Management Review of the Pawtucket Fire Department

Submitted to

Director of Administration
City of Pawtucket
Pawtucket, Rhode Island

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Executive Summary

The Pawtucket Fire Department is at a point where significant changes should be made and new approaches should be adopted. The Department does a good job of providing basic fire suppression and emergency medical services, including ambulance transportation, to a very compact and crowded community. It is limited, however, in its ability to conduct effective fire prevention and public education programs. Budget constraints have made it very difficult to adopt the most modern concepts of public protection services.

Pawtucket is a very densely populated community, which contains many high risk occupancies. The threat of major fires is always present and the Fire Department has been oriented to provide rapid response with a capable fire suppression force to control or limit the spread of fires. With mutual aid resources readily available, Pawtucket has access to as much equipment and as many firefighters as most metropolitan cities, with response times in the same range as a major city would enjoy. As a result, the fire suppression role of the Pawtucket Fire Department has been to provide a capable initial attack force to save lives and control rapidly spreading fires that could threaten multiple buildings. Mutual aid provides the capability to handle major fires.

Pawtucket has good and capable firefighters, who have had many opportunities to learn by experience. They appear to be successful, largely as a result of this practical experience, and they are reasonably well equipped to do this part of their job.

While the Department appears to be good at fighting fires, it does not appear to have placed as much emphasis on preventing fires or on educating the public to reduce the risk of fires. Fire prevention has taken a secondary role to suppression within the Department's mission, although the individuals assigned to prevention and public education appear to be capable and enthusiastic. The State Fire Code does not

empower the City to enact stringent measures to reduce the level of fire risk and the Department has not been inclined to push for reductions in fire risk, particularly where they would cause major expense or inconvenience to the taxpayers. Where codes have been enforced, there have been negative repercussions.

The most significant advance in fire protection has been the adoption of a mandatory smoke alarm requirement in residential occupancies. The enforcement of this State of Rhode Island law has had a positive impact on reducing residential fire deaths and injuries.

Even with limited legal authority to reduce risks, it appears that the Pawtucket Fire Department could take a more aggressive approach to risk reduction and public education, particularly by involving the fire suppression companies in a wider variety of prevention related activities. The Fire Prevention and Public Education area should become equally as important as fire suppression in the future of the Department.

The Pawtucket Fire Department expanded its role to include emergency medical service during the 1970s, at a time when the role of the fire service was moving into the area all across North America. Fire suppression personnel were reassigned to operate one and subsequently a second ambulance to serve Pawtucket. These two units have become very busy, as the added service has become the most frequently called-up activity of the Department. The Department has adopted some of the latest technology, including automatic defibrillators, and can provide very good intermediate life support services when necessary.

While it is the most frequently used service, EMS has been viewed as a secondary activity, assigned to the most junior members of the Department to provide. While all companies and all members are involved in responding to medical incidents, very few members actually appear to become involved in providing medical assistance in most

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situations. The level of coordination between the local medical community and the Fire Department is an additional cause for concern.

Emergency Medical Service is provided free of charge, without any charge to the patient for the treatment or ambulance service. This policy disregards a significant potential source of revenue from third party payers; many users have insurance coverage that includes authorized payments for ambulance service. A billing policy to address this revenue source could provide a significant revenue stream to improve training and equipment.

The Pawtucket Fire Department is showing the effects of several years of operating with very limited budgets. The lack of funds to replace apparatus on a timely basis, and the increasing wear and tear that comes with providing emergency medical service, resulted in a crisis situation in which emergency expenditures were necessary to replace worn out and unreliable vehicles. The fleet is now in relatively good condition, but it will be necessary to maintain a regular replacement cycle to avoid similar problems in the future.

The area of most immediate concern is the communications system. The existing radio system is inadequate and at the point of failure – it is dangerous to the citizens and particularly to the firefighters. The radio system should have been improved years ago, but it appears that the lack of funds caused needs to go unmet and expenditures to be made on the basis of low cost over necessary performance. The system needs immediate attention and will require significant expenditures on a high priority basis.

Many other aspects of the Pawtucket Fire Department show the effects of the continuing budget shortages. Two of the fire stations are in extremely poor condition and must be rehabilitated or replaced. All of the stations need improvements to meet health and safety standards and all of them display the evidence of deferred maintenance. A plan for replacing and upgrading stations is recommended in this study.

The Department is lacking in office space and equipment. The training program barely meets minimum requirements and lacks appropriate classroom and drill yard areas. The Hazardous Materials Officer is using his own supplies and equipment to train members of the Department to the minimum legally mandated levels and relies upon the good will of industries and organizations in the area to support his functions. The space provided for apparatus maintenance is inadequate.

Many of these problems are not unusual in a small fire department. It is extremely difficult for a small city to fund and provide all of the support functions that are necessary to operate a full service fire department. There are several advantages to be gained through sharing and cooperation with neighboring jurisdictions. Options such as combined communications centers, shared maintenance facilities, regional training centers, joint purchasing and procurement systems and interagency hazardous materials teams have all been implemented successfully in different areas and should be seriously considered for Pawtucket.

Chapter 1 – Introduction

In 1992 the City of Pawtucket decided to undertake management reviews of all City departments. TriData Corporation of Arlington, Virginia was selected to review the Police and Fire Departments. This report specifically addresses the Pawtucket Fire Department. (The Police Department is addressed in a separate companion study.)

The charge given to the study team was to:

- Assess the adequacy of the level of service being rendered relative to other communities.

- Determine whether the level of resources in terms of people, equipment, and capital plant is appropriate for the level of service.

- Recommend areas for improved cost effectiveness and efficiency from the citizen's viewpoint, and improved working conditions, morale, and the quality of work life from the employee's point of view.

Methodology

A team of experienced management consultants in fire and emergency medical services interviewed most of the senior officers in the Fire Department, observed field operations, interviewed union leadership, interviewed officers and members of the Fire Department; reviewed annual reports, contracts, and other documentation from the Department; and had some special studies run.

The members of the Departments were instructed by City management to be candid and cooperative, and they were. The study team received outstanding

cooperation up and down the line. Much was accomplished in a short time, resulting in a significant financial saving to the City on the cost of the study as a result of the outstanding cooperation that was received.

The remainder of this report addresses the findings and recommendations for the Fire Department.

Each chapter deals with a different major function in the Fire Department; Operations, Communications, Fire Prevention, and Support Services. Communications is handled as a separate chapter due to current major concerns that should be addressed without delay.

The general format for each chapter is to start with a description of the level of resources and the functions being undertaken, and then to identify the strengths that should be maintained and the areas needing improvement. Detailed recommendations are provided as part of each chapter.

Management Issues

At the time of the study, the Pawtucket Fire Department had been directed by an Acting Fire Chief for approximately one year, due to the illness of the Fire Chief. The Assistant Fire Chief had been acting as the Fire Chief and a Battalion Chief had been acting as the Assistant Fire Chief for the extended period. The retirement of the Fire Chief was anticipated and preparations were being made for a competitive promotional process.

This a long period for an organization to go without firm leadership. It was evident that some important decisions had been made, but others had been deferred in anticipation of new leadership. The situation was understandable under the circumstances – when an issued became critical it had to be resolved; if it was not

critical it could wait. The situation could truly be described as a combination of crisis management and business as usual.

The Department is in need of leadership to set a direction and pace for instituting significant changes. The orientation needs to be changed to institute more modern principles of management throughout the Department. The balance between fire prevention and fire suppression should be adjusted, and the identification of emergency medical services as part of the central mission of the Department should be affirmed. Support functions, including training, maintenance, and particularly communications need to be upgraded.

The Department appears to have capable and dedicated members who can implement this type of change, if the leadership and empowerment are provided. This can come partly from the appointment of a new Fire Chief and partly from the positive support of the City's Administration. Some traditional values may have to be sacrificed and some discomfort may be involved, at least temporarily. The City may have to make a commitment to spend some additional funds to facilitate positive changes, and to support the development and retention of capable leaders for the Department.

One of the most important concerns should be for the development of management and leadership skills for the present and future leaders of the Department. It appears that only a few individuals have any interest in advancing to management positions. More members need to attend classes outside the Department, particularly at the National Fire Academy, to develop the necessary skills and to be exposed to new ideas from other fire departments. The recommendations contained in the body of this report are primarily directed toward improving the operations of the Pawtucket Fire Department. The development of skilled managers and leaders for the future should be an equally important objective.

Regionalism

The operating environment for public fire departments has become extremely complex, particularly due to external regulatory pressures and increasing technical demands. It is very difficult for small fire departments to satisfy all of the requirements that have become essential activities; it takes just as much organizational support to operate a small department as a large one. The most practical approach to manage this overhead burden is to share resources with other jurisdictions. One hazardous materials training program can be delivered to 500 firefighters much more efficiently than developing a special class for 150 firefighters. A purchasing system that buys 200 sets of protective clothing at a time can usually obtain a better price than a department buying 20 sets. A standard operating procedures manual that coordinates operations among 10 fire departments is much more efficient than 10 different manuals.

Pawtucket is in an area where several small to medium sized fire departments have the opportunity to work together in this manner. Central Falls is a natural partner for Pawtucket in several respects, particularly due to the geographic relationship between the two cities. It would be possible to combine the dispatch and communications systems for Pawtucket and Central Falls and to operate the two departments without regard to boundary lines, as a first step to this type of arrangement; there would be cost savings and operational advantages for both departments. This overall approach should be explored for the future.

Chapter 2 -- Operations

The Pawtucket Fire Department operates six engine companies, two truck companies, and two rescue units, to provide fire suppression and basic life support medical services. The normal on-duty staffing level is 31, which includes three members on engine and truck companies (3 X 8), two on each rescue unit (2 X 2), two dispatchers, and a battalion chief.

There are four platoons, each on duty an average of 42 hours per week. Each platoon works two 10-hour day shifts (8 a.m. to 6 p.m.) followed by two 14-hour night shifts (6 p.m. to 8 a.m.), then four days off, which is the standard schedule in Rhode Island. The only personnel not working these shifts are the Fire Chief, Assistant Chief, Training Officer, and the Fire Prevention Bureau staff. (The Fire Chief works a 40-hour, five day week; the others work four 10-hour days each week.)

A Battalion Chief is in charge of each platoon. The Battalion Chief acts as a shift commander and also as incident commander for most fires. Because of the compact geography of Pawtucket, the Battalion Chief has rapid access to all parts of the City and usually arrives within two minutes after the first arriving company. The Assistant Chief and Fire Chief respond to higher alarms. The Assistant Chief usually becomes the Incident Commander and the Battalion Chief assumes the role of Operations Officer.

An officer and two or three firefighters are assigned to most engine and truck companies, though they normally operate with three members on duty. (It was said that perhaps one week a year a company has four members on duty.) Most days, there are insufficient members available from the platoon on duty to staff each company with three and so overtime is used to meet the minimum requirement of 31 on duty. Because overtime is paid at time and one half and benefits are close to 50 percent, there is close

to a wash between using overtime and hiring additional firefighters to reduce the amount of overtime.

Each company is under the command of a Captain who works directly on one of the four platoons. Lieutenants are assigned to the other three platoons. The Captain is in overall charge of the company.[1] The Captains are distributed so that two are on duty on each platoon, city wide.

All personnel assignments are made through a bidding system based upon seniority. New firefighters are expected to start as dispatchers, then move up to rescue units as vacancies occur, and then move on to fill vacancies on engine or ladder companies. Members have the option to stay at a particular level if they so choose; that is, a firefighter could remain as a dispatcher or stay on a rescue unit -- they do not have to move up. The Fire Chief cannot require an individual to move up or even control the assignment of an individual to a particular company and shift.

Risk Profile

The City of Pawtucket has 8.9 square miles and a population of approximately 72,000. Virtually all of Pawtucket is built up; there are no major areas left for expansion except for the industrial park on the former site of Narraganesett Race Track. There are several large tracts of old industrial, properties that could be redeveloped. The City has an ISO rating of two as of 1985.

Pawtucket has very high population density (approximately 8,000 per square mile) with very significant fire risk in many areas of the City, including several complexes of old mill construction buildings, some of which are vacant and some of which have been

[1] The Captain positions were recently established to place a senior officer in charge of each company as opposed to having four "equal" lieutenants.

subdivided into multiple use occupancies. There are many multi-story, commercial, institutional, and residential buildings. Much of the City, especially the central portion consists of "triple-decker," three-story, wood frame residences. The northeast has most of the newer, one-story structures. There are no very tall buildings, but many over three stories, both residential and commercial.

Many of the streets are very narrow and structures are closely built, creating some very difficult access problems and risk of multiple structure fires.

The extensive overhead power lines are a problem for ladder operations, especially on residential streets. Tactics call for one or two aerial ladders to be used at working fires, rather than ground ladders. (Two weeks before this study started, one of the top rungs of a ladder was melted when it came in contact with an electrical wire.)

The City is split into two halves by the Pawtucket River and again by Interstate 95. The City also is traversed by railroad tracks that further limit east-west travel to a few major streets. There are several bridges across the river and highway, providing good access from one side of the City to the other on the major streets. The Department has three stations on each side of the City to provide rapid access to each side of the City. Because of the dimensions of the City are relatively small, all of the companies can respond to virtually any part of the City in five to six minutes, which would be considered a respectable response time in most other cities.

Response Strategy – A typical response to a structural fire in Pawtucket is three engines, one ladder and a Battalion Chief, for a total of 13 personnel. Certain target hazards are identified as requiring four engines and both ladders on the initial assignment. If the situation is declared "code red," meaning there definitely is a working fire, a rescue unit and an additional engine are dispatched immediately.

Response times for first-in units typically range from one to three minutes, with a second unit seldom more than two minutes behind the first. The second-in engine company is expected to provide water supply while the first-in engine initiates a fire attack using its tank water. The engine companies are set up to lay two supply lines, one three-inch and one 2 1/2-inch.

When there is a "code red" working fire, the city is left with two three-person engine companies, one ladder and one rescue to respond to a second fire or serious accident. A second alarm brings an additional engine and ladder plus at least one off-duty Battalion Chief. Mutual aid is then called to cover Pawtucket stations and to provide any additional resources that are needed at the scene of the fire.

An off-duty lieutenant and two firefighters can be called back to staff an additional company if a fire appears likely to last more than an hour, or if there are multiple calls. Mutual aid is usually used before call-backs are invoked because it is readily available, with rapid response times (see below). Call-backs require at least four hours pay at a time and a half.

Mutual Aid

Pawtucket is fortunate that it is surrounded on all sides by nearby fire stations in adjacent communities. These include Providence, East Providence, North Providence, and Central Falls in Rhode Island and Attleboro and Seekonk in Massachusetts. Response times for the closest mutual aid companies are reported to be under five minutes, which is very good for mutual aid. Up to 20 companies could potentially respond within 10 minutes.

The agreement with surrounding communities is that if a mutual aid unit has to be in Pawtucket for more than one hour, Pawtucket pays them time and a half to compensate the responding community for recalls. The union contract in Pawtucket

requires the City to call back an equal number of off-duty firefighters if Pawtucket provides mutual aid or receives mutual aid for over an hour.

Emergency Medical Services

The two rescue units operate primarily as ambulances, providing an intermediate level of medical treatment. The treatment level is higher than Basic Life Support, but not full Advanced Life Support (Paramedic) level. The members assigned to the rescue units do not perform firefighting duties; they are dispatched to fires only for medical assistance standby. Engine companies operate as first-responders, accompanying the rescues on most medical calls. The types of EMS calls which require an engine response are defined by policy. The engines often provide a firefighter to drive the rescue unit when a patient is transported to the hospital, so that both rescue personnel can ride with the patient. The engine company typically follows the rescue unit to the hospital to retrieve its member.

All Pawtucket firefighters are required to have at least basic Emergency Medical Technician (EMT) certification before being hired. Within one year they are expected to obtain an EMT-C rating, which allows an individual to provide IV therapy, inject certain drugs, and undertake cardiac intervention with automatic defibrillation equipment as well as performing CPR.[2] An unusual contract rule allows firefighters with more than eight years on the job to drop their EMT rating, and maintain only a first-responder certification. Most communities are going in the opposite direction and requiring higher certification levels. Presumably, this is viewed as desirable by the work force because it prevents older members from being assigned to the rescue units, which are seen as less desirable assignments than the engine or ladder companies.

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[2] Pawtucket was described as being high in cardiac patients per 1,000 population in a late 1970's study, and is thought to still be of that nature. It was second only to cities in Florida at that time. The population includes a high percentage of retired persons.

EMT treatment is authorized under standing protocols and does not require contact with or specific authorization from a physician. Pawtucket has chosen not to carry some of the controlled drugs, because of the issue of maintaining security over controlled substances. Some neighboring departments provide paramedic-level service (Advanced Life Support) which requires additional training. The decision to provide only BLS service (with automatic defibrillation) is based on the fast response times and short transport distance to the hospital. Most patients go to Memorial hospital, which is only three to five minutes travel time from most locations in Pawtucket.

The Pawtucket Fire Department does not charge patients (or their insurance) for ambulance transportation or treatment. Most fire departments that provide ambulance service charge a fee for transporting patients, and some also charge for pre-hospital treatment. This fee can be a significant source of revenue, since most medical insurance policies and programs, including Medicare and Medicaid, include an allowance for ambulance service. In some cases the third party payers will cover a fixed amount for ambulance transportation, while in other cases they reimburse the patient at a fixed percentage of the total charge.[3] A fee for service system must recognize that a portion of the users will not be able to pay for ambulance service and anticipate a percentage of uncollectible billings.

The EMS program is coordinated by a Battalion Chief as a voluntary, ancillary duty. This assignment involves interacting with the medical community and with the Regional Coordinating Committee, as well as maintaining quality control over EMS service delivery, ordering supplies, and ensuring that training requirements are met.

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[3] Several strategies are possible for the introduction of an ambulance service charge. Some Fire Departments have made arrangements with hospitals to have the ambulance bill added to the patient's bill. Subscription programs also have been used in some areas; inviting families to purchase an annual subscription for ambulance service for a nominal fee. Payment of the subscription fee covers any "out of pocket" expenses for family members for the year, even if the family has no medical insurance covering ambulance service. The subscriber is asked to provide the details of insurance coverage when subscribing, so that a direct bill can be sent to the third party payer to collect the covered portion.

Discussions with an emergency room physician and staff, and with the Battalion Chief/EMS Coordinator, indicate a significant disagreement between the medical community and the Fire Department on how well the program operates. Rhode Island is unusual in not requiring coordination between a physician medical director and the fire departments that deliver EMS. The State Department of Health Services establishes the rules and regulations. Local hospital-based physicians appear to have very little control over the practice of EMTs and EMT-Cs in the field. This arrangement appears to invite potential conflicts and miscoordination with the emergency medical community.

The medical staff interviewed said that some rescue personnel provide superb service, while others are less than satisfactory. They expressed concern that they have very little opportunity to stimulate or even encourage improvements in the deficient areas, and that in their view the Pawtucket Fire Department does not appear to have a strong interest in improving performance or service levels. The Fire Department in turn appears to have little concern for the opinions of the medical community. The relationship does not appear to be healthy or to inspire confidence that the system works as well as it should.

The organizational attitude of the Pawtucket Fire Department appears to be that EMS is a necessary inconvenience, but not the top priority. While some members appear to very proficient and dedicated to EMS, many others give the impression that it is entirely secondary to fire suppression as a concern of the Department. The latter attitude seems to be reflected in management policy and in the assignment system that places junior members on the rescue trucks and allows members to drop their EMT certification after eight years of service.

The rescue units are staffed by newly assigned firefighters (after serving time as dispatchers) and by Rescue Lieutenants who must both be EMT-Cs. A rescue driver receives a pay incentive of approximately $1,500 per year and a Rescue Lieutenant receives a $2,500 per year pay adjustment. A member is eligible for promotion to

Rescue Lieutenant after three years of service. (The rank of Rescue Lieutenant applies only while serving on the rescue unit.)

The rescue personnel are not rotated to engine or ladder companies except by seniority when a vacancy occurs, and only if they so choose. A rescue firefighter is eligible for promotion to Rescue Lieutenant after three years of service, which could include a significant amount of time as a dispatcher. To accept an opening as a firefighter on an engine or ladder company, the Rescue Lieutenant would have to give up the rank and the extra pay.

A Rescue Lieutenant who has five years of service is eligible for the Fire Lieutenant test. It is theoretically possible to be promoted from Rescue Lieutenant to Fire Lieutenant and thus become the officer on an engine or ladder company without ever having worked on a fire suppression company.

It is also theoretically possible that members could reach their eighth year of service still assigned to rescue units, because of their lack of seniority. The union contract allows a member with this amount of service to give up EMT-C certification and thus become ineligible for assignment to a rescue. (This may or may not prove to be a problem in the future, depending on how rapidly positions open up due to retirements and allow members to advance with their seniority.)

Workload and Activity Levels

The total emergency activity workload in recent years (1988-90) has been about 10,000 calls annually. It ranged from 10,423 in 1988 to 9,996 in 1990, a four percent drop over three years.

Emergency medical calls increased from 5,523 in 1988 to 6,132 in 1990, up 11 percent in three years. EMS activity now accounts for than 60 percent of responses by the Fire Department and is trending upward.

Fires decreased from 1,167 in 1988 to 834 in 1990, a reduction of 11 percent; they comprised only eight percent of the total runs. Structural fires also decreased, from 142 in 1988 to 128 in 1990, or about one every three days.

The range of responses for engine companies in 1990 was from 897 (Engine 6) to 2,189 (Engine 2). While some of the engine companies are fairly busy responding to calls, none appear to be overloaded; the majority of engine company runs are first-responder medical calls where the engine company crews are not usually involved in strenuous work. In many cases, only one or two of the engine company crew members will work on the call, usually for less than 10 minutes.

The rescue units are much busier, with about 3,400 runs each year for Rescue 1 and 3,200 runs for Rescue 2. There is some concern about burnout among the rescue personnel; that is one of the reasons it is viewed as a less desirable assignment and left to the younger firefighters. (Firefighters in stations co-located with rescue units complain that the frequent runs for the rescue units disturb their sleep at night. They have requested that sound-proof partitions be built to separate the rescue unit personnel from the rest of the crew.)

Staffing and Deployment Alternatives

The existing level of service appears to be appropriate and reasonable for the fire risks and activity levels that were observed. While there is no apparent need for additional staffing overall, there appear to be opportunities to restructure or redeploy the existing Operations elements of the Department for greater operational efficiency. It

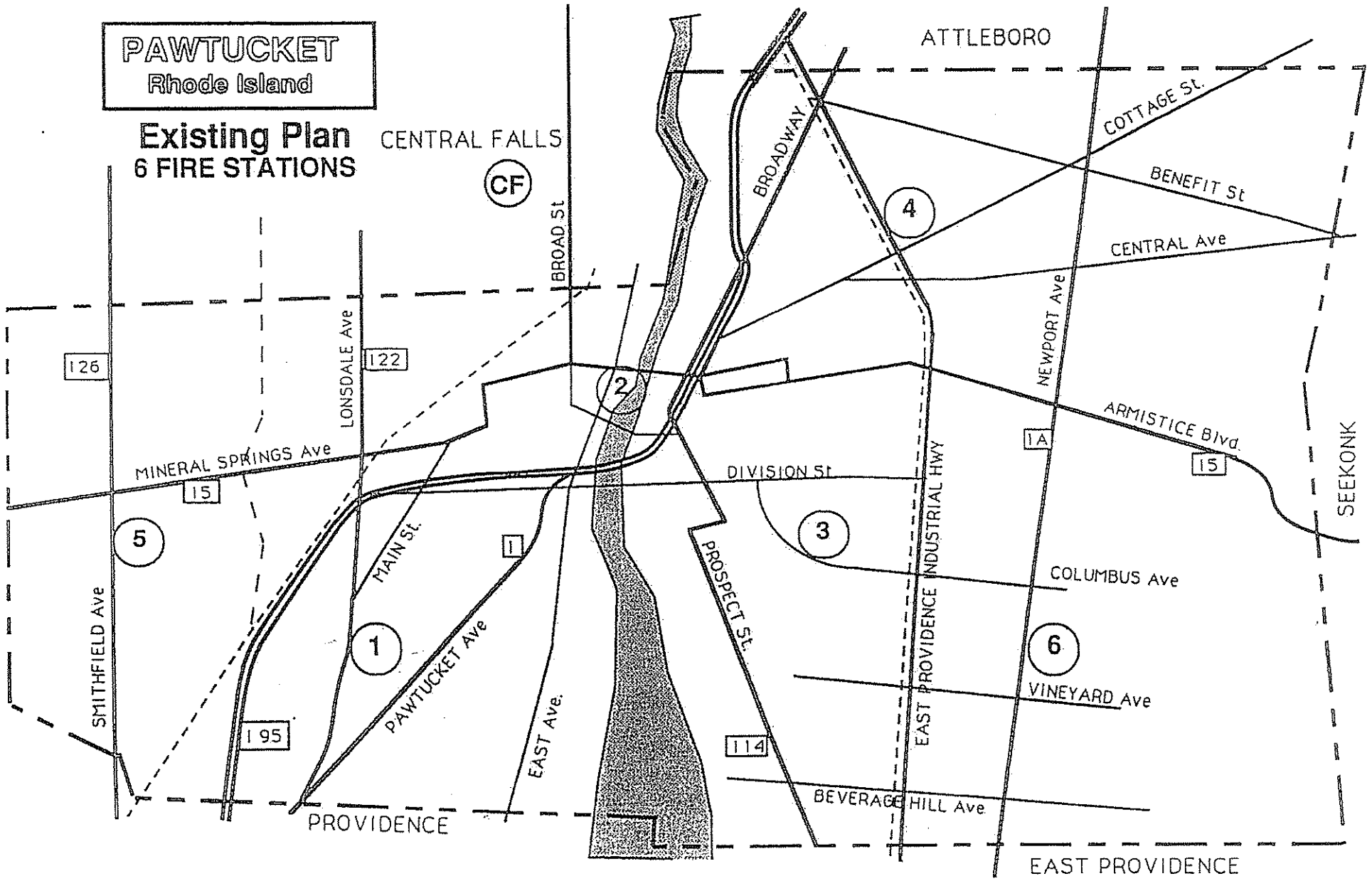
may be possible to reduce the number of stations and/or the number of companies in service.

The union contract stipulates that a minimum of 31 members be on duty in Operations at all times. If the number falls below 31, members must be called back on overtime. The contract also requires the City to maintain all of the existing units in service.[4]

The Pawtucket Fire Department operates eight fire suppression companies, six engines and two ladders, in a relatively compact area. With three members on duty per company, the operational efficiency of each company is lower than it would be with four member companies; however, the concentration of companies provides for rapid response and adequate total resources for the majority of situations. While staffing per company is less than may be desirable, the total on-duty force appears to be appropriate for the risk level and workload.

The six fire stations are deployed to provide very rapid response to all parts of Pawtucket. As noted earlier, response times are in the vicinity of two minutes in most areas and only about three minutes in the most remote corners. The average response time of less than 2.5 minutes is better than most cities. The City is divided by the river, Interstate 95, and railroad tracks with only a few major streets and bridges interconnecting the different areas. The existing stations are well located to serve the individual areas, but they are not necessarily in the best locations to connect from one area to another. It may be possible to relocate and combine some of the stations to provide almost equal coverage from a smaller number of locations.

[4] This contract provision is said to result from a major dispute in the past over converting a ladder company to a rescue unit.


PAWTUCKET
Rhode Island
Existing Plan
6 FIRE STATIONS
CENTRAL FALLS
CF
ATTLEBORO
PROVIDENCE
EAST PROVIDENCE
SEEKONK
BROADWAY
COTTAGE St.
BENEFIT St
CENTRAL Ave
BROAD St
LONSDALE Ave
NEWPORT Ave
ARMISTICE Blvd.
MINERAL SPRINGS Ave
DIVISION St
MAIN St.
PROSPECT St.
COLUMBUS Ave
VINEYARD Ave
BEVERAGE HILL Ave
SMITHFIELD Ave
PAWTUCKET Ave
EAST Ave.
EAST PROVIDENCE INDUSTRIAL HWY
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15
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195
114
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6

Several different, potential deployment alternatives were considered. From among an almost endless range of possibilities, the strategies that were considered included:

- Close one or more stations and relocate the companies to other stations (to save on station maintenance and repair cost);
- Rehabilitate or replace an existing station;
- Close a station and reduce the number of companies in service; and
- Redistribute personnel to fewer companies with additional personnel on each company.

Four strategically placed stations could provide good coverage to all areas within approximately three minutes. Two stations would allow responses to all parts of the City in approximately four minutes, and one centrally located station would allow responses of up to about five minutes.

Simply closing an existing station does not appear to be a viable alternative at the present time. It would be possible to close either Station 2 *or* Station 3 (but not both) and have the least impact on response times. However, closing either one of these stations without building a new station or significantly rebuilding one of the existing stations does not offer any advantages.

There are complex trade-off issues to balance between the number of stations and response times, and between the number of companies and the number of personnel assigned to each company. With four stations, it would be feasible to operate six 4-person companies instead of eight 3-person companies. The difference in response times would be minor and the total number of personnel on duty would not change. The

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efficiency of four-person companies is higher for fire suppression operations. The operating cost of two vehicles could also be saved.

The cost of building new stations in the best locations is a major decision factor. These decisions could be driven by the availability of funds to rebuild the new stations in the desirable locations, which must be weighed against the cost of required repairs and upgrades to the existing stations, several of which are in poor condition.

The most attractive option, at the present time, appears to be a four-station plan.[5] This could work with either six 4-person companies or eight 3-person companies.[6] This plan contemplates combining the existing Stations 1 and 2 in a new fire station west of the river and Stations 3 and 6 in a new station east of the river. These two projects could be completed over a period of several years.

Operational Plans – The operational deployment of the Pawtucket Fire Department is very traditional. The engine and ladder companies perform standard fireground tasks and all crews appear to be proficient in standard fire suppression tasks. A standard operating procedures manual has recently been issued, although the content is far from comprehensive. One of the objectives for the next 12 to 18 months should be to develop a complete operations manual and provide training to all personnel on its use. This should include training for all members on the incident command system to manage incidents.

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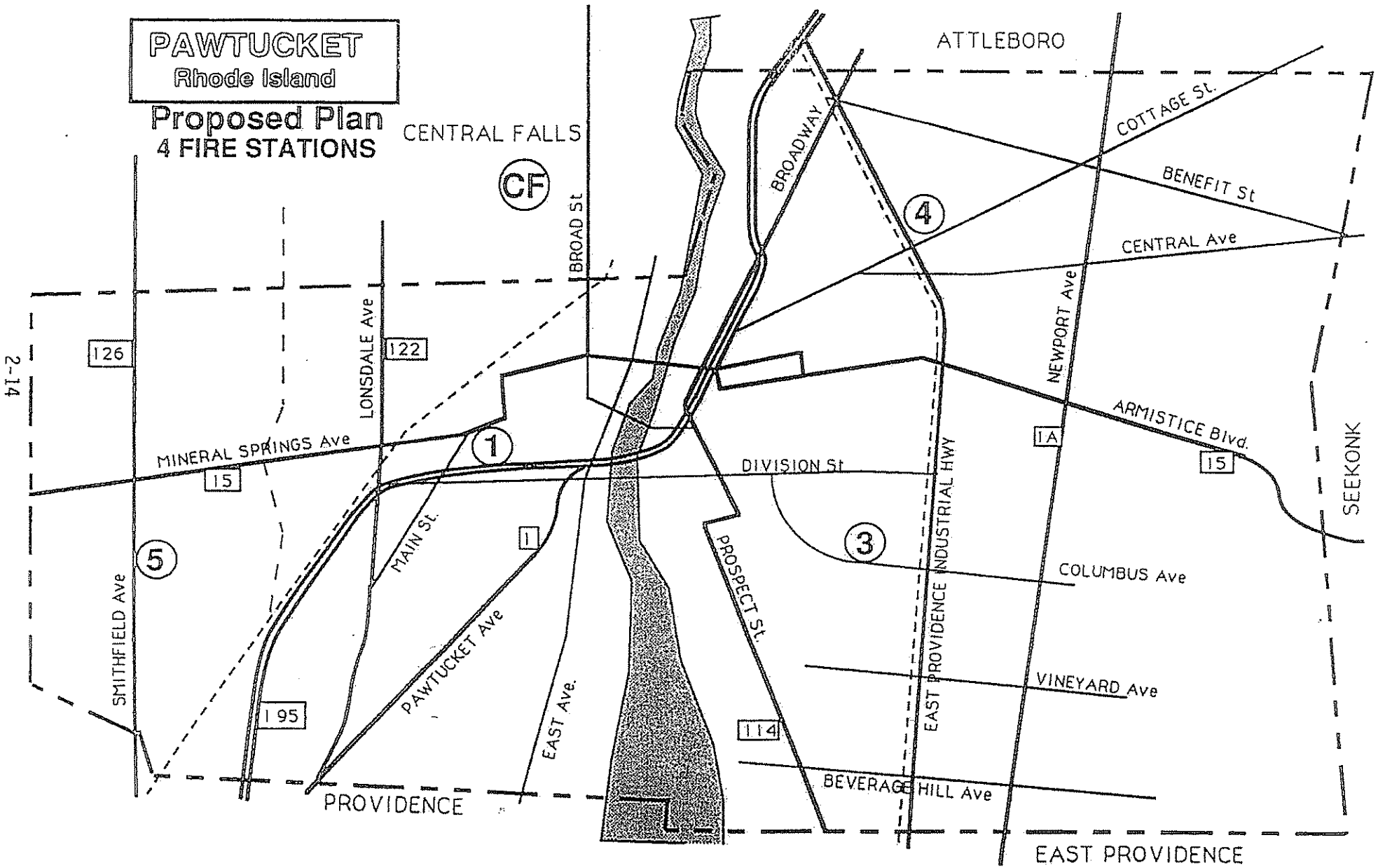
[5] This plan is considered attractive because it reduces the number of stations from six to four, with a corresponding reduction in building maintenance and operations costs, with a very minor impact on response times. Stations 1 and 2, which both require major work, could be combined into one new station. Stations 2 and 6 require less work, and could be combined together into one new station, or a rehabilitated Station 3.

[6] Six Company Plan: Four engines and two ladders (four personnel per company).
Eight Company Plan: Six engines and two ladders (three personnel per company).


PAWTUCKET
Rhode Island
Proposed Plan
4 FIRE STATIONS
CENTRAL FALLS
CF
ATTLEBORO
PROVIDENCE
EAST PROVIDENCE
SEEKONK
BROAD St
BROADWAY
COTTAGE St.
BENEFIT St
CENTRAL Ave
NEWPORT Ave
ARMISTICE Blvd.
LONSDALE Ave
MINERAL SPRINGS Ave
DIVISION St
MAIN St.
PROSPECT St.
EAST PROVIDENCE INDUSTRIAL HWY
COLUMBUS Ave
VINEYARD Ave
BEVERAGE HILL Ave
SMITHFIELD Ave
PAWTUCKET Ave
EAST Ave.
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15
1
1A
114
195
1
2
3
4
5

Apparatus and Equipment Improvements -- Operations could be improved further by upgrading the radio system (see Chapter 3 Communications), by upgrading the equipment carried on fire apparatus, and by purchasing multiple capabilities in new apparatus as existing vehicles are replaced. For example, four- or five-inch supply hose would increase the water flow capabilities of companies; prepiped waterways on aerial apparatus would save time and effort by placing elevated streams in service; pumps installed on aerial apparatus would allow a ladder company to provide its own water supply when engine companies are committed; and larger tanks (i.e., 750 gallons instead of 500 gallons) would allow engine companies to mount a greater initial attack before a supply line is connected to a hydrant. The replacement of one of the standard pumpers with a "rescue pumper" (designed to carry rescue and extrication equipment) should be considered. These types of improvements can be gradually phased in as apparatus is replaced and as funds are available to upgrade the equipment on apparatus.

Safety

The Training Officer is designated as the Fire Department's Safety Officer. It is unclear the extent to which this function has been active, since the regular Training Officer has been on disability leave and due to retire. A succession of Lieutenants have been assigned to fill the training position.

The State of Rhode Island adopted law requiring all fire departments to comply with certain chapters of NPFA 1500 but has not adopted an enforcement mechanism. Pawtucket was estimated by the acting Fire Chief to be in about 80 percent compliance with NFPA 1500.[7]

[7] The acting Training Officer had not been provided with a copy of NFPA 1500 and a copy could not be located in the administrative offices.

Inspections of the stations and apparatus and observations of operations revealed several deficiencies in compliance with health and safety standards, although some efforts were being made to comply, particularly improvements in protective clothing. Several areas were obviously not being enforced, including requirements for medical examinations and a physical fitness program. The fire stations need significant modifications to comply with the standards, particularly in the area of ventilation to keep exhaust emissions out of work and living areas.

The Department is working toward full implementation of an incident command system, although problems with the radio system are a major liability in safely managing incidents. There is no formal accountability system on the fireground.

Most protective clothing and station uniforms appear to meet standards and to be in reasonably good condition. The firefighters have been issued protective trousers and appear to be wearing them on all fire calls. Some older non-compliant protective clothing was noted, but replacements for all non-standard items were reported to be on order for delivery in the near future. Many firefighters are reported to have kept their old protective clothing to use when their primary outfit is wet; this should not be an acceptable practice.

Breathing apparatus is in short supply and several SCBA units appeared to be in poor condition, although they were reported to be regularly tested and inspected. The Department uses Scott 2.2 units dating from about 1980, and each member is issued a personal facepiece. Most of the working firefighters seem to have an SCBA to use, but there are not enough to equip all members who are on duty and recalled personnel, as might be required for a major fire or hazmat incident. The number of spare air cylinders is also inadequate; the utility vehicle carries extra air cylinders and can shuttle back and forth between an incident scene and the compressor at Station 4, if necessary. The recent purchase of new air compressor was a major improvement.

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Firefighter Injuries – There were 58 reported firefighter injuries in 1990 out of 133 uniformed members. These resulted in 978 days lost from work or an average of seven days per firefighter. This is a high rate of injuries, equivalent to more than 10 full-time positions in lost time; however, 10 of the injuries accounted for 811 days or 83 percent of the total. Clearly, it should be particularly important to prevent the few severe injuries as well as the minor injuries. A high percentage of the injuries are related to backs and knees.

Table 2-1. Firefighter Injuries

Ten Worst Injury Cases	*Days Lost from Work*
Back Injury	47
Twisted Knee	44
Back Injury	166
Reoccurrence	106
Back Injury	24
Exposure to Ammonia	107
Shoulder Injury	44
Heart and Lung	62
Knee Injury	176
Back Injury	25

The Department should place an emphasis on injury prevention through training and conditioning to maintain strength and to avoid lifting and twisting injuries.

Recommendations

1. *The Department should maintain its current level of emergency response resources.* The current level can be provided by eight three-member companies or six four-member companies.

2. *A major emphasis should be placed on further development of operations manuals and standard operating procedures.* The current SOP manual is a preliminary start, but much more work needs to be done in this area. (Much of this work involves considering SOPs, from other fire departments and adopting the parts that will be most effective in Pawtucket – then providing structured training and full documentation.)

3. *Stations 1 and 2 should be considered for consolidation at a point between their existing locations.*

4. *Stations 3 and 6 should be considered for consolidation at Station 3's current location or at a new location between the two existing sites.*

5. *New apparatus should be purchased and existing apparatus should be upgraded to utilize improved technology including large diameter hose.*

6. *The order of succession for new members to work assignments should be changed.* Starting new firefighters as dispatchers is not productive. Some exchange of assignments between rescue and fire suppression companies should be encouraged to provide more rounded experience to all members and to avoid burnout.

7. *All members should be required and encouraged to maintained EMT-C certification throughout their careers.* Emergency medical service has become the primary activity of the Fire Department and dropping certification significantly reduces the value of a member to the accomplishment of the Department's mission.

8. *A third rescue truck should be available for immediate activation during high activity periods.* The high activity level for the rescue units means that none is available at certain times. A ready reserve unit could be activated by calling in off-duty personnel, or

in an urgent situation, by having the crew of an engine or ladder company place the unit in service.

9. *A much higher level of coordination should be established with the medical community to provide training, education, coordination and quality control over the EMS program.* The current lack of coordination with the local medical community is a significant problem that should be resolved to provide consistent professional medical care.

10. *A charge for ambulance service should be considered to recover part of the cost of providing this service.* The primary objective of this fee for service should be to collect the funds that are available from third party payers for covered patients. A number of billing and collection options are available to reduce the cost of collections and avoid excessive charges to patients who cannot afford the pay for the service.

11. *The fire department occupational safety and health program needs to be significantly upgraded.* A thorough self-evaluation of compliance with NFPA 1500 should be conducted and a full plan for compliance should be developed and documented.

12. *The Department should have at least 10 to 20 additional SCBAs and extra cylinders and should consider upgrading to a more advanced model SCBA.*

13. *A much greater emphasis should be placed on medical and physical fitness to reduce injuries and avoid medical disabilities in the future.* All members should receive an annual medical/physical fitness evaluation to determine their level of fitness and to detect undiagnosed problems.

14. *The Department should emphasize the incident command system and personnel accountability to improve safety at incident scenes.*

routed to Pawtucket and the dispatchers must call back to the PSAP to verify the source of a call if they are unable to obtain it from the caller. Calls also are received over a published seven-digit telephone number and directly from the Pawtucket Police Department.

Calls are dispatched by radio to the fire stations. At night the stations are alerted by selective radio tones. The stations monitor the radio during the day. All alarms are transmitted over the single voice radio channel. (The radio alarm boxes are on a separate frequency.) Direct ring-down telephone lines are also provided to the stations.

Units are selected for dispatch by referring to a set of dog-eared box assignment cards. There is no computerization of the system.

The dispatch room itself is fairly large and suffers from the same general upkeep problems as all of the Pawtucket Fire Department's facilities. The room has very poor acoustics and is unsuitable as a communications center for several reasons:

- It lacks appropriate security -- anyone who gains entry to the fire station can walk into the room unchallenged.

- It is exposed to the exhaust of diesel powered apparatus from the station (access to the dispatch room is directly from the apparatus area).

- The acoustics of the room hamper routine radio and telephone communications.

- Critical telephone equipment is located in a basement room that is subject to flooding and other hazards.

Radio Box System

The box alarm system is maintained by the Superintendent of Fire Alarm. The system monitors automatic fire detection and alarm systems, waterflow alarms, and manual pull stations located in the major buildings in the City; the alarm boxes are purchased by the building owner and then installed and maintained by the Fire Department.

The system appears to function adequately, although the alarm receiving equipment in the Dispatch Center appears to be aging. A proposal from the system supplier to upgrade the equipment at the Communications Center was pending at the time of the study and appeared to be a reasonable investment.

Voice Radio System

The deficiencies of the voice radio system are the most critical problem with the existing communications system. Units often had difficulty reaching the Dispatch Center by radio (especially with hand-held portables), and frequently could not be understood. Similarly, dispatch messages from the Center could not be understood in the fire stations and company officers sometimes had to call the Dispatch Center by telephone to verify addresses and details. (The station speakers are over-modulating and appear to be improperly designed and installed for their intended purpose.) *These are extremely critical problems that need immediate attention.* When units are unable to receive alarms or to communicate with the Dispatch Center, the lives of citizens and firefighters may be in danger.

The radio system operates on a single channel (154.415 MHz) with no repeater capability. The primary base station is located in the dispatch room and utilizes a tower-mounted antenna on top of the Central Fire Station. Each station has a radio to receive calls, connected to a smaller antenna on the station roof. The station radios are

apparently connected to the Dispatch Center via telephone lines to act as voter receivers. If this system is functioning properly instead of having to reach the antenna on the main station, a transmission from a portable or mobile radio should be received at the closest station and carried to the Dispatch Center over the telephone lines. The "voter" then selects the strongest signal to deliver to the dispatcher.

Because of interference from other fire departments using the same frequency, a continuous tone-coded squelch system (CTCSS) was apparently installed on all PFD radios to eliminate the unwanted traffic. (The consultants were unable to verify that the CTCSS system is fully installed and operational on all radios, or that the voter receiver system is fully operational.)

The symptoms of the radio problems are perplexing. At the Central Fire Station incoming transmissions are often received on the fire station radio but not on the Dispatch Center (base station) radio. The transmission can be heard on the speakers in the apparatus area, but not in the Dispatch Center. This could be due to a number of problems, such as a more advantageous location for the fire station antenna than the base station antenna, improper antenna installation or inadequate grounding of the base station antenna, improper CTCSS or sensitivity settings on the base station radio, the lack of functioning CTCSS on the fire station radio, improper functioning of the voter receiver system, and/or improper wiring or inadequate grounding of the dispatch center console or base station radio, to list the most obvious possibilities. Some combination of these deficiencies is probably responsible for the poor reception problems, but there may be other, less obvious problems.

One of the causes for concern is the lack of adequate engineering analysis and design assistance that was obtained in the past, in efforts to upgrade the radio system or fix its problems. The radio installations are not impressive and some of the suggestions and attempted solutions indicate that appropriately qualified professionals have not been consulted. No one in the Fire Department appears to have more than an elementary

understanding of radio systems and total reliance has been placed on individuals who have been unable to solve the problems.

This is a critical problem that will require an expenditure of City funds to provide immediate relief and longer term improvements.

Recommendations

The following steps should be implemented immediately:

1. *Obtain the services of a qualified professional engineering consultant who specializes in radio communications systems to perform a complete analysis of the existing PFD communications system.* The consultant should recommend immediate repairs and improvements, and (as a second priority) design an improved radio system.

2. *Contact the manufacturer(s) of all major PFD radio equipment and request a corporate representative to come to Pawtucket to verify the operation of all equipment* Motorola is the major supplier. Do not accept a factory authorized dealer to perform this service. If the manufacturer is unwilling to provide this service, the City Attorney should write a letter to the Chief Executive Office of the Corporation describing the nature of the problems that are being experienced and the critical life safety risks that are involved, expressing the liability factors that may be involved with inadequate performance.

3. As "stopgap measures" to ensure that essential communications with field units are maintained until the problems can be fixed, the following options should be considered:

- *Attempt to use only vehicular mobile radios to communicate with the Dispatch Center.* Assign a member at each incident to stay in a vehicle and relay communications.

- *Keep all fire station radios on "monitor" 24 hours per day.* Have station personnel stay alert to attempt to capture transmissions that fail to reach the Dispatch Center.

- *Attempt to borrow or rent additional high powered (minimum five watt) portables.* The higher output power may work in more effectively in marginal areas. It will be necessary to experiment to determine if the situation can be improved in this manner.

- *Contact local radio services to determine if alternate systems are available for temporary use by the Pawtucket Fire Department* (such as business band radios on a functional repeater system).

- *Rent hand-held portable cellular telephones for each company to use to "call in" to the dispatch center.* The local cellular telephone service company may be willing to provide this service at minimal cost to the City until the critical problems are solved.

Additional Recommendations

4. *Upgrade or replace the amplifiers and speakers in the fire stations with a properly designed system to provide clear reproduction of incoming dispatch messages.*

5. *A new Dispatch Center should be planned in a more suitable location.* Depending on the plan that is ultimately adopted for facilities, this could be situated in a new

building, in a different part of the existing structure, or in the same space with major improvements. If the existing Central Station continues to provide space for the Dispatch Center, the problems with access, security, ventilation, vulnerability and atmosphere should be addressed.

6. *The policy of assigning entry-level firefighters as dispatchers should be reconsidered.* The use of these positions as short-term assignments for members who are qualified to be firefighters is counter-productive. The conversion of these positions back to civilians would provide longer term personnel who are more motivated to work as dispatchers. This could improve operations and reduce overtime costs. The positions also should be considered as an assignment for firefighters who are disabled for significant periods of time, and for the disabled civilians, to help the City meet the new ADA requirements.

7. *A small computer should be obtained to replace the "box cards in the Dispatch Center."* It could also provide pre-fire planning and hazardous material information for buildings in Pawtucket. This computer would then function as an elementary CAD system.

8. *The radio system should be enhanced by adding at least one additional voice radio channel and a repeater system.* This will require a second frequency assignment. Tactical operations should be conducted on a separate channel from dispatch, so that dispatch messages do not interrupt incident scene communications.

- Additional frequency assignments should be requested from the Federal Communications Commission, through the Public Safety Frequency Coordinator for Rhode Island (accessible through the International Association of Fire Chiefs [IAFC] or the Associated Public Safety Communications Officers [APCO]).

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- It may be possible to obtain permission from one of the other fire departments in the area to share a currently licensed frequency. (This would require FCC approval.)

- If additional frequencies cannot be obtained in the VHF high band (154 MHz), it may be necessary to convert the entire radio system to a different part of the radio spectrum. This would require replacement of all existing radio equipment and the purchase or lease of a new set of radios.

9. *Consider joint communications with Central Falls and/or other fire departments to share costs.* There is needless duplication of services with each fire department in the area having its own dispatchers, and the allocated radio frequencies are under-utilized. These costs can be shared and much more efficient operations could be achieved through the establishment of a joint communications system. (This could be a design consideration when Pawtucket plans improvements in its Dispatch Center.)

10. *One of the Battalion Chiefs should be assigned to manage the Dispatch Center.* The assigned Battalion Chief should develop some expertise in communications technology.

Chapter 4 – Fire Prevention

The Pawtucket Fire Department has a very small Fire Prevention Bureau, headed by a Lieutenant, with one firefighter assigned to assist in all aspects of fire prevention. A second firefighter has been added to act as the Hazardous Material Coordinator for the Department. The small fire prevention effort is supplemented by some very limited prevention activities by the engine and ladder companies. Fire suppression companies do not perform any routine inspections, but they occasionally check residential smoke alarms when the Fire Prevention staff members are overloaded.

Overall, the Prevention Bureau is handling an appropriate variety of functions and is productive with its limited resources. It is seriously understaffed for even minimum requirements and is very limited in its ability to make significant reductions in the level of fire risk in Pawtucket.

The Fire Department has not taken an aggressive role in fire prevention and it has clearly not been an priority in the past. The organization places a Lieutenant, the most junior officer in seniority as well as rank, in the position of managing Fire Prevention Bureau policy as well as service delivery. The lack of staff, support, and other resources means that the functions of Fire Prevention are conducted at a minimum level, with virtually no proactive enforcement or promotion of public fire safety regulations and practices. Enforcement actions are taken only when complaints or violations are received, to avoid conflict arising from accusations of selective enforcement. Fire safety promotional activities are similarly limited to situations where the Fire Prevention Bureau has traditionally participated or is invited to participate.

The Lieutenant who is currently assigned to Fire Prevention received the assignment due to his lack of seniority; neither he nor any other Lieutenant wanted the assignment at the time. He has done quite well at learning how to do the job and

performing the essential tasks with a minimum of resources or support. He also has generated considerable controversy and conflict by enforcing some code requirements that had been overlooked in the past and by taking a relatively hard-line on requiring compliance where violations have come to his attention. These situations seemed to have placed him in an uncomfortable position with the administration of the City, with the private sector, and at times with his superiors in the Fire Department.

Authority for Codes

The authority for fire safety regulations is vested in the Rhode Island State Fire Code and the Office of the State Fire Marshal. The City of Pawtucket does not have any fire code authority or the ability to adopt more stringent regulations than the State Fire Code. The only member of the Fire Department who has ex-officio enforcement authority is the Fire Chief, who is on extended sick leave. The assigned Lieutenant has not been able to attend the course given by the State Fire Marshal Office to be deputized to enforce the State Fire Code, therefore ***all enforcement notices are advisory and subject to review by the State Fire Marshal's Office*** before any legal action can be taken. The District Attorney's Office must be consulted to bring violations into the legal system.

The State Fire Code has relatively strong requirements for new occupancies, but is weak in regulating existing occupancies. As a result, there are few opportunities to reduce the fire risk level in the City of Pawtucket through fire code enforcement. Only occupancies undergoing major renovations or entirely new structures are subject to the requirements for new buildings. Support from the State Fire Marshal's Office is also weak because of budget reductions at that level. The State has cut back in training and support functions as well as its own inspection force.

authority of the City of Pawtucket to adopt more restrictive regulations than the State Fire Code is a major weakness of the fire protection system.

Existing Buildings

The Pawtucket Fire Department has no regularly scheduled inspection program for most occupancies. Buildings are inspected only if a complaint of a hazardous situation is received, if they change ownership of occupancy, or if hazards are noted one way or another. Schools are required to be inspected annually. The number of inspections made in 1988 was 225; in 1989, 193; and in 1990, 166. The trend is significantly fewer inspections each year apparently because of limited personnel to get the work done.

While few communities inspect all of their properties to the fire code on an annual basis, most communities try to inspect hospitals, large public assemblies, industrial plants, and properties with significant risk to life on at least an annual basis. *The lack of scheduled inspections is a major shortcoming of the Pawtucket Fire Department.* If a fire occurs in a building that has fire code violations, but has not been inspected, and there is large property loss or life loss, the City could be placed in a difficult position to explain the lack of enforcement and could face liability exposures. The policy at the present time is to not conduct any routine occupancy inspections unless a complaint or a specific request is received (the hospital was said not to have been thoroughly inspected for about 12 years).

There also seems to be some "bad blood" between the Fire Prevention Bureau and certain elements of the business community, based on past enforcement experiences. While occasional problems should be expected, since fire inspectors often cause commercial occupancies and institutions to have to spend money to meet the Fire Codes, the community must decide whether it does want the Fire Prevention Bureau to enforce the codes or whether it is willing to take the risk of non-compliance to save funds. This

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relates directly to the existing "hands-off" policy on conducting inspections unless a complaint is received. This is a major City policy decision that should not be in the hands of a relatively junior officer in the Fire Department.

There is no count available of the number of structures in Pawtucket, nor the number that should require annual or at least regular inspections. It is not possible to estimate the number of inspectors that would be needed to conduct regular inspections on required buildings. The engine and ladder companies could easily be assigned to perform a block by block inventory of "inspectable occupancies" to create a foundation for an inspection program.

Public Education

There is no formal public education program in the Fire Department. Displays are put on at some major public events, and talks are given to schools, day care centers, and other groups when requested, if someone is available. There is no program to systematically reach all school children in at least some grade on a regular basis, nor is there any organized program to reach the elderly or other high-risk groups.

The Fire Prevention Bureau did not have any educational materials available in languages other than English for the different ethnic groups in the community. (Some other communities such as Newark, New Jersey and San Francisco have material in Spanish, Portuguese, and other languages that might be borrowed.)

Hazardous Materials

As noted previously, one firefighter has been assigned to coordinate preparations for hazardous materials incidents. His duties are: checking business compliance with Right-To-Know laws and requirements reporting for spills and releases; responding to complaints about hazardous materials; monitoring the 16 identified sites in the City that

are required to have contingency plans under SARA Title III; inspecting underground tanks; coordinating efforts with state and federal agencies; and responding to incidents as the Department's technical specialist. He also trains the fire companies (and the Police) on handling haz mat incidents.

He has aggressively scrounged information and other materials and has been assigned a used car for transportation and for carrying reference materials and minimal equipment. He has obtained most of his training and most of the materials he uses through his own initiative and his personal network of contacts in other fire departments and in the private sector. (This should be commended.) The Fire Department does not appear to give adequate support to these activities.

The Department has virtually no capability to take action on a haz mat incident once it occurs and would have to rely on outside assistance. Pawtucket has no haz mat protective clothing for firefighters and is not equipped to clean up a haz mat incident. The Providence Fire Department Special Hazards Unit is called for immediate response situations and state agencies are relied upon for major incidents.

The haz mat training that has been provided for Fire Department members is marginally in compliance with the minimal federal requirements for all firefighters. There has been no effort to provide more advanced training in hazardous materials and even the Firefighter assigned to the program has had difficulty obtaining training for himself. This is a significant weakness for a City with a degree of exposure to hazardous materials that is evident in Pawtucket.

There are numerous locations in Pawtucket that present significant risks for hazardous materials incidents, some of which could create a severe risk to firefighters and citizens. These risks includes numerous businesses that are involved in metal finishing and plating, which involve highly toxic and corrosive materials, and a range of other occupancies that present a wide spectrum of potentially dangerous situations. In

several cases the hazardous materials are stored or used in large, old buildings that are also major fire risks.

In addition, bulk quantities of hazardous materials are transported through the city on a frequent basis by rail and on Interstate 95. Most members of the Department appear to be unaware of the dangers that are involved in many of these occupancies and potential situations. The Fire Department is inadequately trained and ill prepared to face many of these situations.

The Pawtucket Fire Department has taken some initials steps to identify and prepare for hazardous materials incidents, but it needs to be much more proactive and devote considerable effort to training, identifying risks, obtaining equipment, and developing contingency plans for hazardous materials in the city. Much smaller communities than Pawtucket have engaged professional engineers or chemist to review their haz mat exposure.

Fire Investigation

The Fire Prevention Lieutenant is also responsible for fire cause and origin investigations. A team is assembled for arson investigations, including the Lieutenant and Firefighter, working with a police detective. This team also works with the State Fire Marshal's Office on major cases.

Recommendations

1. *The Fire Prevention Bureau is seriously understaffed and should be increased by two to three positions.* The fire prevention program in Pawtucket is extremely weak and appears to be ineffective. The City and Fire Department should be committed to a much more proactive risk reduction program. Most communities spend three to four

percent of their budget on prevention including salaries; Pawtucket spends less than two percent of its Fire Department budget on fire prevention.

2. *A more senior officer is needed to manage the Fire Prevention Bureau.* The head of Fire Prevention should be at least a Captain and preferably a Battalion Chief. The assigned individual should have broad management skills to deal with the private sector and the city administration on complex and controversial policy issues. A higher rank also will signal the greater importance to be paid to prevention programs and its stature within the fire department.

3. *A public educator/inspector is a second needed position.* This position could be either a firefighter or a civilian. The potential advantages of a civilian position are: a) the civilian salary and benefits could be significantly lower than those of a firefighter, and b) appropriate speaking and educational skills may not be found among the Department's members. The primary duties for this position would be to visit schools and housing for the elderly on a regular basis (rather than just upon request) to present educational programs. This individual could also perform the smoke detector inspections that are required by state law, freeing the current Firefighter and Lieutenant positions to inspect more complex properties. (A part-time civilian position to inspect smoke alarms is another alternative.)

4. *A strategy session needs to held with top City management, Fire Department management, building inspectors, representatives of the school system, and representatives of business and industry to set prevention policy for the future.* At present, a Fire Lieutenant is in the unenviable position of having to the tell the school system, the hospital and others to take steps to meet the fire codes (such as installing sprinkler systems) at a time when everyone is concerned about expenditures. Policy needs to be decided at a higher level. The City Attorney needs to be involved in the discussion, because failure to enforce the Fire Code when the Fire Department is aware of violations may create unacceptable liability for the City, if a fire occurs. There are often degrees of flexibility

in interpreting codes and allowing trade-offs to be made, but the City Attorney needs to be involved in policy decisions, particularly where the code requirements are established by state law.

5. *Fire suppression companies should be involved in inspections of multi-family, residential, and commercial occupancies.* Many departments today are using line company firefighters for such inspections. While fire suppression personnel cannot be expected to have the same degree of expertise as full-time inspectors, they can be trained to perform basic hazard recognition surveys in conjunction with familiarization and pre-fire planning visits.

Companies could be given a simple 10-point checklist for items to watch for, such as blocked exits, smoke detectors and sprinklers, block hallways or exist paths, improperly stored hazardous materials, highly flammable materials, etc. Many departments have such checklists. This requires little more effort than is already being expended on pre-fire planning visits.

One of the reasons given for not using line-company inspections at present is that any problems found could not be further acted upon, because of the low staffing in the Fire Prevention office. Adding two additional staff members, as suggested above, should help alleviate that problem.

6. *A complete inventory of inspectable occupancies should be completed as the first step in an enhanced inspection program.* A list should be made of the highest priority properties to inspect annually and they should be inspected within 12 months. The priority list would include unsprinklered high-rises, the hospitals, larger multi-family occupancies and large public assembly occupancies. At present, they are inspected only if a problem is known to exist rather than as a routine matter.

7. *All members assigned to Fire Prevention and any other personnel who desire fire prevention training should be sent to the next training session for certification to enforce the State Fire Code.* This should include the new Fire Chief, who will have the responsibility to oversee the program.

8. *The City should increase its commitment to hazardous material training, preparation, hazard identification, risk mitigation, and response capabilities.* The current approach to hazardous materials is commendable, but far from adequate. The Fire Department should provide much more support for the individual who is currently assigned to this function. It also needs to develop and implement a comprehensive program to address all of these areas. The lack of awareness of existing hazards and the lack of preparation for potential situations is alarming.

Chapter 5 -- Support Services

Fire Station Maintenance and Replacement

The conditions of the existing fire stations is a cause for concern. The stations have not been well maintained over the years and all need repairs and rehabilitation to some extent. The condition of all but one of the stations runs (Station 4) from fair to poor. The newest station (4) was built in 1974, and is in fairly reasonable condition. It was reported that the Department has been cited by OSHA for health and safety violations in the stations.

Most of the living and working areas in the stations provide unpleasant conditions in which to work and live. Much of the furniture is in poor condition and stations have obviously not been painted or properly maintained for several years. All of the stations are showing signs of deterioration due to inadequate maintenance and upkeep. The City has not had the fiscal resources to properly maintain the stations and the results are evident.

Many of the cosmetic problems could be addressed by the firefighters simply by giving the stations a thorough cleaning and painting and by performing minor carpentry work to improve their living conditions. If the City will provide the paint and materials, the firefighters should be able to make significant improvements. (Apparently, this has been suggested in the past, but not completed because of union jurisdictional concerns.)

Major decisions need to be made on which stations to upgrade and which ones to rebuild or consolidate. All of the stations need some improvements to meet health and safety standards, particularly with regard to separating living areas from diesel exhaust. An architect should be engaged to design modifications to the stations that would be retained and to design any new stations.

Station 1 should be replaced or totally reconstructed. It is old, has not been well maintained, and is totally unsuitable for continued use as a fire station. It would have to be gutted and then completely rebuilt to meet the current codes and standards.

Station 2 has major structural problems with the apparatus floor which is temporarily shored up and needs to be rebuilt. (The temporary shoring should be evaluated by a structural engineer, if this has not already been done.) The communications center and the kitchen are both adjacent the apparatus area where they are subject to diesel exhaust. The upstairs administrative offices are inadequate and there is limited area for company personnel. The critical electrical and telephone equipment in the basement is subject to flooding.

It makes sense to consider combining these two stations into one new modern facility that would be located to cover both response areas. This should be considered as the priority project. The existing Station 2 could be converted to administrative space for City Hall expansion.

Stations 3, 4, 5 and 6 are all showing signs of inadequate maintenance and upkeep over the years. The design of Stations 3 and 6 will make it difficult to provide proper separations between the apparatus areas and living areas to meet health and safety standards. A new station to take the place of Stations 3 and 6 needs to be weighed against the cost of a major renovation and expansion of Station 3 to serve the same purpose.

Station 5 is a good design and is in reasonably good condition but needs work to repair termite damage and other miscellaneous repairs. A structural evaluation of the termite damage should be conducted.

Station 4 is relatively new and requires fairly minor modifications and maintenance.

Apparatus

The apparatus fleet is in relatively good condition with the delivery of the two new pumpers during the study period. All front line apparatus is modern with firefighters riding inside the cabs. The two reserve engines were purchased in 1978 with commercial cabs and provide inadequate space for three crew members to ride inside. With the delivery of the two newest engines, these two reserve pumpers will be retired from service.

The fleet had been allowed to deteriorate and a new ladder truck had to be purchased on an emergency requisition in 1991, when major problems were discovered in two of the three trucks in the fleet.

The latest apparatus purchase provides adequate apparatus for all companies, which is a major improvement over past years. The pumpers that served as Engine 4 and Engine 5 will be rehabilitated and will become adequate reserve units for the present time.

The latest additions still leave one first-line pumper that is over 20 years old; it should be replaced in the next two years. In addition, Engine 1 appears to be headed for premature retirement due to its inadequate design and construction, and Ladder 1 is approaching an age where it should be replaced (both Engine 1 and Ladder 1 have been rehabilitated and are in reasonably good condition to last for two or three more years.)

To avoid apparatus replacements by "crisis management" in the future, the Fire Department should establish an orderly apparatus replacement program. A plan to purchase one replacement engine or ladder each year for the next three years would complete the renewal of fleet. For the future, large apparatus should be planned for 10 to 12 years of front line service and approximately three years of reserve service, which translates to replacing about two units every three years.

The apparatus maintenance program also is a cause for concern. The Department has two full-time maintenance employees and a designated shop area in the Public Works garage. The facility is far from adequate and there do not appear to be sufficient tools, equipment or spare parts to support an appropriate maintenance program for the apparatus fleet. In addition, the personnel do not inspire confidence as far as their ability to manage an apparatus maintenance program. It appears at the present time that the mechanics receive their work assignments directly from the Assistant Fire Chief.

In the design of new fire stations or rehabilitation of existing fire stations, it may be feasible to provide improved space for apparatus maintenance. The Department should also consider hiring or assigning an apparatus officer to manage the fleet and the maintenance of all tools and equipment.

Training

The training demands that are placed on a modern fire department have become very complex. There are mandatory training requirements imposed by federal regulations, EMT recertification requirements, and a variety of complex topics that are constantly placing new demands on training.

Pawtucket has one Training Officer position, however the incumbent has been on extended leave and has been replaced by a succession of Lieutenants. This has not helped with the establishment or continuity of complex training programs. The acting Training Officers should be complimented for the work they have accomplished.

The Training Officer and the Hazmat Officer have set up a make shift classroom out of a storage room at the Public Works building. It is barely adequate for current needs and the Department should seek to acquire better training space with the construction of new facilities.

While the members seem to believe they are receiving adequate training, it appears that there is a void as far as providing adequate training and education in complex areas, particularly to develop technical, supervisory, management and command skills. These areas will need particular attention in coming years. The Department should avail itself of opportunities to send personnel to the National Fire Academy and other schools and try to obtain good, ready-to-use training materials from outside sources. There may be opportunities to increase the level of training through state sources and through cooperation among cities in the area. The entire training program should be upgraded and emphasized.

Recruit Training -- At the time of the study, the Department was preparing to start training a class of potential recruits. The candidates are selected for basic training and then become eligible to be hired as firefighters after completion of the training on their own time (the classes are held in the evening). This appears to be an inefficient process with room for improvement.

This is an area where regional cooperation would provide significant benefits. A joint training program, where recruits from several fire departments are trained, should be examined as a method to improve the level of recruit training and reduce the cost and burden on each department. It does not appear to make sense to conduct a local recruit training program with Pawtucket's limited resources, particularly when it is not clear if these students will eventually be hired by the Pawtucket Fire Department.

Light Duty

The current union contract does not allow the use of personnel on light duty for any function. Members who cannot perform their regularly assigned duties must be on sick leave or disability leave. Everyone except the Chief of the Department is a member of the union and subject to these rules.

Due to the liberal sick leave injury and disability benefits, there is no incentive for a member to return to work in a light duty assignment when recovering from an injury or illness. This causes a loss of valuable time that could be well spent performing non hazardous duties, while members are unable to perform their regular duties.

Recommendations

1. *The maintenance and repair of fire stations needs to be improved.* Some improvements could be made by the firefighters at minimal cost to the City. Other important repair items should be addressed instead of allowing the stations to deteriorate further.

2. *Important decisions must be made on replacing or rehabilitating fire stations.* Combining Stations 1 and 2 in a new facility appears to be a good first step. Stations 3 and 6 could be combined at a later date.

3. *Improved work space is required for communications, fire prevention, administration, and training.* These functions should be included in planning for new stations. The space for apparatus and equipment maintenance should also be increased and possibly moved to a more suitable location.

4. *The Department should hire a maintenance superintendent or assign an apparatus and equipment officer.* The preventive maintenance program needs to be improved and should have a dedicated supervisor.

5. *The Department needs to establish and follow a more regular apparatus replacement program.* Major apparatus should be replaced after approximately 15 years of service.

6. *The Department could benefit from a revision in the light duty policy that would allow capable members to perform support duties that do not compromise their physical or medical conditions.*

7. *The training program needs to be completely reexamined and increased in scope and depth.* This needs to be a major priority for the future of the Department.

8. *The Department should take advantage of opportunities to send members to the National Fire Academy and state, regional, and local area training programs.* Local communities should be encouraged to work cooperatively to provide more efficient training.

9. *The position of Training Officer should be upgraded to the rank of Captain or established as equivalent to the rank of Captain.*