that include; Recruiting, In-service Training, Safety, Training Academy, Television Services and Firefighter Trainee Program. The Bureau operates a state-of-the-art training facility that is run from a campus setting on the north side of the city. This facility includes a burn tower, TV production studio, multiple firefighting props, extrication and confined space areas, multiple classrooms and an active fire station (Station 2).

Fire Fighter Trainee Program – The City of Portland and PF&R have made a commitment to diversity within its workforce and in the recruitment and training efforts of its fire fighters. The Bureau has established a Firefighter Trainee Program, which is designed to recruit and provide initial fire fighting and EMT skills to perspective fire fighter candidates. This program is focused on adding minority and female fire fighter candidates into the system. Trainees are paid while they learn the basic skill requirements to become a Portland firefighter. This program lasts for eight weeks. Upon successful completion of the program, individuals are placed into the Bureau's 10-month Training Program. PF&R uses a concurrent fire fighter selection process that follows the typical written testing, physical ability testing, background check and interview board to screen fire fighter candidates. Both the Trainee Program and the Fire Fighter testing process are utilized to select candidates for hire. Historically, the fire academy is run with a class of 12 students, typically half from the Trainee Program and half from the Fire Fighter testing process.

The city and its Fire Bureau should be commended for it efforts to enhance diversity within PF&R. Many agencies we study struggle with this effort and often the outcome is not as successful as what was observed in Portland. We were impressed with the commitment that the men and woman of this organization are making in insuring that its future workforce is well trained and representative of the community it serves.

Fire Fighter Training Program – The PF&R firefighter training is a ten-month comprehensive program. Its primary emphasis is the development of basic fire fighting skills. In addition, its gives a great deal of attention to developing the key organizational mission of customer service, teamwork and safety. Though most agencies utilize a one-year fire fighter probationary period, we have not encountered a full time training academy and field-training program as extensive as that utilized in Portland. The PF&R academy is composed of a 40-hour

per week basis that includes significant classroom and drill activities in both fire fighting and EMS skills. After completing the Academy, recruits are transferred to Station 2, which is an active in-service fire station. Here each recruit works for three months in developing engine company skills which is followed by an additional three months developing truck company skills. Besides drill activities, they respond on all types of emergency calls including fire and medical. Each of these segments of the curriculum is achieved while the crewmembers are assigned to Engine 2 and Truck 2.

These recruits fill permanent full-time positions on an in-service engine and truck. The recruit training occurs at one fire station, which PF&R believes provides unsurpassed consistency and continuity of training.

Officer Development – There is, at present, no required professional development training or formal college education pre-requisites for prospective candidates for the position of Company Officer. The Bureau conducts mandatory "Officer Training Sessions" each year for existing officers.. Department members have the option to attend a "Metro Fire Officers Academy", however this again is optional and not a requirement for promotion. The Bureau provides a mandatory two-week 80-hour training session for candidates passing the promotional testing and awaiting appointment. The Bureaus current labor agreement does not establish educational pre-requisites for promotion to Company Officer. The criterion includes only a time in grade requirement with PF&R.

Recommendation 34: PF&R should initiate an officer development program that specifies professional development training, formal college coursework and tactical components that is a pre-requisite for future promotions. The position of Company Officer is the cornerstone for service delivery in any fire rescue organization. The skills required of these individual are significant and require on-going training and development. We believe that a workgroup is needed to review the many aspects of this program. Under the direction of the training chief and with representation from all ranks and the Union, a plan for its design and implementation should be developed.

In-Service Training – The delivery of in-service training for the various specialty areas involved in a modern-full service fire rescue organization is a complex process. This responsibility is compounded in the Portland system primarily because of the high alarm activity at multiple stations, the limited availability of the battalion chiefs in the oversight of these activities and the amount of company inspections that are being carried out.

On-going in-service training, including multi-company drills, is essential in an emergency delivery setting. Individuals are required to function as a team and there are a number of designated roles and functions that are required to be carried out in a coordinated sequence. In addition, technology continues to evolve and new equipment and tools require initial familiarization and then on-going refresher training. Today's fire service has responsibility for a multitude of service functions. Fire and EMS make up the lion's share of these activities. Fire

training is guided by NFPA and Oregon Department of Public Safety Standards and Training recommendations. Typically this entails a minimum of 20 hours of training each month, or two hours per duty/day. EMS re-certification is prescribed by state rules and these activities typically require an additional two to three hours each month. Specialty training for hazardous materials technicians and technical rescue certification usually adds an additional 24 hours per year for each specialty. Updates for company inspection activities, water rescue training, and wildland fire fighting all contribute to the training requirements and the scheduling on the calendar. Additional State and Federal mandated requirements are also added to the mix. Recent efforts directed towards terrorism and homeland security have impacted the training requirements. In addition, local agency training objectives for workplace issues involving diversity training, FMLA, HIPPA are a few of the more notable activities that have added to the training allocations.

Scheduling of in-service activities in the Portland system is managed in a decentralized fashion. The training division coordinates most in-service fire training activities.. The availability of on duty resources is managed thru the on duty emergency response deputy chief. The EMS Section, under Emergency Operations, coordinates EMS training. EMS is a separate section from Training and Safety and is located at a different facility. The Deputy Chief in charge of EMS heads this group. The Battalion Chief in charge of Special Operations coordinates specialty training involving Hazmat and Technical Rescue technicians. This person coordinates training for these personnel and those support personnel involved with special operations.

The ability to coordinate all training activities through a central process would be nearly impossible in a system as large as the one that exists in PF&R. However, there is a definitive need to improve the coordination across the key training activities. During our interviews, there was a common expression of frustration in the ability to plan and schedule training activities. Much of this frustration was a product of not having the ability to pull active units from service in order to complete mandatory training. Another frustration was an inability to prioritize the overall training objectives of PF&R from a central coordination point.

Recommendation 35: PF&R should develop a training oversight group to look at the overall structure and responsibility for training requirements within the system. The following considerations should be included in this analysis:

- Re-evaluate the number of in-service units that should be assigned to training functions in order to carry out the necessary in-service training activities for all disciplines.
- Establish an annual and monthly allocation of training hours devoted to each of the core training requirements (fire, EMS, special operations, inspections, officer development, emergency management, mutual aid partners/joint training, etc.)
- Consider the reorganization of the Training and Safety division under Emergency Operations (Note: How will this affect the span of control for EOPS Division that is already stretched thin?)

- Consider the co-location of EMS with Training and Safety
- Establish a Training Coordinator assignment (preferable a Company Officer) on each shift (one per district/ per shift) to assist each battalion chief in the management and oversight of training activities with their district and shift. The fire liaison currently is doing a very effective job coordinating training activities and balancing it with resource management requirements. All training activities are scheduled year-round with the fire liaison.

STAFFING

The PF&R Fire Chief considers staffing to be a priority item. Throughout the wave of budget cuts that resulted in the reduction of in-service units and daily staffing levels, the Bureau has been able to maintain a minimum staffing of four personnel on engines and truck companies. Throughout most of the year a daily minimum staffing level of 160 firefighters is maintained. During the five-month period when station 45 is staffed by the City of Gresham, this number is reduced to 156.

In addressing the daily inventory of emergency events related to its stated mission, PF&R brings a full inventory of personnel and equipment to provide fire protection, emergency medical services, and other specialty emergency services for the community. Table 49 displays the daily array of personnel and equipment along with their locations and staffing patterns.

Table 49: PF&R Stations, Staffing, and Units Assigned

Station	Staffing and Units Assigned	Station Total
1	4 – Engine 1 4 – Truck 1 4 – Squad 1 1 – Deputy Chief 1	13
2	4 – Engine 2 4 – Truck 2	8
3	4 – Engine 3 4 – Truck 3	8
4	4 – Engine 4 4 – Truck 4	8
5	4 – Engine 5	4
6	4 – Engine 6 Fire Boat 6	4
8	4 – Engine 8 4 – Truck 8	8
9	4 – Engine 9	4
10	4 – Engine 10	4
11	4 – Engine 11	4
12	4 – Engine 12	4
13	4 – Engine 13 4 – Truck 13	8

Station	Staffing and Units Assigned	Station Total
14	4 – Engine 14	4
15	4 – Engine 15	4
16	4 – Engine 16	4
17	4 – Engine 17 Fire Boat 17	4
18	4 – Engine 18	4
19	4 – Engine 19	4
20	4 – Engine 20	4
22	4 – Engine 22 4 – Truck 22	8
23	4 – Engine 23 1 – Battalion Chief 4	5
24	4 – Engine 24 1 – Battalion Chief 2	5
25	4 – Engine 25 4 – Truck 25	8
26	4 – Engine 26	4
28	4 – Engine 28	4
41	4 – Engine 41 4 – Truck 41 Hazmat 41 1 – Battalion Chief 3	9
42	4 – Engine 42	4
43	4 – Engine 43	4
45	4 –Engine 45*	4
Total Minimum Daily Staffing		**160**

*S–45 staffed with PF&R personnel 7 months/yr

At present, the Department is meeting the staffing levels for engine and ladder companies set out in the standard NFPA 1710, *Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*. NFPA 1710 specifically states:

"**5.2.2.1** Fire companies whose primary functions are to pump and deliver water and perform basic fire fighting at fires, including search and rescue…"

"**5.2.2.1.1** These companies shall be staffed with a minimum of four on-duty personnel."

"**5.2.2.2** Fire companies whose primary functions are to perform a variety of services associated with truck work, such as forcible entry, ventilation search and rescue, aerial operations for water delivery and rescue, utility control, illumination, overhaul, and salvage work…"

"**5.2.2.2.1** These companies shall be staffed with a minimum of four on-duty personnel."

As stated in the previous section of this chapter, we have identified a number of units that respond to nearly 3,000 incidents each year. Our recommendation was to approach this high call volume from two perspectives. First; we suggested ways to reduce response activities of these units by altering unit assignments. Second; we recommend increasing the number of responding units available to handle service demand. The following is a summary of these recommendations:

- Reduce the number of engines assigned to box alarms for residential structure fires (excluding hire rise or target hazards).
- Reduce the number of battalion chiefs responding to residential box alarms.
- Re-assign Hazmat 41 to a slower station to reduce call volume and service requirements for the crew members at Station 4 (in light of their extra Hazmat training).
- Add 4-peak period 2-person rescue companies.
- Hold high level discussions with Tualatin Valley Fire District for the co-location and joint operation of multiple units on the west side of the city. These talks should include the location of proposed Station 21 and the relocation of Stations 5 and 18.
- Take a comprehensive look at the current call screening process at the alarm center. There is potential to reduce the number of EMS responses for PF&R units on the basis of the severity of the call. For less severe cases, only an AMR unit can be assigned to respond.

Recommendation 36: No changes should be made regarding the current staffing of four personnel on engines and trucks. The practice of using four-person staffing for engine and truck companies is sound for Portland's situation. However, the city should look at the addition of 2-person rescue units and the addition of peak-period units to handle excessive call volumes and to provide coverage units to facilitate in-service training and company inspection activities.

Staffing Coverage Factor – Another point for consideration is to identify the actual number of people it takes to staff the emergency vehicles 24 hours a day, seven days a week. This is typically called a staffing factor or coverage factor and acknowledges that each individual will be off for vacation, sick, Kelly-Relief, Family and Medical Leave Act (FMLA), worker's compensation, etc., for some portion of their regular duty hours. PF&R currently has 78 personnel assigned to a Kelly-Relief-Travelers pool. This equates to approximately 26 personnel assigned to each shift to cover absences for the 160 assigned positions. This relief pool is managed from Battalion Headquarters (Station 1) and operates on a five day a week schedule. There is an administrative staff assigned solely for this function. On weekends and holidays this activity is managed by the on-duty Deputy Chief. The concept is to pre-schedule personnel from a central pool to vacancies that are both scheduled and unscheduled. Scheduled time off (vacation, FMLA, Kelly-Relief, workers compensation, etc.) is pre assigned prior to the duty day. Last minute vacancies, (primarily sick leave) are done at the time the absence becomes known (usually when individual calls in sick or is injured during the duty day). When the number of vacancies on a given day exceeds the available people in the pool, overtime is utilized

to cover the shortage. In order to constantly staff an engine or truck with four people on three shifts typically requires 15 people (12 assigned and three coverage).

An example of how to compute the staffing factor is illustrated in Table 50. This analysis was prepared for Arlington County, Virginia, which has 56-hour workweek; the computations have been adjusted to reflect PF&R's 53-hour work schedule. However, the items marked in bold italics will need to be calculated based on historical leave usage in PF&R.

Table 50: Illustration of Staffing Factor Calculation (Arlington County, VA)

A	Number of Days in a Year	365
B	Number of Hours in a Day	24
C	Number of Hours in a Year (A X B)	8,760
D	Number of Shifts	3
E	Number of Hours of Scheduled per year (53 X52)	2,756
F	Less: Average Number of Hours of Leave Consumed Per Year	***-513***
G	Number of Available Hours per Employee per Year (E – F)	2,243
H	Staffing Factor (E / G)	1.23
I	Number of Employees Needed per Position for 24/7 Staffing (H X D)	3.68

Applying Arlington's staffing factor to the PF&R minimum staffing requirement of 160 indicates that 589 personnel are needed to cover the 160 positions (3.68 *x* 160 = 589). Since the number of operational personnel currently assigned to shift duty in PF&R is 558, this would indicate a shortage of 31 employees. As indicated above, this is an example that utilizes leave time that was calculated for Arlington County, not Portland. To develop a staffing factor for PF&R the historical use of leave time for Bureau employees must be utilized in Line F. When additional units are placed in service, the funds to support the constant staffing of that unit should be included. Using the above numbers as a gauge, that would mean adding an additional 4-person engine company would require hiring 15 people (actually 14.72 but for staffing purposes, should be rounded up to the next whole number). This type of analysis should be done on a regular basis, and particularly when staffing levels or leave and benefits change.

Recommendation 37: The Department should establish a staffing factor to determine the number of employees required to maintain constant staffing. This staffing factor should be utilized in the funding and hiring processes. This analysis should include the leave experience of the PF&R to determine the average numbers of hour's operational personnel are not available to staff emergency apparatus. The purpose is to keep a lid on overtime. If more bodies are needed daily, having a larger pool not only reduces overtime but also provides more people to handle major emergencies or disasters.

EMERGENCY MANAGEMENT

The Portland Office of Emergency Management (POEM) is a stand alone office reporting directly to the Mayor. At the time of our site visit the Fire Chief was assigned as the interim Director for POEM and a PF&R Deputy Chief was on assignment as the interim POEM Manager

pending a national search that was nearing completion. The new Director was to be selected in February 2006.

Multnomah County also has an EM office although at the time of our visit there were no full-time personnel dedicated to this function. Portland's office (POEM) is viewed as the primary coordinator for EM operations in the region as they also support activities within Clackamas, Columbia, Clark County WA, and the City of Portland.

POEM has been doing a lot of NIMS compliance training citywide. PF&R presently details to POEM one Captain and one Lieutenant, while the Portland Police Bureau details one Lieutenant and one Sergeant. In addition to the detailed police and fire officers, POEM has six other civilian staff positions. PF&R believes and TriData agrees that POEM is short at least one FTE for planning based on the exceptionally high workload taken on in administering grants for the City and UASI region. Most of the POEM civilian positions are funded through grants. This fact has led to a large amount of turn-over in these positions. Overall the complement of personnel assigned to POEM is excellent compared to other cities that have very lean staffing. The Portland EOC is located at the BOEC, 9911 SE 99th Street

Participation among various city agencies in emergency management activities has been fair overall, although it is getting better since the Mayor mandated that city agencies actively participate in EOC drills. A major TOPOFF exercise is scheduled for the Portland area in early 2007 and the Mayor has directed all city agencies to participate fully in preparation for this event.

While POEM is expected to continue as an office under the Mayor, PF&R is still expected to be a major contributor to the planning and a primary contributing agency for its operation. In addition to providing significant expertise for organizational development (NIMS/ICS), PF&R takes the lead in the design of training activities, and the system planning for responding to major emergencies. Many of the staff positions within the EOC when activated are held by PF&R personnel.

PF&R has played a major role in emergency preparedness and mitigation for the city. The Bureau has established good relations with many public safety organizations in the metropolitan area as a result of the coordination role it has provided for homeland security grant programs. Those relationships remain strong and are continuing to prove beneficial to the larger Portland region today. Joint training, drills, mass causality incidents, and emergency planning typically emanate from PF&R efforts, and the Bureau is a leader as well as a participant in these activities.

Emergency Management has four primary functions:

- ***Mitigation:*** Is prevention-oriented to eliminate or reduce the degree of long-term risk to human life and property from natural and man-made hazards. Public education,

building/safety codes, litigation, and disaster insurance are important components for the city.

- ***Preparedness:*** Being prepared ahead of time for disasters. Development and exercise of emergency response plans/systems, creations of mutual aid agreements, and training of personnel are all part of the fire departments activities.
- ***Response:*** Actions taken immediately before, during and after an emergency occurs to save lives, minimize damage to property, and enhance the effectiveness of recovery. Depending on the scale of emergency the Emergency Operations Center may open, search and rescue missions begin, evacuation and shelter of victims, and emergency medical operations are at the core of the fire departments mission.
- ***Recovery:*** Activities to return life to normal or improved levels after a disaster. There is a need to assess damage, provide crisis counseling, have available temporary housing, and develop plans for reconstruction.

PF&R serves an important leadership role in all four of these primary functions and does an outstanding job. In fact, it is the project team's opinion that many other jurisdictions nationally could model their EM programs after PF&R.

In the event of a disaster, public safety becomes the primary focus for the city with police and fire leading that effort. PF&R is well prepared to serve the community in the event of a disaster. Additionally the Bureau has formed partnerships with community organizations and businesses for added value to the community in the event of a disaster.

Though officially, POEM operates under the direction of the Mayor, the day-to-day management and planning efforts are more suitable as a responsibility of the city's public safety officials. The Mayor has recognized the need for committed participation of all City Bureaus in the emergency preparedness efforts; however this is a line function that needs to be managed by PF&R. Many agencies have chosen to place emergency management efforts under a public safety agency like police or fire. However during major emergencies, these functions and their support networks move under the direct authority and oversight of the Chief Elected Official. We believe this would be a more appropriate design for the City of Portland.

Recommendation 38: Reorganize POEM so that it is a Division under PF&R and is managed as part of the Bureau. The Bureau has the expertise and staffing necessary to operate this function during emergency and non-emergency settings. Strong working relationships are needed between the POEM Director, the Fire Chief, the Police Chief and the Mayor. Coordination with other EM offices in Multnomah County and adjacent communities is important to assure a viable and effective emergency management operation. Secure and sufficient funding for equipment and permanently assigned personnel are necessary in insuring a viable outcome.

Special Needs – The responsibility to manage the impacts of a disaster on the general population is a primary responsibility for emergency management officials. The care of individuals who are infirmed, non-ambulatory or require some type of medical assistance or support is often termed "Special Needs," and were afforded special considerations during

disaster events. In recent disasters that have impacted metropolitan areas, there has been a broadening of the term "Special Needs" populations. In these recent events we have witnessed an expansion of the special needs group to go to expand beyond those individuals requiring medical support to also include homeless individuals. The dependence of these individuals on the support networks has required a re-evaluation of the concepts of sheltering, transportation, feeding, medical oversight and security.

Given the number of homeless individuals and their concentration in the downtown areas, it is essential that disaster management plans re-visit the needs of these indigent populations and the added resources that will be required in their oversight.

Emergency Operations Center – The Emergency Operations Center (EOC) is located at the BOEC facility. Part of the EOC is a shared facility that when not functioning as an EOC is utilized as a large conference/training area. This configuration provides ample space and capacity to serve in this vital function when needed. However, with multiple rooms on separate floors causes operational difficulties in coordinating the EOC sections. The duel use concept places some constraints with regard to set-up time, the availability of sufficient break-out rooms and limited space for a media briefing area. In the event of a disaster in the Portland area, with extensive impacts, requiring long term activation of an EOC, we anticipate problems arising in the current facility. An emergency communications center and EOC are essential components during a disaster. These hubs require additional support and become active centers during such events. The current facility will have difficulties in managing both functions during a wide scale and extended operation. In addition, the centers location on the east side away from the central offices of the Mayor, Police and Fire Bureaus may also create logistical concerns when the facility is operational.

Recommendation 39: The City of Portland and Multnomah County should initiate an effort to jointly construct and operate an EOC facility to serve the Portland metropolitan area. The Portland metropolitan area, including Multnomah County should operate from a dedicated facility designed specifically as an EOC. The features of this type of facility are unique and specifically designed to manage information transfer and facilitate decision making among the various elements that are operational in an urban setting. The potential for a disaster and the large population that would be impacted would justify the expenditure that would be needed. The city and county have taken a very fiscally conservative approach in addressing this need. The financial constraints that have impacted these governments have necessitated the option to co-utilize this facility and make due with the current situation. When a new EOC is constructed, the existing facility at BOEC can serve as an alternate site in the event that the primary EOC becomes inoperable or additional space is needed in the recovery effort.

HAZARDOUS MATERIALS & TECHNICAL RESCUE RESPONSE

Hazmat – PF&R has a comprehensive Hazmat team configuration that is charged with protecting perhaps the most extensive concentration of hazardous materials storage, shipping and manufacturing facilities in the State of Oregon. The Hazmat unit is housed at Station 41 and is

cross-staffed with personnel jointly assigned to either Engine 41 or Truck 41. Station 41 is one of the busiest stations in the PF&R system. The addition of Hazmat responsibilities in this location should be evaluated. Hazmat requires significant training and equipment maintenance. These added responsibilities are in addition to the normal call activities, training and company inspections handled from this location

Recommendation 40: PF&R should consider the relocation of Hazmat operations to a station with less call volume then Station 41. Under the terms of the current labor agreement, individuals who are assigned to these units and have completed the necessary training requirements, receive a six percent assignment pay. A minimum of six trained technicians are maintained on-duty at all times. Much of the Hazmat call volume is attributable to the widely distributed industrial areas throughout the city. The extensive transportation systems in the area which includes the rail system, interstate highway systems and the international shipping port all contribute to the level of exposure that exists in the city.

PF&R supports a Regional Hazmat team, which is funded in part by the State of Oregon. Consequently, PF&R is responsible for a large geographic area outside its service boundaries. PF&R responds to approximately 1800 Hazmat incidents each year or approximately 5 Hazmat calls each day. Hazmat teams are also operated in the neighboring communities including City of Gresham, Tualatin Valley and Clackamas County. PF&R does not bill for Hazmat response in either the City or into mutual aid communities. Recent federal transporting, storage and manufacturing guidelines have required vendors involved in these activities to carry specific insurance to fund the proper clean-up when accidents occur. The city would be eligible for these reimbursements which typically include both personnel costs and operating expenses.

Recommendation 41: PF&R should institute a Hazmat response fee that charges all vendors, transporters and manufactures for response and clean-up costs associated with these services. Typically an ordinance authorizing the establishment of fee structure for both personnel and equipment is recommended. The State of Oregon currently collects fees for load/rail transport and when the Hazmat Team submits reimbursement from responsible party through the State Fire Marshal's office.

Technical and Marine Rescue – Technical rescue which includes rope and confined space rescue involves accessing and rescuing individuals down cliffs, bridges, in building collapses, heavy machinery accidents, tunnels, sewers, underwater or swift water rescue, or any other type of unusual or complex rescue that can occur in an urban or wilderness setting. Squad 1 is the technical rescue unit for PF&R and is housed at Station 1. Squad 1 operates in conjunction with Engine 1 and Truck 1 in providing these services throughout the city. A minimum of four people are assigned to Squad 1 on a daily basis. All technical rescue personnel are cross-staffed in both firefighting and technical rescue skills. Basic skills training for technical rescue includes: High-Angle Rope, Confined Space, Trench, Structure Collapse, Dive and Urban Search and Rescue. A minimum of 10 trained technicians are maintained on-duty at all times at Station 1. Assigned individuals must have completed the necessary training requirements. Most of the

technical rescue activities in the city involve water rescues and drowning. On average, the Bureau responds to approximately 180 of these incidents each year.

Equally skilled are PF&R's marine fire fighters. Marine firefighting involves the marine rescue and firefighting from centers primarily along the Columbia and Willamette Rivers. Two fireboats are operated by PF&R, and these crafts are stationed at Fire Stations 17 and 6. Station 24 is the land-based marine firefighting company. With the large volume of watercraft and shipping interests in these river areas, the potential for shipboard fires, water rescues and fires in structures with limited access due to their proximity to the shoreline is high. Fireboats are staffed with crewmembers that are crossed-trained in both land-based structural firefighting and shipboard marine operations. Special Pilot licenses are required for operators of marine fireboats depending on the size of the craft being operated. PF&R provides marine support to the City of Vancouver, Washington as part of their mutual aid agreement.

The Battalion Chief of Special Operations is in charge of the Technical rescue programs for the City. In addition to these programs, his oversight includes many of the specialty services provided by PF&R. These include:

- High Rise Firefighting
- Bulk Petroleum Firefighting/Foam Operations
- Air Operations for: High Rise, Wildland and Specialty Rescue
- Terrorist Events: CBRNE & WMD
- Specialty Rescue: Hazmat, Dive Team, Rope, Trench, Confined Space & SERT
- Firefighter Occupational Safety: SCBA's RIT Air Management
- Marine Firefighting
- Environmental Hazard Mitigation/Management
- Event Planning and Coordination
- Grants Administration/Management
- PF&R Liaison

A Hazardous Materials Coordinator supports the Special Operations Chief. This function is under the supervision of the Division Chief of EOPS. At the time of our site visit, the role of the Special Operations Chief was being re-evaluated. Recent promotions and reassignments, along with a de-emphasis of grants management responsibilities associated with this role, were impacting the future assignment of duties under this position.

Recommendation 42: Special Operations should be considered as a part of Emergency Management and placed under the Portland Office of Emergency Management (POEM). Our earlier recommendation suggested the assignment of POEM functions under the supervision of the Fire Chief and made part of PF&R. In this alignment, Special Operations has a natural fit under emergency management. If POEM is maintained as an office under the direction of the Mayor, it would not be advisable to place Special Operations duties under this authority.

Special Operations involves a number of critical and highly visible field operations. These functions will continue to grow in importance in the future. The City of Portland and PF&R, out of necessity must maintain oversight in these key service responsibilities for the greater metropolitan area. Hazardous materials response, technical rescue, CBRNE/WMD, marine firefighting, high rise firefighting and inter-agency interactions will continue to grow both from a planning perspective and in the management of emergency scene operations. This type of organization requires on-going planning and oversights that exceeds the capacity of one individual who is under the supervision of Chief of EOPS. In addition, the alignment of Emergency Management with day-to-day field responsibilities more closely aligns this office with EOPS and we think will offer a better option in the management of the multitude of functions required in today's fire service.