# REPORT

# PLYMPTON, MA

# FIRE STUDY

# FEBRUARY 2018

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Municipal Resources

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# CHAPTER I

# INTRODUCTION

## PURPOSE AND SCOPE OF WORK

Municipal Resources, Inc. (MRI), of Meredith, New Hampshire, was engaged by the Town of Plympton, Massachusetts, to conduct an operational assessment of the town's fire and emergency medical services (EMS) delivery system. The town's goal is to have an objective, independent, evaluation performed that provides recommendations regarding how the town can provide the surety of both fire and EMS services while maximizing resources under both its current operating model, as well as, future recommended operating model(s).

The overall intent and goal of the study was to assess and make recommendations regarding:

- Gaining a better understanding of overall risk to the Town of Plympton relative to fire and EMS.
- Evaluate the current fire and EMS delivery system and identify areas for improvement.
- Identify the fiscal impact of EMS service needs on taxpayers and explore options for service delivery modification.
- Assist the Town of Plympton with beginning the process of possibly sharing services with neighboring communities.

MRI conducted a comprehensive review of the manner in which fire and emergency medical services are provided in the Town of Plympton. This assessment will assist with determining whether existing staffing, equipment levels, and facilities are adequate to provide a level of service in the town that is in line with generally accepted standards and benchmarks for a department of like character. Using this review as a basis, MRI made recommendations for improvements that take into consideration the current and future financial ability of the town, appropriate modifications to the delivery systems to provide optimum service to the entire community, adequacy of physical facilities and equipment, and the efficient use of resources. The recommendations also provide discussion topics related to the town potentially exploring sharing services with adjacent communities, specifically the Town of Halifax.

This assessment included the following key elements:

1. Development of an emergency medical services (EMS) cost/revenue projection for a period of five years.

2. Evaluation of the level of service (specifically related to response times) currently provided to the community and compare/contrast that to the level of service that would be provided if the service configuration model was altered.

3. Development of a series of questions that the Town of Plympton should ask the Town of Halifax relative to potential collaboration and shared services related to the provision of fire and EMS services. These questions include consideration of the concept of having the Town of Halifax deliver some emergency services to the Town of Plympton at night.

4. An analysis of, and recommendations relative to, the potential privatization of EMS services by the Town of Plympton.

5. A thorough review of the current fire and EMS services provided to the Town of Plympton, with an analysis of whether the current system is meeting the needs of the community, along with recommendations for improvement.

6. An evaluation of current efforts by the Plympton Fire Department regarding the recruitment and retention for on-call and volunteer personnel, and recommendation(s) on strategies to increase the number of active members of the call/volunteer force.

The assessment employed the following methodologies: a tour of the community, a tour of adjacent protection areas, evaluation of target hazards, review of the fire facilities, review of fire and EMS apparatus and equipment, interviews with key fire department personnel,

interviews with key municipal personnel, and evaluation of the training program. There was also a review of relevant statistics, standard operating procedures, and operational data that was furnished by the fire department.

Each community determines the composition of fire services that residents receive by balancing the level of risk against the cost to provide these critical services. Based on our review of the Plympton Fire Department, it is clear that the governing body of the town expects the timely and appropriate response of fire and/or EMS units when needed. This report will focus on assessing the department based on the service expectation described above.

In conjunction with the on-site visits, the data collected, and observations made, were subjected to analysis by the project team, both individually and collectively. All recommendations for improvement are based on various administrative regulations promulgated at the federal and state levels, nationally accepted consensus standards developed by ISO (Insurance Services Office), NFPA (National Fire Protection Association), CFAI (Commission on Fire Accreditation International), and CAAS (Commission on Accreditation of Ambulance Services), and industry best practices and procedures. However, since every community has unique characteristics, challenges, and resource limitations, our recommendations are specifically designed to address the immediate and long-term needs of the Plympton Fire Department.

## METHODOLOGY

MRI's project methodology and approach was targeted to fulfill the scope of work in a thorough and comprehensive manner. To that end, we utilized a six-phase process to conduct our assessment of the Town of Plympton and Plympton Fire Department and develop our recommendations. The six phases include:

1. Orientation, stakeholder input, data gathering, and Identification of significant issues facing the town.

2. Information review, inventory, and assessment of the emergency risks of town and response effectiveness and operational readiness of the emergency medical services.

3. Develop a detailed assessment and inventory of current fire service and EMS operations.

4. Evaluation of the cost-effectiveness and quality of fire and EMS services within the Town of Plympton.

5. Preparation of a final project report and action plan recommendations for the Town of Plympton.

6. Presentation of a final project report and action plan recommendations.

## CHAPTER II

## BACKGROUND

### TOWN OF PLYMPTON

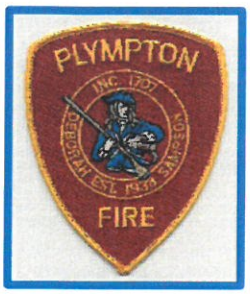
Plympton is a town located in Plymouth County, in southeastern Massachusetts. It is approximately 35 miles south of Boston and the same distance east of Providence, Rhode Island. According to the United States Census Bureau, the town had a 2010 population of 2,820. This represented a 6.9% increase from 2000. The estimated 2014 population had increased slightly to 2,893. Census Bureau data shows that the town has a total area of 15.1 square miles, of which 14.8 square miles (97.69%) are land and 0.3-square-mile (2.31%) is water. Plympton is bordered by the Town of Halifax to the northwest, Town of Pembroke to the north, Town of Kingston to the northeast, Town of Carver to the southeast, and Town of Middleborough to the southwest.

Plympton is mostly rural, with a population density of about 186.75 persons per square mile. Much of the land is covered by forests. The northern tip of town lies along Silver Lake, which also extends into Kingston, Pembroke, and along the Halifax border. The Winnetuxet River and many other bodies of water are located within the town.

The new highway portion of U.S. Route 44 traverses the southeastern corner of the town. State routes 58 and 106 passes through the town with Route 106 passing across the northern portion of the town, and Route 58 passing from southeast to northwest. The Kingston/Plymouth Line of the MBTA's Commuter Rail service to Boston also passes through the town.

The town is governed by a three-member Board of Selectmen. They are assisted in the day-to-day operations of town government by a town administrator. The town's Fiscal Year 2016 operating budget totaled $11,402,711.00.

## PLYMPTON FIRE DEPARTMENT




The Plympton Fire Department is a combination fire department that is comprised of both full-time, career personnel, along with part-time/on-call personnel. The department provides fire, rescue, and EMS services at the advanced life support (ALS) level. At the time this evaluation was being conducted, the department roster listed three full-time, career personnel, and 25 part-time/on-call members. Of the part-time/on-call personnel, eleven were listed as firefighter/paramedics, eleven were firefighter/EMT Basics, two were EMTs, and one was a firefighter. The department also has a part-time administrative assistant who is a certified firefighter/EMT Basic.

The department operates from a single station located at 3 Palmer Road. Its emergency response resources include three engines (pumpers), one water tanker/tender, two brush/wildland units, two ALS ambulances, one command vehicle, and one support unit.

## CHAPTER III

## FIRE AND EMS OPERATIONS

Fire, rescue, and emergency medical system (EMS) incidents, and the fire department's ability to respond to, manage, and mitigate them effectively, efficiently, and safely are mission-critical components of the emergency services delivery system. In fact, fire, rescue, and EMS operations provide the primary, and certainly most important, basis for the very existence of the fire department. Ensuring that the department is operationally prepared; necessary equipment is provided, tested, inspected, and maintained; and that adequate funding is allocated to ensure that the department is able to fulfill its core mission, are basic responsibilities of the governing body of the municipality or municipalities that it serves. Utilization of an incident command system and adherence to safety procedures are also important pieces of the system.

As previously noted, the Plympton Fire Department is a combination fire department that is comprised of both full-time, career personnel, along with part-time/on-call personnel. The department provides fire, rescue, and EMS serves at the advanced life support (ALS) level. As of the time this evaluation was being conducted, the department's 2017 roster and organizational chart listed three full-time, career personnel, and 25 part-time/on-call members. Of the part-time/on-call personnel, eleven were listed as firefighter/paramedics, eleven were firefighter/EMT Basics, two were EMTs, and one was a firefighter. The department also has a part-time administrative assistant who is a certified firefighter/EMT Basic.

However, as was the case with a number of aspects of this study, different documents provided to the team listed differing numbers. A spreadsheet provided to the study team for an evaluation of on-duty staffing from January 26, 2017, through December 1, 2017, listed a total of 35 different personnel who had logged time on a shift. Most of these personnel had well over 100 hours of on-duty time.

### DEMAND FOR SERVICE

One of the first challenges the MRI study faced was obtaining necessary data for evaluation. Eventually, the team received only one year of data, for 2016. Typically, we prefer to evaluate data over a three- to five-year period to allow us to identify trends in the number of incidents, response time increases or decreases, etc. According to data received from the Duxbury Regional Emergency Communications Center (RECC), in 2016, the department responded to a total of 551 incidents, of which 298 were medical emergencies. An additional 37 incidents were motor vehicle accidents, six were well-being checks, three were mutual aid to Halifax, and three involved assisting the police. This is a total of 347 incidents, or 62.9% of the total (Figure III-1). Fire-related incidents totaled 204 (37.1%). However, other data for response time analysis indicated there 327 EMS incidents (62.5%) and 196 fire incidents (37.5%). In both cases, the

number of EMS incidents that the department responds to as a percentage of total calls is significantly lower than normal, which is in the range of 75% to 80%.

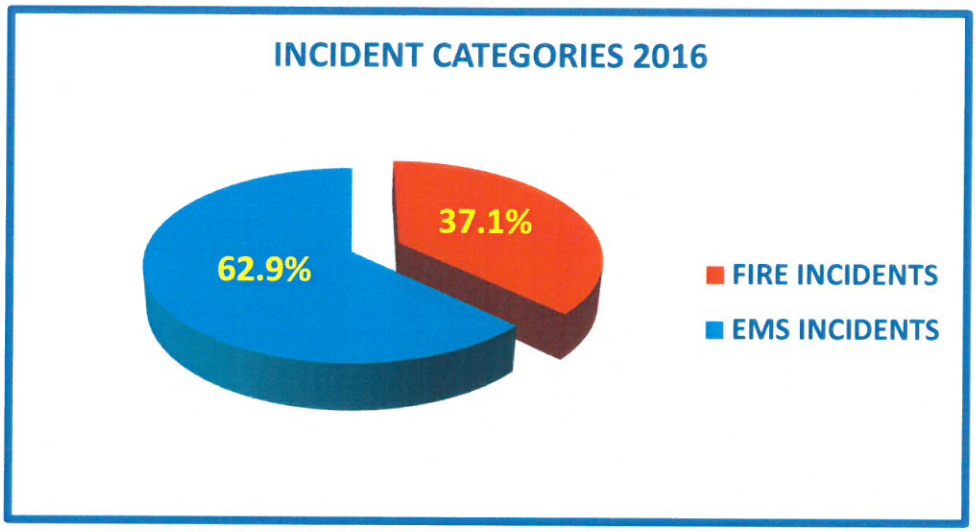



FIGURE III-1: INCIDENT CATEGORIES BY PERCENTAGE - 2016

The chief's 2016 annual report stated there were 447 ambulance calls (71.4%) and 179 fire calls (28.6%), for a total of 626 incidents which he indicated was a 26% increase in total call volume from the prior year. While it is probable that there are overlapping calls, that is ones where both fire and ambulance responded to the same incident such as motor vehicle crashes, we were unable to obtain a definitive breakdown. We will, however, state that if the department is utilizing two different incident numbers for incidents where both fire and ambulance respond, the total number of responses can be artificially inflated. Each specific incident should receive only a single incident number, regardless of the number of resources that respond.

Response statistics provided to the MRI study team for the period of January 1, 2011, through December 31, 2012, indicates that the Plympton Fire Department responded to 424 ambulance calls, so an average of 212 each year. This averages out to just 4.1 incidents per week. Making the assumption that these statistics are accurate, the fire department has experienced a significant increase in its EMS incident volume over the intervening five years.

Based upon the data received from the RECC, with 551 incidents in 2016, the Plympton Fire Department averaged 10.6 calls per week or about 1.5 per day. Emergency medical incidents averaged 5.7 per week or 0.8 per day. Fire incidents averaged 4.9 per week and 0.7 per day (Figure III-2). According to the RECC data, the fire department transported 251 patients to the hospital, an average of 0.69 per day.

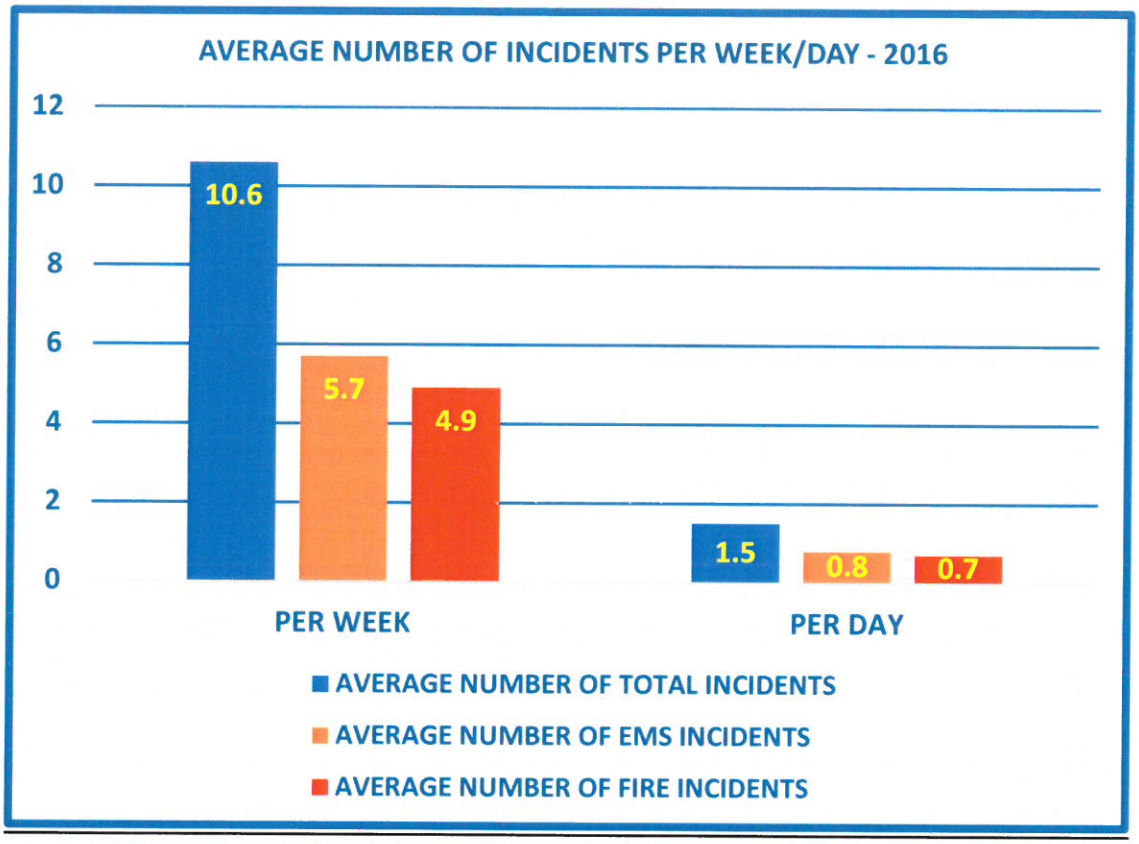



**FIGURE III-2: AVERAGE NUMBER OF INCIDENTS PER DAY/WEEK – 2016**

The number of incidents each day of the week was fairly consistent throughout, from a low of 72 calls on Tuesdays to a high of 93 on Wednesdays. Sundays and Saturdays were on the higher end of the daily calls and had almost identical numbers at 85 and 86 (Figure III-3). This would be expected in a community such as Plympton that is a residential community with no normal fluctuation in the number of people in town during the day or on different days of the week.

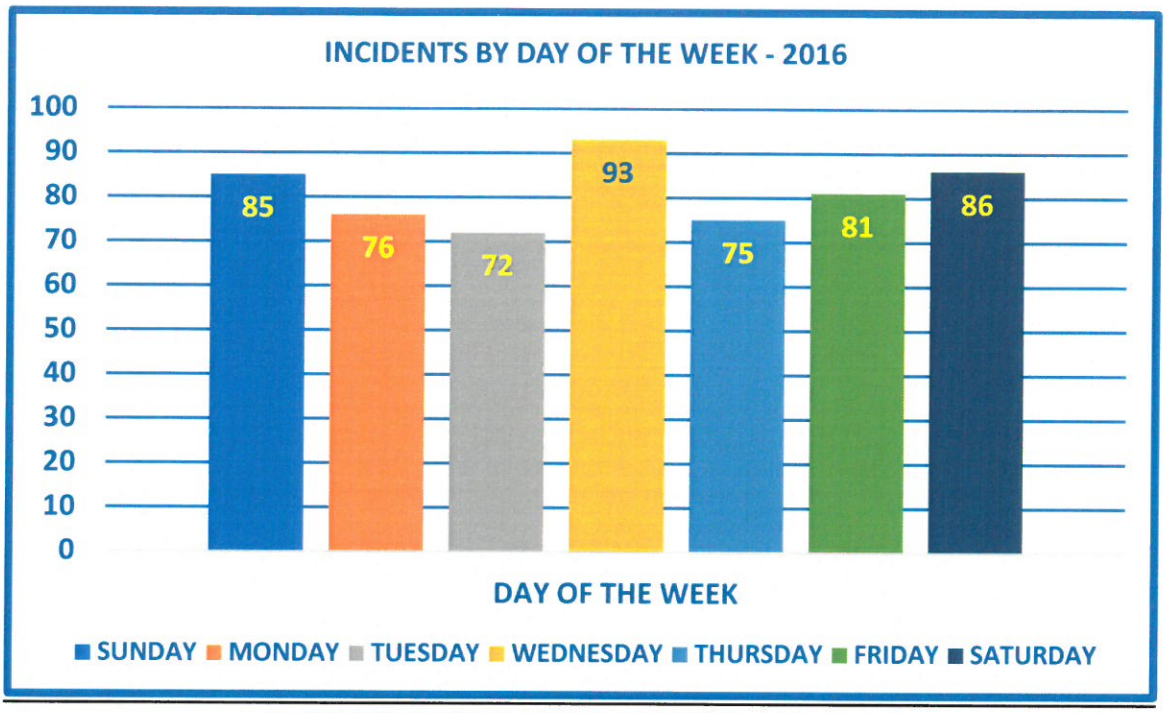



**FIGURE III-3: INCIDENT BY DAY OF WEEK – 2016**

Incident activity ebbed and flowed throughout the day depending on the time. As is consistent with many emergency services, daily incident activity generally begins to increase around 6:00 or 7:00 AM. It then will generally increase and be busiest through the mid-day and often even the early evening hours. In Plympton, this occurred from about 11:00 AM until 4:00 PM. Activity then began to gradually taper off again until 11:00 PM. From 11:00 PM to 6:00 AM was the slowest time, with just 69 incidents the entire year during this time, which averages out to 1.3 per week. Figure III-4 illustrates the incidents by time of day.

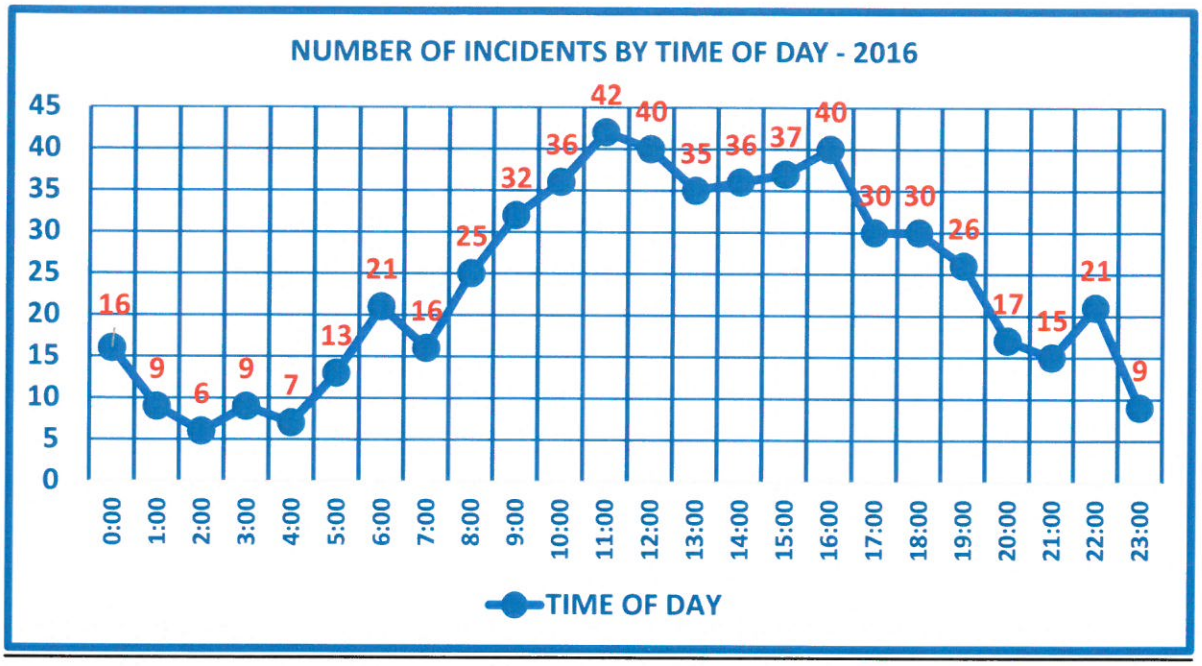



**FIGURE III-4: INCIDENTS BY TIME OF DAY – 2016**

## FIRE OPERATIONS

National Fire Protection Association (NFPA) Standard 1720, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public by Volunteer Fire Departments,* 2014 edition (National Fire Protection Association, Quincy, MA), outlines organization and deployment of operations by volunteer/call, and primarily volunteer/call fire departments. However, since EMS operations are provided by in station personnel, the provisions of NFPA Standard 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public by Career Fire Departments,* 2016 edition, would also be applicable.

In addition to structural and other types of firefighting operations, the fire department is tasked with responding to and managing a broad spectrum of other types of emergencies, including, but not limited to, vehicle crashes, building collapse, water and ice rescue, mass casualty incidents, weather-related emergencies, natural, and technological disasters. These types of incidents require specialized equipment and training, and in small communities are frequently handled by a regional team, or by a larger, more capable neighbor. In all types of emergency responses, an incident command system (ICS) should be utilized that conforms to the National Incident Management System (NIMS) guidelines that have been promulgated by the U.S. Department of Homeland Security.

The strategic and tactical challenges that the various hazards the department protects need to be identified and planned for through a community risk analysis planning and management process as recommended in paragraphs 4.2 and 4.2.1, *Community Risk Management,* of NFPA 1720. The community risk and vulnerability assessment evaluates the community as a whole, and with regard to property, measures all property and the risks associated with that property, and then segregates the property as either a high-, medium-, or low-hazard, which are further broken down into varying degrees of risk. According to the NFPA *Fire Protection Handbook*[1], these hazards are defined as:

> **High-hazard occupancies:** Schools, hospitals, nursing homes, explosives plants, refineries, high-rise buildings, and other high life-hazard or large fire-potential occupancies.
>
> **Medium-hazard occupancies:** Apartments, offices, and mercantile and industrial occupancies, not normally requiring extensive rescue by firefighting forces.
>
> **Low-hazard occupancies:** One-, two-, or three-family dwellings and scattered small business and industrial occupancies.

At the time of this study, the Plympton Fire Department has not completed a formal risk assessment of the town. The development of a community risk and vulnerability assessment should drive many of the key decisions associated with the deployment of resources for fire and medical emergencies.

The operations necessary to successfully extinguish a structure fire, and do so effectively, efficiently, and safely, requires a carefully coordinated and controlled plan of action, where certain operations, such as venting ahead of the advancing interior hose line(s), must be carried out with a high degree of precision and timing. Multiple operations, frequently where seconds count, such as search and rescue operations and trying to cut off a rapidly advancing fire, must also be conducted simultaneously. If there are not enough personnel on the incident initially to perform all of the critical tasks, some will, out of necessity, be delayed. This can result in an increased risk of serious injury or death to building occupants and firefighters, and increased property damage. Understanding the community's risk greatly assists fire and rescue service management planning for and justification of staffing and apparatus resources.

NFPA 1720, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public by Volunteer Fire Departments,* 2014 edition (National Fire Protection Association, Quincy, MA), outlines organization and deployment of operations by volunteer/call, and primarily volunteer/call fire departments.

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[1] Cote, Grant, Hall & Solomon, eds., *Fire Protection Handbook* (Quincy, MA: National Fire Protection Association, 2008).

Paragraph 4.3.2 of NFPA 1720 on *Staffing and Deployment,* states that Table 4.3.2 (Figure III-5) shall be used by the authority having jurisdiction (AHJ) to determine staffing and response time objectives for structural firefighting, based on a low hazard occupancy such as a 2,000 square foot, two-story, single-family, without basement or exposures.

Some of the key provisions of NFPA 1720 are as follows:

- Paragraph 4.3.1 on *Staffing and Deployment* states that the fire department shall identify minimum staffing requirements to ensure that a sufficient number of members are available to operate safely and effectively.

- Paragraph 4.3.2 on *Staffing and Deployment* states that Table 4.3.2 (Figure III-5) shall be used by the authority having jurisdiction (AHJ) to determine staffing and response time objectives for structural firefighting, based on a low hazard occupancy such as a 2,000 square foot, two-story, single-family, without basement or exposures.

| Table 4.3.2, Staffing and Response Time | | | | |
|---|---|---|---|---|
| Demand Zone | Demographics[1] | Minimum Staff to Respond | Response Time[2] (minutes) | Meets Objective (% of time) |
| Special risks | AHJ | AHJ | AHJ | 90 % |
| Urban | >1000 people/mi.$^2$ | 15 | 9 | 90 % |
| Suburban | 500 - 1000 people/mi.$^2$ | 10 | 10 | 80 % |
| Rural | < 500 people/mi.$^2$ | 6 | 14 | 80 % |
| Remote* | Travel distance > 8 mi. | 4 | Dependent upon travel distance | 90 % |

**FIGURE III-5: STAFFING AND RESPONSE TIME TABLE FROM NFPA 1720**

- Paragraph 4.3.3 on *Staffing and Deployment* states that upon assembling the necessary resources at the emergency scene, the fire department should have the capability to safely commence an initial attack within two minutes, 90 percent of the time.

- Paragraph 4.6.1 *Initial Firefighting Operations* states that initial firefighting operations shall be organized to ensure that at least four members are assembled before interior fire suppression operations are initiated in a hazardous area.

- Paragraph 4.7.1 *Sustained Firefighting Operations* states that the fire department shall have the capability for sustained operations, including fire suppression; engagement in search and rescue, forcible entry, ventilation, and preservation of property; accountability of personnel; the deployment of a dedicated rapid intervention crew (RIC); and the provision of support activities for those situations which are beyond the capabilities of the initial attack.

- Paragraph 4.7.2 *Sustained Firefighting Operations* also states that the capability to sustain operations shall include sufficient personnel, equipment, and resources to effectively, efficiently, and safely conduct the appropriate operations.

  ***Note:*** *While the NFPA standards are nationally recognized consensus standards, it is still the responsibility of the local jurisdiction to determine the acceptable level of risk and corresponding fire protection/EMS services. When applying any standard, including the NFPA standards, it is important to apply the document in its entirety. One should not selectively extract requirements to the exclusion of others or take a requirement out of context.*

Figure III-6 illustrates the critical tasks and resource deployment required for low and moderate-hazard incidents such as residential and small commercial structure fires. Although some people advocate that these types of incidents can be handled with fewer personnel, unless it is a small fire, there is the possibility there will not be sufficient personnel available to perform all the critical tasks necessitating that some be delayed.

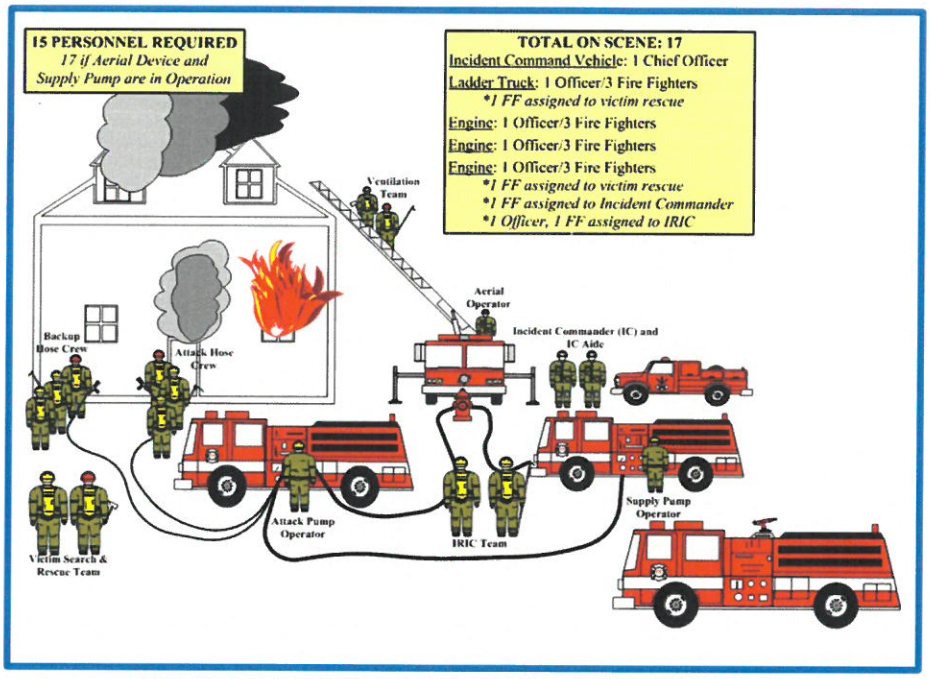


**FIGURE III-6: LOW TO MODERATE RISK RESPONSE INTERIOR FIRE ATTACK**

**Typical basic staffing needs for a single-family dwelling fire.**

Image credit: IAFF 266

Beyond the NFPA standard(s), which as standards do not carry the weight of regulation or law, is the Occupational Safety and Health Administration (OSHA) Respiratory Protection Standard, CFR 1910.134, which does carry the weight and force of regulation, thus making compliance mandatory. One key provision of the Respiratory Protection Standard that is directly applicable to fire department staffing is known as the "Two-In/Two-Out" rule. In brief, this regulation specifies that anytime firefighters operate in an environment/atmosphere that is "immediately dangerous to life and health" (IDLH), whenever two members enter the IDLH area together/as a team, they must maintain visual or voice communication with two additional firefighters who must remain outside of the IDLH atmosphere, prepared to render immediate emergency assistance to those inside. The OSHA rule does provide an exception, however, which states that the rule does not apply in emergency rescue situations where a person is visible and in need of immediate rescue, or there is credible and reasonable information that potentially viable victims are still in need of rescue.

To comply with the "Two-In/Two-Out" rule, a team of four firefighters must be assembled before an interior fire attack can be made when the fire has progressed beyond the incipient stage, except in an imminent life-threatening situation when immediate action could prevent the loss of life or serious injury before the team of four firefighters are assembled (Figure III-7). The serious concern of the MRI study team is that the OSHA "Two-In/Two-Out" rule permits an

exception for life hazard or rescue situations. The reality is that in one of the most serious life hazard fire situations that can be encountered, trapped civilians, a firefighter may need to place himself/herself in extreme danger by entering the structure alone.

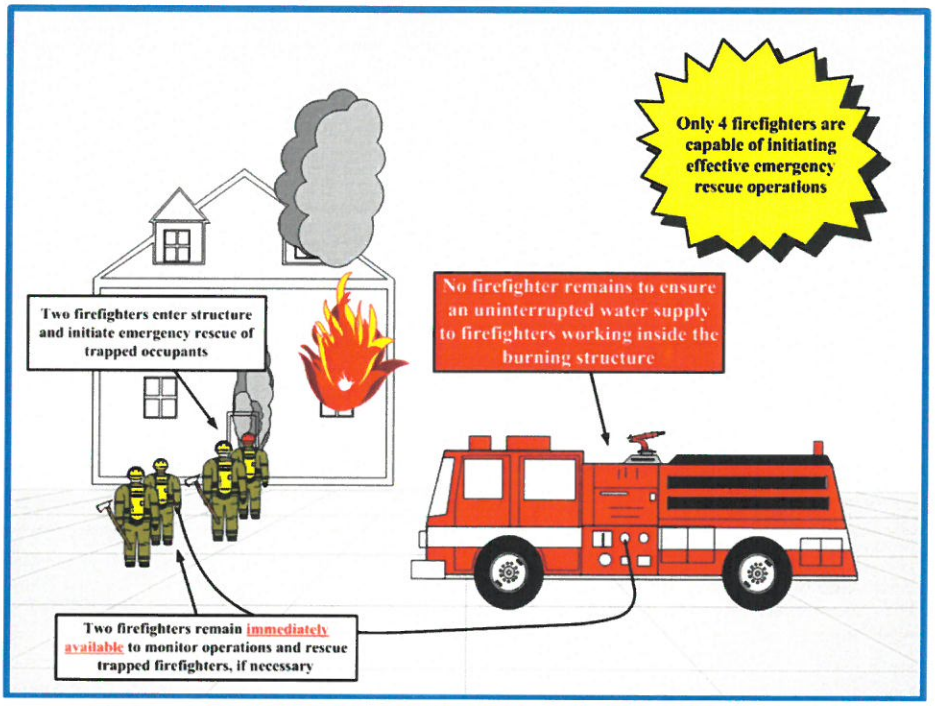


**FIGURE III-7: OSHA TWO-IN/TWO-OUT**
**Image Credit: IAFF 266**

The Plympton Fire Department does not keep track of the number of times that it complies with the personnel on scene recommendation of NFPA 1720's on scene set up time; therefore, it is difficult for us to fully assess the adequacy of the department's on-scene operations particularly with regard to structure fires. However, as will be discussed more in depth later in this report, the fact that just over 50% of the department's personnel are trained or certified at the most basic Firefighter I/II level, and often does not have a firefighting capability with its on-duty crew, the MRI study team concludes that the department is, in all probability, less than operationally prepared for firefighting operations and related types of emergency incidents. We believe that our opinion is supported by the fact that the chief of the neighboring Halifax Fire Department recently removed Plympton from the fire and EMS running card for his town because he feels strongly that he cannot count upon them to provide properly trained personnel in adequate numbers at the time of the call.

Being able to develop an adequate water supply for firefighting purposes is perhaps the most critical, non-safety aspect of firefighting operations. Quite simply, if an adequate water supply cannot be established quickly, and maintained, effective firefighting operations will simply not

be possible. The Town of Plympton is not protected by a municipal water system. The operational challenges associated with establishing effective rural water supply operations due to equipment and personnel needs can be significant and in many cases, requires the response of a large contingent of resources from multiple fire companies. The Plympton Fire Department, through its established automatic and mutual aid systems, has a significant number of water tanker/tender resources available for fire incidents in the areas throughout the town.

From the perspective of effective emergency response, there are three main factors that are used to help determine the deployment of resources: response time, travel distance, and call volume. For most evaluations, response time is the most critical factor; an important measuring instrument to determine how well a fire department or EMS provider is currently performing, to help identify response trends, and to predict future operational needs. Getting emergency assistance to the scene of a 9-1-1 caller in the quickest time possible may be critical to the survival of the patient, and/or successful mitigation of the incident. Achieving the quickest and safest response times possible should be a fundamental goal of every fire department and EMS provider. It is not just a cliché that during critical life-threatening situations, minutes and even seconds truly do count.

Structural firefighting has become far more challenging and dangerous in the last thirty years with the introduction of significant quantities of plastic and foam-based products into homes and businesses (*e.g.*, furnishings, mattresses, bedding, plumbing, electrical components, home and business electronics, decorative materials, insulation, and structural components). These materials ignite and burn quickly and produce extreme heat and toxic smoke. A fire can easily double in size and intensity every 30 seconds. If firefighters cannot arrive in a timely manner and attack the fire quickly, a strong possibility exists that a dangerous flashover (simultaneous ignition of the all combustible materials in a room) will occur.

Flashover can occur within five to seven minutes of fire ignition and is one of the most dangerous events that a firefighter, or trapped civilians, can face. When a flashover occurs, initial firefighting forces are generally overwhelmed and will require significantly more resources to affect fire control and extinguishment. For an urban community, NFPA 1720 recommends the entire initial response of fifteen personnel be on scene within nine minutes of dispatch. For suburban communities, they recommend ten personnel on scene in ten minutes, while in rural areas it is suggested that six personnel arrive within fourteen minutes. The rural community benchmark would be the one applicable to Plympton. It is important to note though that for rural incidents, particularly those with only six personnel, operations will pretty much be limited to those that are defensive in nature.

It is also important to keep in mind that once units arrive on scene they will need to get set up to commence operations. NFPA 1720 recommends that units be able to commence an initial attack within two minutes of arrival, 90% of the time. Figure III-8 illustrates that flashover often occurs within about eight to ten minutes after the fire's inception. It also illustrates that the fire

department's response time to the fire is one of the only aspects of the timeline that the fire department can exert direct control over.

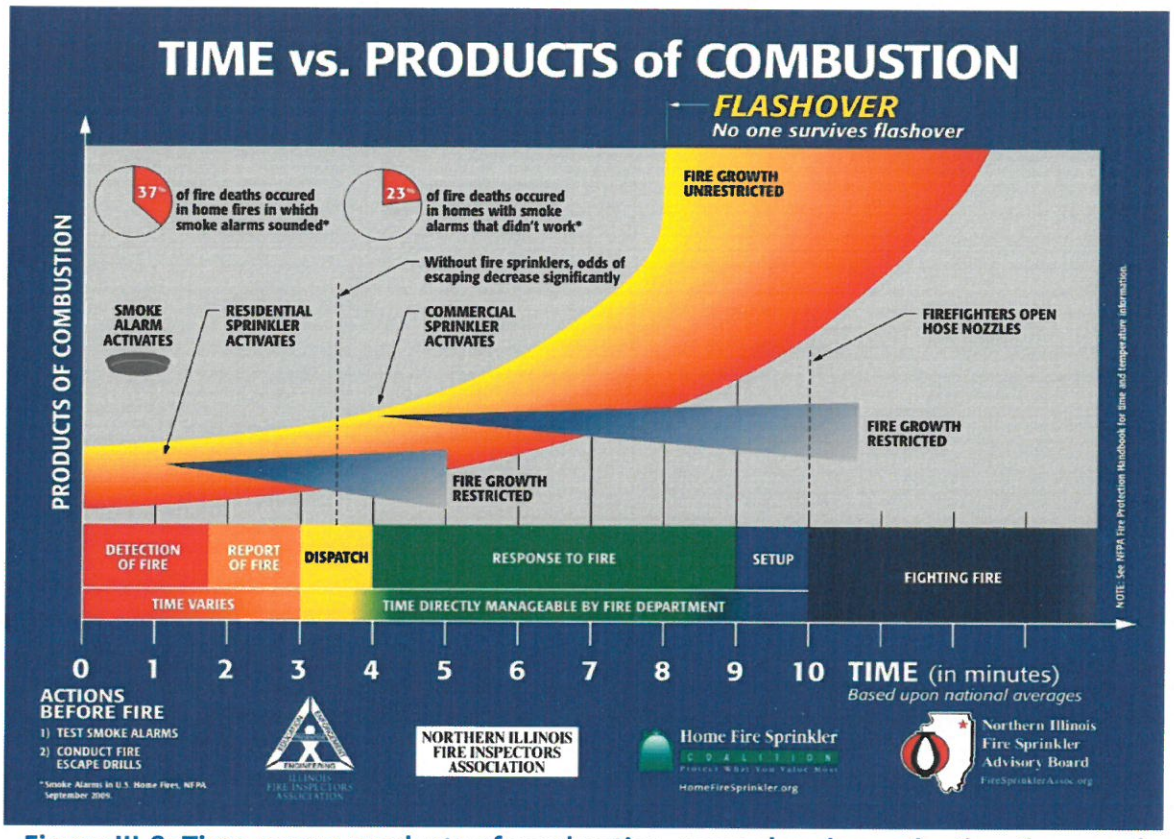


**Figure III-8: Time versus products of combustion curve showing activation times and effectiveness of residential sprinklers (approximately 1 minute), commercial sprinklers (4 minutes), flashover (8 to 10 minutes), and firefighters applying first water to the fire after notification, dispatch, response and set up (10 minutes).**

Image credit: Northern Illinois Fire Sprinkler Advisory Board
http://firesprinklerassoc.org/images/newflashoverchart.jpg

An analysis of the Plympton Fire Department's Incident Response Times for fire incidents in 2016 indicate the department having a unit on scene of a fire-related incident within six minutes of the incident being received, occurred 41.4% of the time, so just over four out of ten incidents. Looked at from the opposite direction, in 2016, 58.6% of the fire incidents took longer than six minutes for the first unit to arrive on location, and 29.9%, or nearly three out of ten, took longer 10 minutes or longer for the first unit to arrive on scene (Figure III-9). Extended response times such as these illustrate the problems with the majority of the fire department's call personnel not being residents of Plympton.

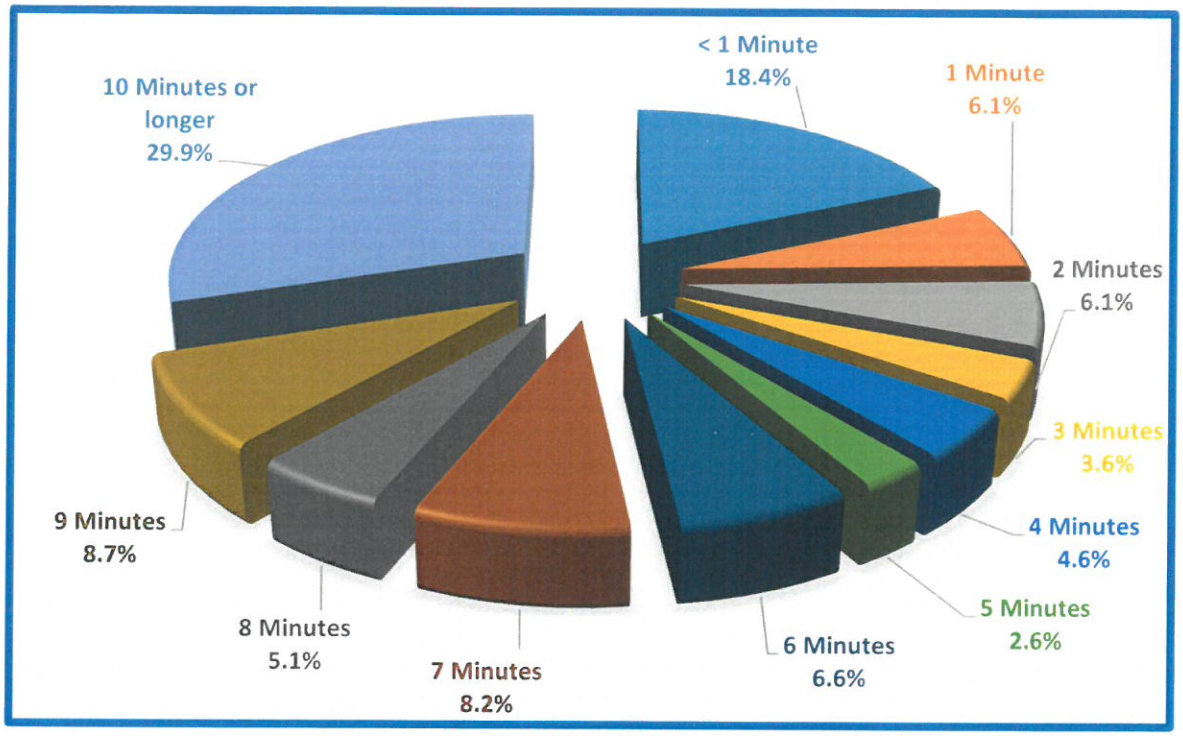


**FIGURE III-9: FIRE RESPONSE TIMES – 2016**

Both NFPA and ISO have established different indices in determining fire station distribution and thus a basis for a standard of cover. The ISO Fire Suppression Rating Schedule, Section 560, indicates that first-due engine companies should serve areas that are within a 1.5-mile travel distance. The placement of fire stations that achieves this type of separation creates service areas that are approximately 4.5 square miles in size, depending on the road network and other geographical barriers (rivers, lakes, railroads, limited access highways, etc.).

NFPA Standard 1720 provides only limited guidance as far as overall on-scene response times, limited to the full response assignment for reported structure fires based on the type of fire demand zone that the department is protecting. However, NFPA references the placement of fire stations in an indirect way. It recommends that fire stations be placed in a distribution that achieves the desired minimum response times. NFPA Standard 1710, Section 5.2.4.1.1, suggests an engine placement that achieves a 240-second (four-minute) travel time from the time the unit is actually responding. Using an empirical model called the "piece-wise linear travel time function" the Rand Institute has estimated that the average emergency response speed for fire apparatus is 35 mph. At this speed, the distance a fire engine can travel in four minutes is approximately 1.97 miles.[2] A polygon based on a 1.97-mile travel distance results in a service

[2] University of Tennessee Municipal Technical Advisory Service, *Clinton Fire Location Station Study*, Knoxville, TN, November 2012. p. 8.

area that on average is 7.3 square miles.[3] This would incorporate about 48.3% of the town's square mileage. With the fire station fairly centrally located except for the northern section of the town, above the intersection of Maple and Main Streets, and definitely above Route 106, it would appear that most responses outside of the 7.3 square mile polygon should be able to be made within a maximum response time of seven to eight minutes.

## INSURANCE SERVICES OFFICE

The Insurance Services Office's (ISO) Public Protection Classification (PPC) program evaluates communities according to a uniform set of criteria defined in the Fire Suppression Rating Schedule (FSRS). This criterion incorporates nationally recognized standards developed by the National Fire Protection Association (NFPA) and the American Water Works Association (AWWA).

Using the FSRS, ISO evaluates the fire suppression capabilities of a community and assigns a PPC classification; a number rating from 1 to 10. Class 1 represents exemplary fire protection (by ISO's standards), and Class 10 indicates that the area or community's fire suppression program does not meet minimum recognized criteria or standards. In most cases, this means there is no recognized fire department or formal fire protection. Any building more than five road miles from a fire station or outside the boundary of a fire protection area is rated 10. Generally, areas of a community that are more than 1,000 feet from a fire hydrant, but within five road miles from a fire station, are rated Class 9.

The FSRS allocates credit for fire protection by evaluating these four major categories (Figure III-10):

1. Fire Alarm and Communication System: This aspect of the evaluation examines a community's facilities and support for handling and dispatching fire alarms. This includes telephone lines and systems, staffing, and dispatching systems and equipment. This component equates to 10% (10 points) of the evaluation.

2. Fire Department: This component of the evaluation, which accounts for 50% of the total classification (50 points) focuses on the fire department and its operations. Areas that are examined include the number of engine and ladder/service companies, distribution of fire stations and fire companies, equipment carried on the apparatus, pumping capacity, testing of hose, pumps and ladders, reserve apparatus, department and on-duty staffing, and training.

[3] University of Tennessee Municipal Technical Advisory Service, *Clinton Fire Location Station Study*, Knoxville, TN, November 2012. p. 9.

3. Water Supply System: The third component of the evaluation is an analysis of the community's water supply system for fire protection. Chief among the areas that are examined include fire hydrant size, type, flow, and installation. In addition, the condition and frequency of inspection of the hydrants are evaluated. Finally, the overall capabilities of the water supply system are assessed in comparison to the needed fire flow for target hazards in the community. Forty percent of the final rating (40 points) is based on the water supply system.

4. A relatively new addition to the FSRS, the Community Risk Reduction section, offers a maximum of 5.5 points, resulting in 105.5 total points now available in the FSRS. The inclusion of this section for "extra points" allows recognition for those communities that employ effective fire prevention practices, without unduly affecting those who have not yet adopted such measures.

   The addition of the Community Risk Reduction section gives incentives to those communities who strive proactively to reduce fire severity through a structured program of fire prevention activities. The areas of community risk reduction evaluated in this section include:

   - Fire prevention
   - Fire safety education
   - Fire investigation

**FIGURE III-10: FOUR KEY PARTS OF ISO PPC EVALUATION PROCESS**
**Source: ISO**

Every city, town, or area that provides fire protection services is subject to being graded to establish a PPC. Individual buildings, both residential and commercial, are subject to the community's PPC. When calculating property insurance premiums, insurance companies using the PPC apply a factor that reflects a particular community's PPC. Some individual facilities within a community may also be individually assessed and assigned a specific rating. Although there may be validity to the argument that this rating is no longer utilized by all insurance companies that issue policies, ISO is still recognized as a comparative benchmark of public fire protection. Moreover, within the past several years, ISO has significantly revised its FSRS, and as a result, the PPC to reflect new innovations and technology and the evolving standards and industry best practices within the fire service. Among these changes are:

1. Greater reference to nationally accepted consensus standards; NFPA and AWWA.

2. Increased recognition of the value of residential automatic fire sprinkler systems.

3. Greater reliance on technology-based solutions (e.g., GIS, thermal imaging cameras, etc.).

4. Increased emphasis on fire training activities.

5. A new reference to national standard safety requirements.

6. A new reference to accreditation; Focus on master/strategic planning.

According to ISO, the PPC helps measure the effectiveness of fire protection and provides an important advisory evaluation to both insurers and communities. It is applied nationwide, and more than ever incorporates accepted national consensus standards. The PPC used in marketing, underwriting, and pricing of both homeowners and commercial lines of fire/property insurance. Broadly speaking, the cost of insurance premiums are generally lower with better protection which translates into lower losses; the cost is higher in areas that have lower levels of protection which often translates into higher losses. Many insurers still rely on this information, at least partially, to set their fire insurance rates.

- Based on the most recent ISO evaluation, the Plympton Fire Department received a split Class 03/3Y rating, which places the organization in the top 10% of fire departments across the country. Figure III-11 provides a graphical representation of the rating distribution across the United States.

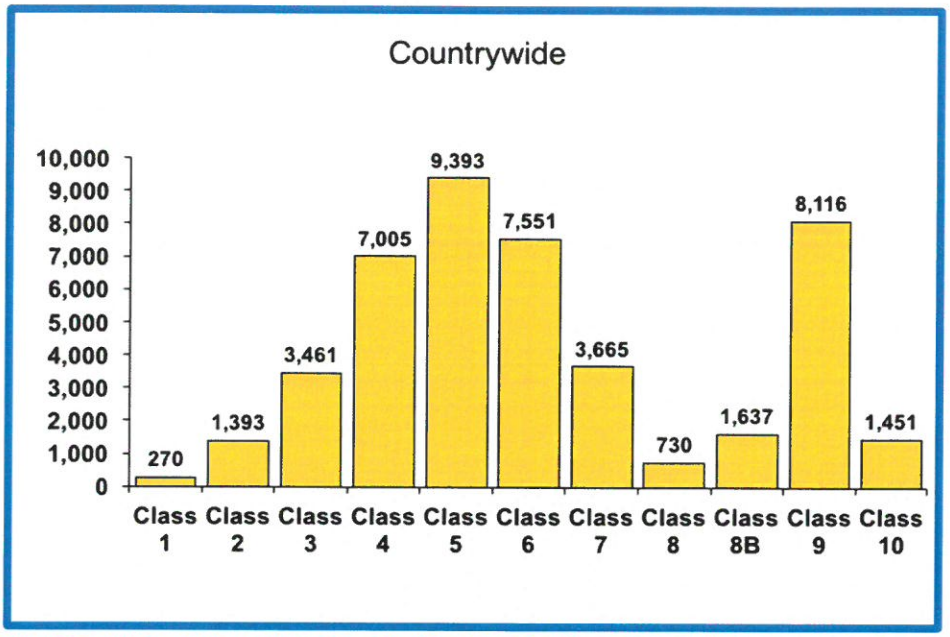


**FIGURE III-11: INSURANCE SERVICE OFFICE RATING DISTRIBUTION CHART**
**Source: ISO**

According to ISO, many communities receive split classifications, which were revised in 2013 to reflect the risk of loss more precisely. An example of the split classification is 03/3X or 03/3Y. The first number refers to the classification of properties within 5 road miles of a fire station and within 1,000 feet of a credible water supply. The second number, with either the X or Y designation, applies to properties within 5 road miles of a fire station, but beyond 1,000 feet of a credible water supply. ISO generally assigns Class 10 to properties beyond 5 road miles. The X and Y classifications replace the former 9 and 8B portions of a split classification, respectively. For example, a community formerly graded as a split 6/9 will change to a split 6/6X. Similarly, a community formerly graded as a split 6/8B classification will change to a split 6/6Y classification. Those designations reflect a reduction in fire severity and loss and have the potential to reduce property insurance premiums.

## HOW THE FIRE SUPPRESSION RATING SCHEDULE WORKS

The FSRS lists a large number of items (facilities and practices) that a community should have to fight fires effectively. The schedule is performance-based and assigns/deducts credit points for each item. Using the credit points and various formulas, ISO calculates a total score on a scale of 0 to 105.5. In its most recent evaluation, Plympton received 71.05 of the 105.5 potential points.

- **Emergency Communications:** A maximum of 10 points of a community's overall score is based on how well the fire department receives and dispatches fire alarms. Plympton received 9.31 of the 10 potential points available for emergency communications.

- **Fire Department**: A maximum of 50 points of the overall score is based on the fire department. Plympton received 28.50 of the 50 potential points available for fire department capability. A review of the rating indicates that the department received less than optimal credit for training, number of personnel, and deployment analysis. The need for personnel and a new deployment strategy has been well documented in this report.

- **Water Supply**: A maximum of 40 points of the overall score is based on the community's water supply. Plympton received 35.82 of the 40 potential points available for water supply. The MRI study team finds that a rating this high for a community with no municipal water supply system to be highly unusual and contrary to our experience almost anywhere else. Communities with no water supply systems rarely earn such high ratings in this area

- **Community Risk Reduction Strategies**: The Community Risk Reduction section of the FSRS offers a maximum of 5.5 points, resulting in 105.5 total points available in the FSRS. The inclusion of this section for "extra points" allows recognition for those communities that employ effective fire prevention practices, without unduly affecting those who have not yet adopted such measures. Plympton received 3.93 points for community risk reduction.

As was mentioned above, the MRI study team finds the overall final ISO PPC rating for Plympton to be significantly higher than our experience usually indicates for a community such as Plympton, particularly one that has no municipal water supply system. In addition, the department has significant operational deficiencies, starting with a limited number of personnel who possess even basic Firefighter I/II training and/or certification.

## EMS OPERATIONS

Emergency Medical Services (EMS) operations are an important component of the comprehensive emergency services delivery system in any community. Together with the delivery of police and fire services, it forms the backbone of the community's overall public safety life net. In fact, as a percentage of overall incidents responded to, it could be argued that EMS incidents constitute the greatest number of "true" emergencies, where intervention by trained personnel does truly make a difference, sometimes literally between life and death. Heart attack and stroke victims require rapid intervention, care, and transport to a medical facility (figure III-12). The longer the time duration without care, the less likely the patient is to fully recover. Numerous studies have shown that irreversible brain damage can occur if the brain is deprived of oxygen for more than four minutes. In addition, the potential for successful resuscitation during cardiac arrest decreases exponentially with each passing minute that cardio-pulmonary resuscitation (CPR), or cardiac defibrillation, is delayed.

- The potential for successful resuscitation during cardiac arrest decreases exponentially, by 7% to 10%, with each passing minute that cardio-pulmonary resuscitation (CPR) or cardiac defibrillation and advanced life support intervention is delayed.

- Few attempts at resuscitation after 10 minutes are successful.

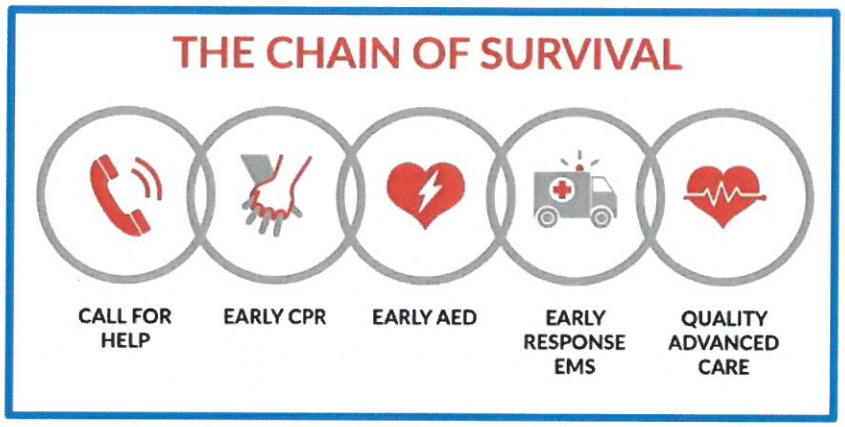


**FIGURE III-12: CARDIAC ARREST CHAIN OF SURVIVAL**

The EMS component of the emergency services delivery system is more heavily regulated than the fireside. In addition to NFPA 1710, NFPA 450 *Guidelines for Emergency Medical Services (EMS) and Systems*, (2009 edition), provides a template for local stakeholders to evaluate an EMS system and to make improvements based on that evaluation. The Commission on Accreditation of Ambulance Services (CAAS)[4] also promulgates standards that are applicable to their accreditation process for ambulance services. In addition, the Commonwealth of Massachusetts regulates EMS agencies, and certain federal Medicare regulations are also applicable.

The research conducted by the MRI study team indicates that Plympton has been struggling with its EMS delivery system since the 1990s. In the 1990s an Ambulance Study Committee commissioned by the town recommended that Plympton provide EMS services at the Basic Life Support (BLS) level with Advanced Life Support (ALS) being provided by a private company under a contract with the town. This system was ultimately implemented and worked well for a number of years. At some point after that, Plympton began providing ALS intermediate services with advanced ALS services still provided by the private ambulance. In approximately 2010, Plympton was forced to revert to BLS level service because they were unable to maintain the staffing levels mandated by the state. Subsequent to that, Plympton hired sufficient paramedics to have one staff every 12-hour shift. As a result, the town resumed ALS intermediate service

[4] The Commission on Accreditation of Ambulance Services (CAAS) is an independent commission that established a comprehensive series of standards for the ambulance service industry.

on February 1, 2013. Advanced ALS is still provided by the private ambulance, when needed, and if they are available.

Based upon the recommendations of a 2013 Ambulance Study Committee and review by another consultant, the town established a municipal full ALS system with the goal of making the town fully self-sufficient for most EMS incidents. This system is now also struggling to provide the necessary staffing on a 24/7 basis to maintain the service as required by the state. The focus on the ALS component of the EMS service, while well intended, and directed at EMS as the department's primary type of incident, has done so at the expense of fire operations staffing and readiness.

Since the 1970s, arriving within eight minutes of receipt of an emergency call, 90% of the time, has been the recognized benchmark for determining the quality of an EMS system. Today, the national standard of care benchmark based on stroke and cardiac arrest protocols has evolved to have an emergency response unit on scene at a medical emergency within six minutes of receipt of the call. Paragraph 4.1.2.1(4) of NFPA 1710 recommends that for EMS incidents a unit with first responder or higher level trained personnel, and equipped with an AED, should arrive on scene within six minutes of the receipt of the emergency call (at the dispatch center), and four minutes of response. An advanced life support (ALS) unit should arrive on scene within ten minutes (eight minutes of response). According to NFPA 1710, *"This requirement is based on experience, expert consensus, and science. Many studies note the role of time and the delivery of early defibrillation in patient survival due to heart attacks and cardiac arrest, which are the most time-critical, resource-intensive medical emergency events to which fire departments respond."* CAAS recommends that an ambulance arrive on scene within eight minutes, fifty-nine seconds (00:08:59) of dispatch. However, research in EMS indicates that if emergency medical intervention is delayed as long as nine minutes, patient survival of cardiac arrests approaches zero[5].

Typically, less than ten percent of 9-1-1 patients have time-sensitive ALS needs. But, for those patients, time can be a critical issue of morbidity and mortality. For the remainder of those calling 9-1-1 for a medical emergency, though they may not have a medical necessity, this ninety percent, still expect rapid customer service. Response times for patients and their families are often the most important issue regarding the use the fire department's services and are what most often refer to when they "rate" their local emergency responders. Regardless of the service delivery model, appropriate response times are more than a clinical issue; they are also a customer service issue.

An analysis of the Plympton Fire Department's Incident Response Times for EMS incidents in 2016, indicates the department having a unit on scene of a medical emergency within six minutes of the incident being received, occurred 31.2% of the time, so just over three out of

[5] Eisenberg, M.S., et al., "Predicting Survival from Out-of-Hospital Cardiac Arrest: A Graphic Model," Annals of Emergency Medicine; November 1993; pp. 1652-1658.

ten incidents. Looked at from the opposite direction, in 2016, 68.6% of the EMS incidents took six minutes or longer for the first unit to arrive on location, 50.5% took eight minutes or longer, and 21.9% (around one out of five) took longer than 10 minutes for the first unit to arrive on scene (Figure III-13). Extended response times such as these for an EMS unit that is generally staffed 24/7 with personnel in the station is totally unacceptable and certainly not providing the level of service that the residents should expect.

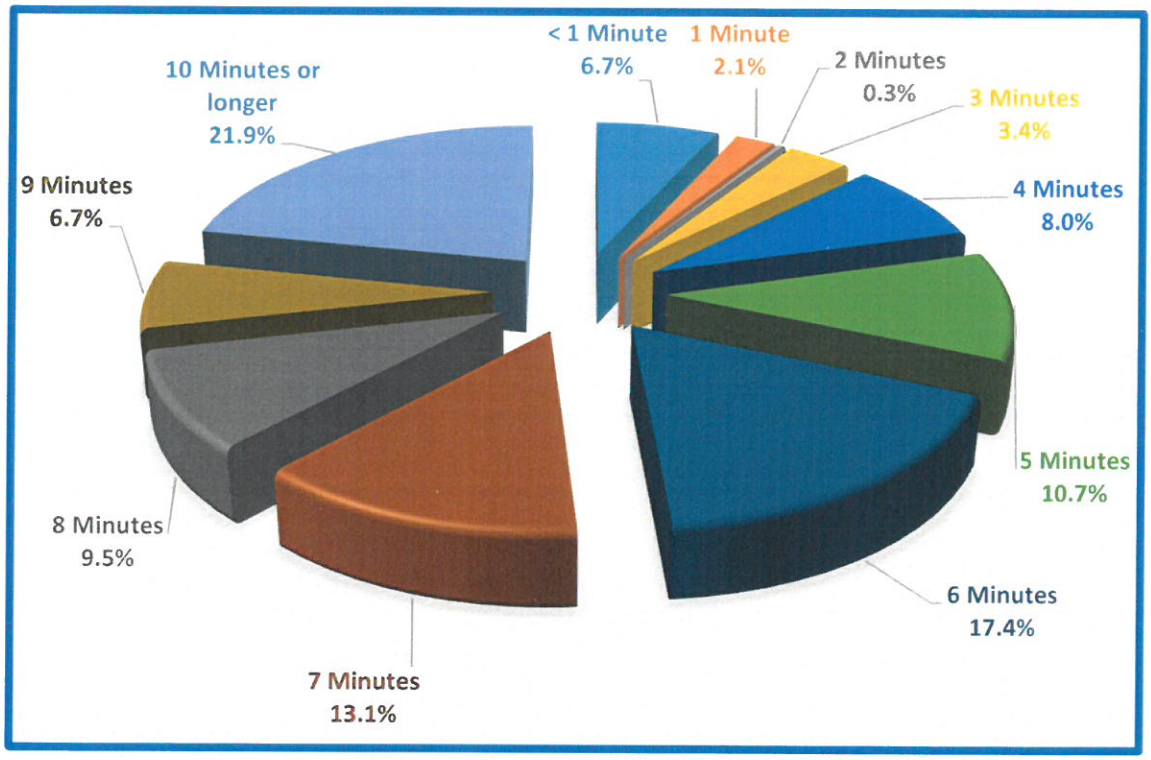


**FIGURE III-13: EMS RESPONSE TIMES – 2016**

As was noted for fire incident response times, using an empirical model called the "piece-wise linear travel time function" the Rand Institute has estimated that the average emergency response speed for fire apparatus is 35 mph. At this speed, the distance a fire engine can travel in four minutes is approximately 1.97 miles.[6] A polygon based on a 1.97-mile travel distance results in a service area that on average is 7.3 square miles.[7] This would incorporate about 48.3% of the town's square mileage. With the fire station fairly centrally located, except for the northern section of the town above the intersection of Maple and Main Streets, and definitely above Route 106, it would appear that most responses outside of the 7.3 square mile polygon

[6] University of Tennessee Municipal Technical Advisory Service, *Clinton Fire Location Station Study*, Knoxville, TN, November 2012. p. 8.

[7] University of Tennessee Municipal Technical Advisory Service, *Clinton Fire Location Station Study*, Knoxville, TN, November 2012. p. 9.

should be should be able to be made within a maximum response time of seven to eight minutes. It is important to note though, that because of their small size, ambulances can generally respond at a higher rate of speed which should expand that polygon farther, and reduce response times for EMS incidents.

## QUALIFICATIONS AND TRAINING

Training is, without question, one of the three most important functions that a fire department should be performing on a regular basis; the others being a response to emergency incidents, and fire prevention activities. One could even make a credible argument that training is, in some ways, more important than emergency responses because a department that is not well trained, prepared, and operationally ready will be unable to effectively, efficiently, correctly, and safely, fulfill its emergency response obligations and mission. A comprehensive, diverse, and ongoing training program is absolutely critical to the fire department's level of success. The need for well-trained officers, who may be faced with serious life and death decisions that must be made quickly and correctly are absolutely mission critical to any emergency services provider's ability to perform their designated mission(s).

Professional development for fire department personnel, especially officers, is also an important part of overall training. There are numerous excellent opportunities for officers to attend training on a wide range of topics outside of Plympton, including the Massachusetts Firefighting Academy in Stow, and the Volunteer Incentive Program (VIP) at the National Fire Academy in Emmitsburg, Maryland. All state sponsored fire academy courses are offered without charge to local municipalities. Annual events such as the Fire Department Instructor's Conference (FDIC) in Indianapolis and the Firehouse Expo provide a wide range of classroom training, as well as extensive hands-on evolutions. Beyond the practical benefits to be gained from personnel participating in outside training, encouraging personnel to earn and/or maintain various specialized certifications such as Fire Instructor, or Fire Officer, increases the positive professional perception of the organization and can help to demonstrate a commitment to continued excellence. The Plympton Fire Department has traditionally not encouraged or supported outside training or certification endeavors by its personnel.

The MRI study team also noted that the department's roster and organizational chart, which are publicly circulated, indicate that almost all personnel are firefighters. However, the duty staffing roster that was provided by the fire department for January 26, 2017, through December 1, 2017, listed just 18 personnel who possessed Firefighter I/II training and/or certification. The other 17, so 48.6% of the department's personnel are not certified firefighters. This includes one of the department's career firefighters. This is a critical issue of concern.

Having just over 50% of the department's personnel even trained or qualified at the basic skills and competency levels commensurate with their positions is a major issue that is confronting

the town and fire department. This situation calls into question the department's overall operational readiness, provides the town with a false sense of security, and may open the town up to increased liability. This is a major problem for the town and fire department, one that must be resolved. All of the current officers appear to possess at least basic Firefighter I/II certification.

The Plympton Fire Department currently does not have any type of formal promotional or officer selection process established. All officer positions, both career and call, should be filled based upon the person's firefighting/emergency services training, certifications, and experience commensurate with the position being sought, along with successful completion of a rank appropriate assessment process, and a basic practical skills evaluation. We would highly recommend that these standards include some provision requiring completion of Fire Instructor Level I and Fire Officer Level I as a minimum. All officers should also be required to have completed rank appropriate National Incident Management System (NIMS) training. Finally, they should be required to have completed incident safety officer training.

In conjunction with his officers, the fire chief should work to implement a career development program and succession planning process to ensure that all personnel can perform their superior's duties, as well as, identify the core future leaders of the department. This should include both career and call officers.

## ORGANIZATIONAL POLICY AND STANDARD OPERATING GUIDELINES (SOGS)

The use of rules and regulations, operational procedures, and various other forms of written communications are vital parts of a fire department's overall operations. Rules and regulations establish expected levels of conduct and general obligations of department members, identify prohibited activities, and provide for the good order and discipline necessary for the credible operation of a quasi-military emergency services organization. Operational procedures ensure the consistent, effective, efficient, and safe operation of various aspects of the department's operations, both emergency and routine. One of many common denominators among the best fire departments across the United States is that they have a comprehensive and up-to-date operational procedural manual, and their personnel are well versed and well trained in those procedures.

Fire department rules, regulations, and policies should work in tandem with and be consistent with the overarching ordinances, rules, regulations, and policies that have been adopted by the Town of Plympton. For example, policies concerning such topics as non-discrimination, sexual harassment, purchasing, freedom of information, Internet and computer usage (including social media), and smoking (on town premises or in municipal vehicles) are typically applied across-the-board to all departments, employees, and personnel. While the town should provide training and familiarization concerning these policies on a regular basis (an annual review is

usually adequate, with appropriate documentation), personnel are obligated to be familiar with and comply with each policy.

Standard Operating Guidelines (SOGs) document how operational tasks should be accomplished. In essence, they provide personnel guidance relative to how to accomplish operational activities safely and consistently. To be effective, SOGs should be developed by each department through a participative process. Once developed, personnel need to be trained on the SOGs and periodically refreshed as to their content.

The MRI study team evaluated the Plympton Fire Department's current written policy and guidelines system, which was dated September 2017, and found it limited in scope and content, including an absence of important policies and procedures. To begin with, it must be ensured that the town's personnel and other policies that are applicable to members of the fire department are fully integrated into the fire department's written communications system and are available to all members of the department since they should be applicable to them. The relative importance and relationship to each of the various types of documents should be clearly delineated within a written document.

Effective communications systems are key to successful operation of any emergency services organization. SOPs/SOGs and other orders are mission critical to consistent, effective, and safe operations. Without them there is a tendency to "freelance" and personnel may not all be on the "same page" regarding a wide range of emergency and administrative operations.

The Plympton Fire Department has very few standard operating guidelines (SOGs). Particularly for fire operations, the written communications system as it exists is seriously deficient for providing the wide-ranging guidance and direction necessary for operations involving a 21st-century fire and EMS provider. The lack of an effective system of standard operating guidelines (SOGs) will have an adverse impact on many different facets of the day-to-day operations of the department that can result in a lack of consistency during operations, freelancing, unsafe actions, loss of accountability and discipline, poor performance of individuals and operational crews, and increased risk to firefighters and citizens.

There are no operational procedures/guidelines in place to deal with mission-critical operations such as *Structure Fires*, *Basic Engine Company and/or Truck Company Operations*, *Vehicle Fire*, *Vehicle Extrication Operations*, *Rural Water Supply/Tender Operations* or, *Thermal Imaging Camera* and *Automatic External Defibrillator Use* to name just a few. These are the types of operational procedures/guidelines that are most important and provide standardization and consistency of operations.

On the EMS side of operations, the policy and procedures, manual dated 2016, was more thorough and comprehensive. However, it was uncertain who had developed the manual and whether it had been approved by either the fire chief and/or the town's medical director.

Regarding the security and maintaining accountability of ALS drugs, particularly with regard to narcotics, the manual merely stated to "follow department policies attached for medications". The copy provided to MRI did not contain those policies. During one of the team's field visits, they observed a storage cabinet in the EMS storage room that is designated for the storage of drugs and controlled substances with the padlock hanging unlocked (Figure III-14). Lapses such as this one can expose the department to significant liability and even result in the suspension of the department's ALS provider certificate from the state. This type of security breach is unacceptable and reflective of deeper administrative oversight and supervision deficiencies within the organization.

**Figure III-14: Storage room used for secured storage of controlled substances used by paramedics.**
**Note the unlocked padlock on the storage cabinet.**

In addition to providing normal operational direction, an SOG manual can be used to develop procedures or guidelines necessary to implement and/or comply with various statutes, regulations, policies, and plans. Doing this provides not only a clear distinction between the various types of documents, it would also serve to clarify the relative importance of each type of document. Generally speaking, the superseding order of these documents would be:

1. Statutes
2. Administrative Regulations
3. Town Policies
4. Rules and Regulations/Code of Conduct

5. Standard Operating Procedures/Guidelines

Fire department personnel can provide a valuable technical resource in the development of SOPs and SOGs. For the most part, the development and drafting of these policies should not be a top-down management driven process. Input from personnel at all levels will strengthen the quality and effectiveness of SOGs. In addition, the department training officer should play a critical role in the development and implementation of any SOGs. We also encourage fire departments to draw upon the policies, practices, and procedures of other organizations, both local and distant. The experiences and lessons learned from other fire departments can be extremely helpful in the development of SOPs and SOGs. No fire department should be expected to write a policy document from scratch or without a template. One challenge for Plympton will be to increase "buy-in" relative to these guidelines by establishing a participative development process and on-going training relative to these procedures. In essence, the department will need to adopt a new organizational culture that utilizes this form of operational guidance.

## RECOMMENDATIONS

**III-1 The Plympton Fire Department should make it a priority to complete a comprehensive fire and rescue community risk assessment. This assessment should be done in conjunction with a fire and EMS calls for service demand analysis, including the development of a pre-incident planning program for target and high-hazard locations in the community, and take into consideration the fire department's operational capabilities and preparedness.**

**III-2 The Plympton Fire Department should work to develop and implement an internal risk management plan following the recommendations of NFPA 1500, *Standard for a Fire Department Occupational Safety and Health Program*, and NFPA 1250, *Recommended Practice in Fire and Emergency Services Organization Risk Management.***

**III-3 The Plympton Fire Department should establish a formal pre-incident planning program with the goal of having an up-to-date pre-plan for every business and commercial occupancy (including schools, churches, etc.). The purpose of a pre-incident planning program is to develop a fire/emergency response plan for buildings in the district. A pre-fire/incident plan includes data such as the occupancy type, floor plans, construction type, hazards to firefighting, special conditions in the building, apparatus placement plan, water supply plan, and forcible entry and ventilation plan. Pre-planning will improve the firefighter knowledge of the specific tactics needed to handle a fire or other emergency at a facility, and will alert them to on-site**

**hazards and risks. Pre-fire/incident plans should be reviewed regularly and tested by periodic table-top exercises and on-site drills.**

**III-4 The Town of Plympton and the Plympton Fire Department should strongly consider adopting a municipal by-law requiring the installation of a fire water supply cistern in any new development consisting of three or more homes or for any individual home of larger than a designated square footage.**

**III-5 The Town of Plympton should make it a priority to improve its first unit on scene response times including the adoption of a Standard of Cover (SOC) for the town. The SOC should be based upon a hybrid of the NFPA 1710/1720 and CAAS recommendations.**

**III-6 With Plympton covering only 15.3 square miles, the Town of Plympton should adopt SOC benchmarks to have the first unit responding to emergency incidents within one minute of dispatch (career/staffed station) and have the first unit on scene within eight minutes after responding, to all types of calls, 90% of the time. In areas within 2 miles of the fire station, a response time of four minutes or less should be the goal, particularly for life threatening medical emergencies.**

**III-7 Although more stringent than the requirements found in Table 4.3.2 of NFPA 1720 for rural communities, through the utilization of automatic aid agreements with neighboring communities, as part of its standards of cover benchmarks, and in order to initiate other than limited defensive fire attack operations, the Plympton Fire Department should seek to have the entire first alarm assignment for reported structure fires, with at least 15 personnel on scene, within 15 minutes from dispatch, 90% of the time, throughout the entire district.**

**III-8 The Plympton Fire Department, in consultation and cooperation with its neighboring departments, should, if necessary, revise its run cards to ensure that a sufficient number and type of various resources (engines, ladders, tankers, etc.) are dispatched to various types of reported emergencies to allow the department to achieve its SOC benchmarks. The numbers and types of resources initially dispatched should be based on a risk management process or pre-fire/incident plan.**

**III-9 The Plympton Fire Department should establish a formal "performance improvement" process for fire suppression operations. The process should include the adoption of performance standards such as NFPA 1720, including on-scene performance indicators such as:**

- **On-scene to the charged line at the front door of a structure fire: two minutes or less, 90% of the time.**

- **Water from the hydrant to supply engine: three minutes or less, 90% of the time.**

**The point of the performance measures is to identify the community's expectations in a quantifiable way and to use the measurement of the fire company's performance against these objectives to identify areas which may need improvement or additional resources. The process should also include a provision for modifying SOGs, training priorities, and equipment as determined by the performance improvement program.**

**III-10 The Town of Plympton should purchase the administrative modules that accompany the fire department management software to allow the better extraction and analysis of important response time data and other necessary information.**

**III-11 An engine from the fire department should be dispatched automatically to every emergency medical call that is triaged through emergency medical dispatch (EMD) and is believed to be an unconscious person, or a respiratory, or cardiac arrest.**

**III-12 <u>The Plympton Fire Department, with the support of the Town of Plympton, should make it a priority to develop and implement a plan for providing and requiring, that all personnel, both career and call, attend, and successfully, complete a state-sponsored training program that will result in their achieving basic Firefighter I/II certification.</u>**

**III-13 The Plympton Fire Department should implement a formal standard, either through an SOG, or policy, that specifies a minimum number of hours of training personnel must complete in order to remain active. Seventy-two hours per year, so an average of six hours per month would be reasonable.**

**III-14 The Plympton Fire Department should implement periodic <u>basic</u> skills proficiency evaluations for <u>ALL</u> active personnel. These proficiency evaluations, consisting of standardized evolutions, can be based upon recognized standards and benchmarks, in conjunction with performance criterion and benchmarks, established through evaluation of, and based upon, fire department operations and procedures, both fire and EMS.**

**III-15 The Town of Plympton should require that all officer positions, from lieutenant to fire chief, should be filled based upon the person's firefighting/emergency medical services training, certifications, and experience commensurate with the position being sought, along with successful completion of a formal, rank appropriate assessment process, and a basic practical skills evaluation.**

**III-16 In order to assist with the large amount of training that needs to be done, and in**

**recognition of their important role in the delivery of training and the success of the program, the Plympton Fire Department should require that <u>all officers be formally certified at a minimum of Fire Instructor Level I.</u>**

**III-17 The Town of Plympton should strongly consider requiring its fire officers to obtain a certain level of fire officer certification as a job requirement, such as Fire Officer I for lieutenant, Fire Officer II for captain, and Fire Officer III for chief level officers.**

**III-18 The Plympton Fire Department should encourage personnel to seek additional training on their own, and to the financial and practical extent possible, send personnel to outside training opportunities such as the Firehouse Expo, and the Fire Department Instructors Conference in Indianapolis. Information gained at this training can then be brought back and delivered to other members of the department.**

**III-19 The Plympton Fire Department should mandate that all officers participate in additional officer related training each year in order to be eligible to retain their position. A reasonable requirement might be thirty-two hours of training consisting of:**

- **Firefighting strategy and tactics, incident management, EMS operations, or safety training (sixteen hours)**
- **Leadership or management training (sixteen hours)**

**III-20 The Plympton Fire Department should ensure that all department members are trained/certified to the minimal NIMS level required for their duties/responsibilities and ranks. In addition to the basic I-100/I-700 training mandated, it is our recommendation that all officers should be trained to the ICS-300 level. All chief level officers should be trained to the ICS-400 level.**

**III-21 The Plympton Fire Department should require that all officers be certified as Incident Safety Officers. Additional personnel who may be interested should be encouraged to take this training and obtain this important firefighter safety certification.**

**III-22 As part of the succession planning process, the next fire chief should work to implement a career development program to ensure that all officers can perform their superior's duties, as well as identify the core future leaders of the department.**

**III-23 The Plympton Fire Department should form a committee to begin development of a comprehensive department standard operations guidelines (SOGs) manual starting with mission-critical procedures such as, but not limited to, b*asic engine company and truck company operations, dwelling fires, commercial structures, rapid intervention***

***team operations, personnel accountability, gas leaks, hazardous materials incidents, ice rescue, vehicle extrication operations, and thermal imaging camera and automatic external defibrillator use, and important EMS procedures.***

**The committee should be comprised of a cross-section of members of the department. The committee should be given whatever support is necessary to complete at least a basic manual within one year. If necessary, outside professional assistance is available to assist with facilitating this endeavor.**

**The general set up and organization of the manual is a very important consideration and the department must ensure that the manual/system is easy to utilize and cross-reference the necessary procedure. If personnel are going to be required to learn and adhere to the department's procedures, then the format, organization, and filing of them must be user-friendly, otherwise, they will sit on a shelf unused.**

**The first operational procedure should identify and explain the components of the Written Communications System, including the use and organization of the SOG Manual and other components of the system such as standardized forms. This procedure should also contain a provision that the entire SOG Manual will be reviewed on at least an annual basis and that updates and revisions can/will be made at any time, as necessary. All procedures/revisions should be approved and issued after being signed by the fire chief. <u>EMS procedures should also be approved by the medical director.</u>**

**III-24 The Plympton Fire Department should adopt a standardized SOG form that includes the following information:**

- **Title of the SOG**
- **Number of the SOG**
- **Category of the SOG (EMS Operations, Fire Operations, Training, Administration, etc.)**
- **Page number and total number of pages**
- **Effective date**
- **Revision date (if applicable)**
- **Approval/signature of the fire chief and medical director, if appropriate. If a procedure is re-issued with only minor to moderate revisions it can**

**carry the original issue date with the revision date also noted. Revisions from the previous version should be identified by some means within the revised document. Full-scale revisions to a procedure should result in it being reissued with a new issue date.**

**Each SOG should, at a minimum, contain the following sections:**

- **Purpose**
- **Scope (If necessary and/or appropriate)**
- **Definitions of terms (If necessary and/or appropriate)**
- **Procedure(s)/Main body**
- **References (If necessary and/or appropriate)**

**III-25 The Plympton Fire Department should develop and implement a procedure that provides for the documented review of policies and SOGs that includes a provision requiring each member of the department to sign that they received the document, have read it, and understand it.**

**III-26 <u>The Town of Plympton and Plympton Fire Department must take immediate steps to improve administrative oversight and supervision particularly with regard to the storage of, and accountability for, the controlled substances and narcotics utilized in the ALS program.</u>**

## CHAPTER IV

## FIRE AND EMS STAFFING ANALYSIS

An effective response force is defined as the minimum number of emergency response personnel that must reach a specific emergency incident location within a prescribed period of time. The ability to get a sufficient number of properly trained personnel to the scene of an emergency, whether a fire or medical, is key to successful mitigation. Matching the level of training and certification with the potential needs of the patient for medical emergencies can be critical to the chances of a successful outcome to patient treatment efforts.

As part of the analysis of the Plympton Fire Department, the MRI study team requested data on the department's staffing levels along with the crew's level of certification. The chief provided the study team with a spreadsheet of approximately 10 months of staffing data. The data covered the period from January 26, 2017, through December 1, 2017. However, it was provided in a format that did not include any way to easy extrapolate or analyze the data. The Town of Plympton and Plympton Fire Department's primary goal described to the study team is that a two-person, cross-trained (for fire and EMS) initial response force (IRF) be present in the station, and available for immediate response, on a 24/7 basis.

This IRF would be deployed to handle either a fire or EMS call depending upon the nature of the incident that was received. The purpose of the IRF is to provide an initial response of personnel on scene to provide patient care or incident stabilization, and even mitigation, within six to ten minutes after a 9-1-1 call has been received requesting assistance. When necessary, the IRF is backed up by off-duty and on-call personnel who are available to also respond to the incident. The MRI study team reviewed personnel training and certification with the chief and developed a matrix relating to the training of personnel in relation to the actual staffing level attained.

The MRI study team performed an in-depth review of a four-month sample of this data set. During that review, each hour of staffing was reviewed along with the certification levels of the personnel on duty. This information was then compared to the stated goal of providing a 24/7 cross trained IRF. In general, the Plympton Fire Department does a good job combining the skills of the full-time, per diem, and on-call personnel to staff an ambulance at the ALS level on a 24/7 basis. Conversely, the goal of having trained fire coverage as part of the IRF appears to be rarely achieved. The analysis of this data revealed the following:

> The in-station IRF provides most EMS coverage while the on-call members, who are summoned by pager at the time of the emergency and respond from wherever they are at, provide the clear majority of fire suppression coverage. This is not uncommon in communities that are similar to Plympton; however, it does present a conflict between

the expected level of service within the community, and the actual level of service that the department is providing, given the current resource allocation (Figure IV-1).

- February 2017: ALS staffing was provided 574 hours (85%). A fully staffed ambulance with ALS capability was available, when not assigned to other calls, 85% of the time. While an ambulance with BLS capabilities may have still been staffed and available, 15% of the time the on-duty crew could not provide ALS service.

  While the crew was available to provide patient care and transportation, the crew was not certified to the firefighter I/II level, 61% of the time. This translates to reflect that the IRF was trained and certified to provided fire suppression 262 hours during the month, or just 39% of the time.

- May 2017: ALS staffing was provided 680 hours (91%). A fully staffed ambulance with ALS capability was available, when not assigned on other calls, 91% of the time. While an ambulance with BLS capabilities may have still been staffed and available, 9% of the time the on-duty crew could not provide ALS service.

  While the crew was available to provide patient care and transportation the crew was not certified to the firefighter I/II level 80% of the time. This translates to reflect that the IRF was trained and certified to provided fire suppression 143 hours during the month, or just 20% of the time.

- July 2017: ALS staffing was provided 694 hours (93%). A fully staffed ambulance with ALS capability was available, when not assigned to other calls, 93% of the time. While an ambulance with BLS capabilities may have still been staffed and available, 7% of the time the on-duty crew could not provide ALS service.

  While the crew was available to provide patient care and transportation, the crew was not certified to the firefighter I/II level 57% of the time. This translates to reflect that the IRF was trained and certified to provided fire suppression 329 hours during the month, or just 43% of the time.

- November 2017: ALS staffing was provided 701 hours (97%). A fully staffed ambulance with ALS capability was available, when not assigned to other calls, 97% of the time. While an ambulance with BLS capabilities may have still been staffed and available, 3% of the time the on-duty crew could not provide ALS service.

While the crew was available to provide patient care and transportation, the crew was not certified to the firefighter I/II level 93% of the time. This translates to reflect that the IRF was trained and certified to provided fire suppression 48 hours during the month, or just 7% of the time.

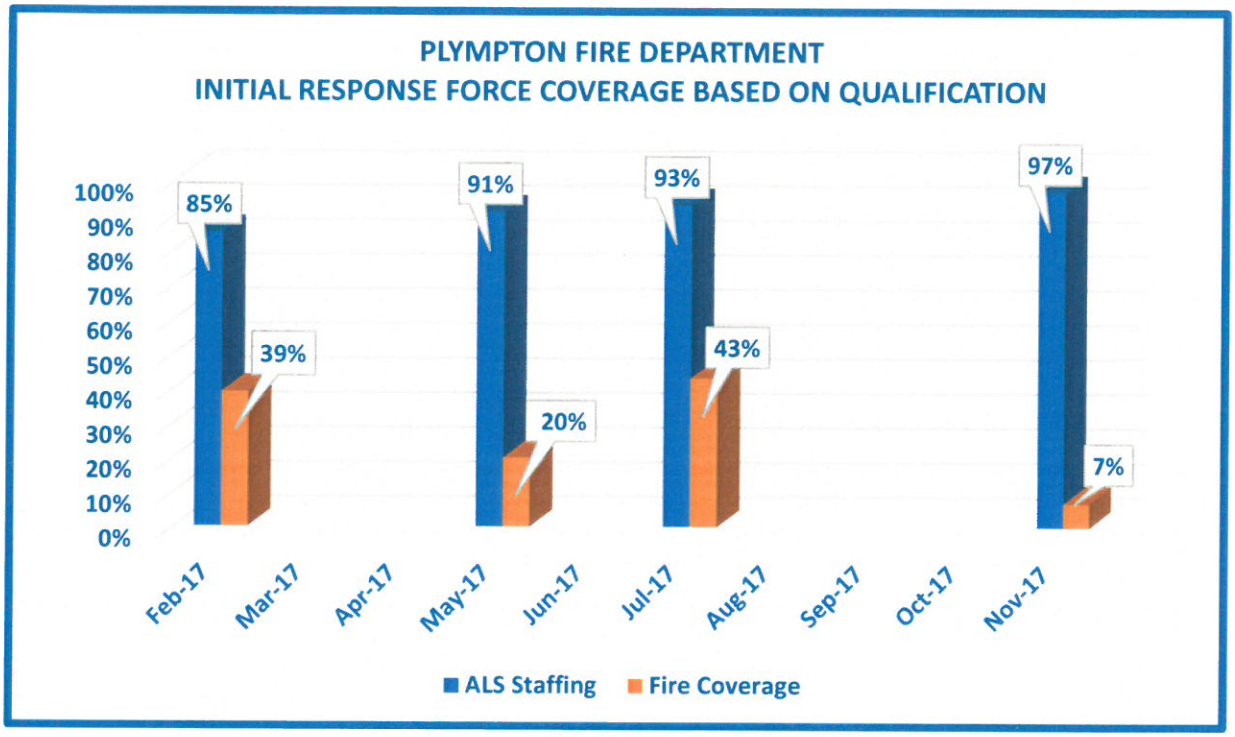


FIGURE IV-1

Overall Analysis: Between February and November, the level of ALS coverage gradually increased throughout the time period from 85% in February to 97% in November, a 12% improvement. Conversely, fire suppression coverage decreased substantially to a low of just 7% in November. The chief admitted that having a fully cross-trained IRF was a goal that the department would like to achieve. The current reality is that it is very difficult to attain.

## RECOMMENDATION

**IV-1 The development of an expanded pool of fully trained firefighting personnel who are residents of Plympton, and providing training to increase the level of certification to existing personnel, should be an ongoing operational priority of the Plympton Fire Department.**

## CHAPTER V

## ON CALL PERSONNEL RECRUITMENT AND RETENTION PROGRAM

As previously noted, the Plympton Fire Department is a combination fire and EMS organization, that is supposed to be primarily part-time/on call, supplemented by a small career staff. The department normally staffs two personnel on duty 24/7, primarily for the purpose of providing EMS coverage. As is evidenced by the need for this evaluation, the department is under an increasing level of scrutiny based on the community leadership's concerns relative to its operational capability and response, particularly during the overnight hours. The town and department are truly at a crossroads, caused in part to a diminishing level of on-call membership and response. The chief acknowledged the issue in his 2016 annual report when he mentioned the dramatic reduction in on-call members that live in Plympton. This has necessitated the department hiring personnel from other communities. The problem with that system is that depending upon travel distance and time, they may not provide the town with much value for emergency incident response, other than when they are actually on duty at the station. It is clear that the department is struggling to meet the needs and expectations of the community, and if unchecked and in fact not reversed, the department could eventually cease to be a viable emergency response organization.

The Town of Plympton has expressed a desire to retain a strong call firefighting force. We concur and believe that goal is realistic and achievable for the foreseeable future. This is particularly true in small communities such as Plympton. However, achieving this goal will require the implementation of program(s) to recruit and then, perhaps more importantly, retain personnel; a strong commitment from the town; and strong leadership in the fire department.

In March 2004, the International Association of Fire Chiefs (IAFC) issued a report by the Volunteer and Combination Officers Section, entitled *"A Call for Action: Preserving and Improving the Future of the Volunteer Fire Service"* (Appendix A). Among other things, the report highlighted the fact that the ranks of volunteer/call firefighters nationwide are declining due, at least in part, to an increasing demand for services. There are also various other factors that are prevalent to the reduction in the number of volunteer and on-call firefighters in communities such as Plympton. Among them is that the demographics of many communities today do not support a sufficient number of the type of person who is attracted to the fire service in the 21st century - someone with time to dedicate to public service, or a young person who wants to make a career of it. We have found that on average, for every five on-call firefighters recruited, two will remain active after a period of about 48 months has elapsed. This fact alone can frustrate recruitment efforts. The task of recruitment and retention is further complicated if the department lacks a true commitment (whether real or perceived) to the on-call force.

Presently, the Plympton Fire Department has twenty-five on-call members on its roster. On its own, this number would seem to be sufficient to provide an adequate level of emergency services to a town the size of Plympton. It is important to note that seven of those personnel (28%) are listed as being probationary members which often indicates that they are probably not cleared to operate on their own. In addition, in almost any call/volunteer emergency services organization there is going to be a percentage of members whose names still appear on the "active" roster, yet they no longer truly are, or are minimally so, for a variety of reasons. Factor in that most members of the call department have a primary job, other than the fire department, that probably limits their availability to respond, and that most of them do not actually live in Plympton, and the current personnel picture becomes much more of a concern.

Also, of significant concern is that information provided to the MRI study team by the Plympton Fire Department indicates that more than 50 on-call personnel have been terminated from the department since January 2014. There are widely divergent perspectives within the department regarding the reasons for these terminations or separations. This situation certainly contributes to the perception that there is less than a true commitment by the department leadership to the call force. The Town of Plympton, and the Plympton Fire Department, should make it a high priority and ongoing effort to recruit new members, retain existing personnel, and enhance the participation of those who have become inactive.

The size of the department, personnel-wise, would generally be adequate to handle the expected emergency workload in a town the size of Plympton. Some studies that have been conducted indicate that particularly in smaller communities, the fire department can anticipate that about one percent (1%) of their year-round population may be expected to be members of the fire department. Using this figure as a guide, Plympton would be expected to have about 28 members in the fire department, which it does. However, the fact is, that a significant number of the department's current members do not live in Plympton. This is a fairly common practice in the volunteer and call fire service, driven by the departments constantly striving to bolster their number of active personnel. While some of these members may be reasonably close to Plympton, there are others who live a considerable distance away, making their timely contribution to emergency operations questionable.

In November 2005, the IAFC Volunteer and Combination Officer's Section released a second report, called *"Lighting the Path of Evolution: Leading the Transition in Volunteer and Combination Fire Departments"* (Appendix B). This report further expanded on issues and strategies for maintaining high service levels to the community, and safety for emergency response personnel while simultaneously keeping costs down. One prominent question asked in the report was "How can fire departments ensure the delivery of services are reliable?" The answer was the development of a list of "indicators for change", where fire department managers and local government leaders need to be cognizant of warning signs pointing to potential problems and "prepare for change before it is forced on them by external circumstances". These "indicators" of change include:

***Community Growth:*** *G*enerally speaking, the larger the community, the larger the call volume, and higher level of service people expect.

***Community Aging:*** *M*aintaining an appropriate level of service depends on the fire department's ability to recruit new and younger members. *This appears to be a major issue for Plympton as many long time, senior members are retiring.*

***Missed Calls****: A* critical issue because it is a failure that is highly visible to the public and there is an over-reliance on mutual aid for coverage.

***Extended response times****: A* reliability problem as the public is not provided the appropriate service.

***Reduced staffing****: A* serious problem as it puts citizens and first responder safety at a greater risk.

Most of these issues appear to have growing applicability to Plympton and its fire department. The possible exception is the community growth aspect as Plympton is not currently experiencing any significant growth. These warning indicators are not necessarily an indictment of anything wrong in Plympton; the same problems are facing call and volunteer fire department across the country. A more recent report done in Pennsylvania (one of the states with the strongest traditions of volunteer firefighters in the United States) found that from 1976 to about 2012, the number of volunteer firefighters had declined from more than 300,000 to about 50,000.

Over the next three to five years, a significant effort will need to be put forth to recruit and retain on-call personnel. Although Plympton is far from alone in dealing with this reduction in on-call staff, it is essential that addressing this situation is clearly identified as a top priority of the town and fire department leadership and be adopted as a shared mission of the entire department. In fact, to attain success will require the development of new strategies and a monetary investment to reestablish a viable on-call component in the department.

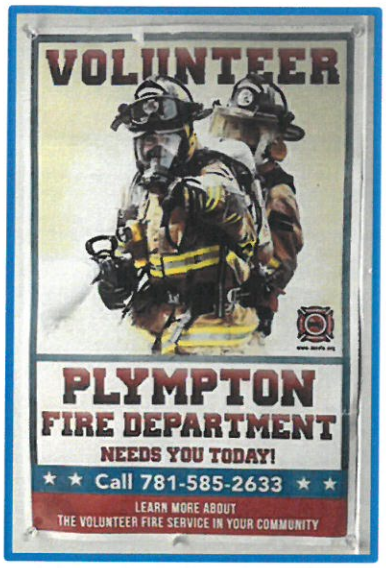


**Figure V-1: Volunteer recruitment poster**

The Plympton Fire Department does not have a formal recruitment and retention program for call personnel and only appears to recruit new members when necessary. The MRI study team was informed that most new members of the department are recruited by word of mouth. There is no mention of the need for additional members on the town's website, on the fire department's Facebook page (the fire department does not have its own website), or even a person to contact if someone is interested in joining the department. This is something that is frequently displayed very prominently on the websites of many call/volunteer departments and those of the community they serve. The sign to the left (figure V-1) was hanging in the fire station but there was no evidence these signs have been placed around the town as a recruiting tool. This is the type of recruitment poster the department needs to prominently display in high visibility or high traffic locations throughout the town.

Even if the recruitment obstacles can be overcome, hurdles remain before a new member is a productive member of the department. Once an individual becomes interested in becoming an on-call firefighter, they must achieve a level of ever-increasing specialized skill that is time-consuming. Often exit interviews reveal that the training commitment alone is daunting and one of the primary reasons that on-call personnel resign. It is also costly to the department. To become a certified firefighter takes several hundred hours. Once certified, there are the dozens of hours training annually spent maintaining firefighter and EMT or paramedic skills and certifications. As was noted by the chief, fire departments in Plymouth County are hiring at an increased rate making the competition for part-time and call personnel more intense. Younger call firefighters frequently use call training and opportunities as a stepping stone to seek employment as full-time firefighters, which often results in their loss to the community.

Unfortunately, in 2018 the average citizen does not want to spend a great deal of personal time dedicated to the fire and emergency services, especially when family commitments take priority. In addition, many on-call firefighters in departments that have a career force handling the day-to-day emergencies find it hard to stay motivated if they are not being utilized frequently. This creates a delicate balancing act. Other reasons for difficulty recruiting and retaining members include:

1. An overall reduction in leisure time.

2. Employment obligations and the common need to maintain more than one job.

3. The virtual elimination of employers understanding and flexibility relating to this form of community service.

4. Increased family demands.

5. Generational differences.

6. Increasing training requirements.

7. The cost of housing in many affluent communities.

8. Organizational culture.

9. Internal respect.

10. Recognition of personnel.

11. Internal communication.

12. Department leadership styles and commitments.

It is easy to believe that increasing the number of on-call firefighters can be a cure-all to eliminate all staffing, and thus response problems. Unfortunately, in 2018, this is an increasingly difficult problem to overcome. However, there still appears to be a small town feel to Plympton, and perhaps more importantly, a sense of community. These are key attributes that may increase the likelihood of success for any call firefighter recruitment and retention program. As noted earlier, some studies and reports prepared by various entities have noted that many call and volunteer fire departments serving small to medium-sized communities anticipate that about one percent of its year-round population will be members of the fire department. This would equate to about 28 members in Plympton. While we believe this figure is overly optimistic, particularly in 2018, if we cut it in half and said one half of one percent, the department could still anticipate a call membership of 14 to 15 residents of the town.

As most rural and suburban communities across the United States are dealing with the reduction of volunteer and on-call staff, trying to reverse this trend has become a common issue in many places. When compared to the ever-increasing costs of employing additional full-time career personnel, many communities have come to the conclusion that investing in on-call personnel is the best and more cost-effective practice and, to that end, they have pursued some of the following strategies:

1. Creating a marketing program to recruit new personnel into the department.

2. Placing a prominent banner or link on the home page of the Town of Plympton website and the Plympton Fire Department Facebook page.

3. Conducting a recruitment mailing to all residential properties in the town with information about the fire department and recruiting new members.

4. Placing signs at the entrances to town recruiting call members to the department.

5. Placement of a temporary signboard at various locations in the community.

6. Placement of a recruitment message on the signboard at the various municipal buildings including the town hall.

7. Working with local businesses in an attempt to form partnerships that would allow employees to leave work to respond to emergency incidents when needed.

8. Hire a volunteer firefighter "Recruitment and Retention Coordinator" to develop, implement, and coordinate these activities. This could possibly be undertaken by a number of communities as a regional endeavor.

9. Nurture the call fire department.

10. Increasing compensation rates or the minimum hours paid for a response.

11. Provide a reduction in property taxes, or a tax abatement incentive, for volunteer service.

12. Provide on-call firefighters with community-based benefits such as free dump stickers, etc.

13. Provide community-based awards and recognitions such as implementing an incentive for members that attain a level of more than 25% response. An example would be to provide gift certificates for local restaurants, concerts, or other entertainment as a reward for attaining a high level of response.

One of the challenges that many volunteer organizations face today is that the motivation of newer members is much different than the older, long-time members. The newer members tend to need to receive something tangible to show that their service is appreciated. This is a changing dynamic that the town and department will need to maintain awareness of as they try

to determine the most effective focus of their recruitment, and perhaps more importantly, retention efforts.

In the smaller government, anti-taxes, and benefits climate of today, many of these benefits can be controversial. However, after considering these strategies we have focused on developing innovative strategies for the Town of Plympton. One example of an unconventional and innovative best practice that we feel would work in Plympton is to provide a health insurance package for self-employed year-round residents, provided they complete training, certification, and provide the town with a high level of immediate response. Typically, this type of program attracts electricians, plumbers, painters and other trades as well as self-employed professionals that would be beneficial to the organizations.

An example of this best practice has worked successfully in the Town of Holliston, Massachusetts, for several years. Viewed as costly and unconventional, this program has retained a high-level of active personnel that provides an immediate response on a 24/7 basis. This strategy to invest in the on-call force avoided the need for career personnel, and compared to a smaller neighboring community, produced an overall cost (including health insurance) of 50% of what the neighboring community pays for fire protection. We believe a program of this nature is a good fit for Plympton and should be considered.

During our research for several previous studies in similar communities, a member of the study team visited Chief Michael Cassidy in Holliston and conducted an interview pertaining to this concept. An overview of that interview has been inserted below:

> *Holliston is a community of approximately 14,500 residents. It has a call firefighting force of 50, with an additional call EMS force of approximately 28 persons. Chief Cassidy is the only full-time employee, other than a few hourly workers who provide dispatch services. All of these personnel are eligible to participate in the town's health insurance program. Chief Cassidy reports that turnout at all incidents regularly exceeds NFPA 1720 standards. A recent structure fire that occurred midweek, midday, drew a response of 32 call firefighting personnel to the incident.*
>
> *All call firefighters are required to be certified as least to the level of firefighter I/II, the roster is currently full at the authorized strength and Chief Cassidy reports a waiting list of approximately 15 to 20 persons. He stated that the health insurance benefit offered to his call firefighters is most definitely the driving factor in his ability to maintain such a robust and adequately trained call firefighting force. Below is a breakdown of some of the numbers:*
>
> - *Chief Cassidy stated that approximately 55% of the current membership elects to take the health insurance benefit. Additional compensation is provided to the call firefighter should he or she elect not to participate in*

*the benefit group.*

- *Chief Cassidy stated that most all of the members that participated were self-employed tradesmen. Many of those who elect not to participate are young adults who might still be on their parents' health insurance. Since members can become call firefighters at age 18, and the department also has a very active Explorer post, which acts as a feeder pool for the department, a sizable number of the current call force are within the 18 to 26-year-old category, and may still participate in their parents' health insurance program.*

- *All call firefighting personnel must first successfully complete firefighter I/II training, no compensation is provided until after successful completion. If selected for employment, the call firefighter has the option of participating in the town's health insurance program.*

- *Those that elect to enroll in an HMO program have 60% of their expenses covered by the employer (family or individual plan). Members that prefer a PPO style plan have 50% of that cost paid by the employer.*

- *Holliston call firefighters also enjoy a very generous compensation program. Active members receive a base retainer, as well as hourly compensation for time actually spent working at incidents. Recently, the compensation package was expanded to provide a flat fee of $75 per month for those who regularly attend the bimonthly training sessions.*

*We asked Chief Cassidy if the rising cost of healthcare had caused local government officials any concern in providing these benefits to such a sizable number of part-time employees. He responded by saying that the trade-off was considered minimal in that the community enjoyed a consistent professional response by its call firefighters and EMTs without the cost of a full-time, unionized workgroup.*

Obviously, health insurance is expensive, and costs seem to escalate on an annual basis. However, landscapers, tradespeople, stay at home parents, and self-employed professionals that work from home are also confronted with this cost. The ability to join the town's insurance in itself may reduce their cost. Furthermore, the town could develop a sliding scale that would pay a percentage of the health insurance cost equal to the level of response provided by the responding firefighter (Figure V-2). We have suggested rate cost sharing as follows:

| PERCENTAGE OF TRAINING AND INCIDENT RESPONSE | PERCENTAGE OF HEALTH CARE EXPENSE PAID BY THE TOWN |
|---|---|
| 90% or greater participation | 50% |
| 70% - 89% participation | 40% |
| 50% – 69% participation | 30% |
| 33% – 49% participation | 20% |
| 25% - 33% participation | Eligible to enroll at the employee's cost |
| Under 25% participation | Not eligible to enroll |

FIGURE V-2: PROPOSED HEALTH INSURANCE PERCENTAGES

The federal government has a version of the Staffing for Fire and Emergency Response (SAFER) grant program that pertains strictly to volunteer and on-call firefighters. It provides competitively awarded funds to municipalities to recruit and retain on-call and volunteer firefighters. The grants fund expenses such as recruitment campaigns, and can provide money for expenses such as tuition for college curriculums in fire science, for EMT and paramedic training, health insurance for call members, physical fitness programs, uniforms, and various tax incentives offered to attract new candidates to join the fire department, then stay for an extended period of time.

We believe that the town/department should attempt to secure a SAFER grant to recruit and retain on-call members for the first time. This grant application should note the staffing issue that currently exists and indicate that the grant would be an attempt to meet the NFPA 1720 fire response standard. The goal of developing a viable call force of twenty-five total on-call firefighters would also be a goal to articulate in the grant application. It is quite possible that a portion of the healthcare program cost described above may be eligible to be incorporated into a SAFER grant.

There are no easy or guaranteed solutions to the staffing quandary facing Plympton and many other communities throughout the country. It is also important to stress that what may work in one community with regards to staffing and call/volunteer recruitment and retention may not work in another nearby community. Each community must individually determine what programs, incentives, and motivations will work, and be most effective in their community.

## RECOMMENDATIONS

**V-1 The Town of Plympton and the Plympton Fire Department should apply for a federal SAFER grant for on-call recruitment and retention. This grant should be utilized to develop a comprehensive marketing program to attract new members, and provide incentives for the retention of those personnel such as tuition reimbursement, health care benefits, tax abatements, etc.**

**V-2** **The Town of Plympton should recognize that the only way to develop a more active and properly staffed fire department in the absence of hiring a larger force of career firefighters is to determine what would motivate potential responders and craft a program of investment that meets these extrinsic and intrinsic needs.**

**V-3** **The Town of Plympton should convene a focus group to determine what concepts and recruitment and retention strategies are feasible and most attractive to potential candidates.**

**V-4** **The Plympton Fire Department should set a realistic goal of recruiting at least 15 new residents of the town as members over the next three years, and simultaneously set a goal of increasing the overall call member force to around 25 to 30 active personnel, most preferably town residents or residents of contiguous municipalities. These personnel should be required to be properly trained and certified to the Firefighter I/II level and preferably to the EMT-basic level. Other personnel who live farther away but possess specialized skills, such as paramedic, should still continue to be utilized as needed.**

**V-5** **The Plympton Fire Department should make it a priority to develop an active on-call recruitment program led by a ranking call officer. At a minimum this program should consist of:**

1. **Developing a recruitment brochure and mailing it to all residents**
2. **Holding periodic open houses at the fire station**
3. **Performing public outreach and advertising through the local media**
4. **Contacting community and service groups**
5. **Developing an eye-catching banner on the town's website and the fire department's Facebook page**
6. **Placing signs recruiting call personnel at the main entrances to town**
7. **Placing a temporary signboard at various locations within the community**
8. **Placing signs recruiting call personnel in town buildings and local businesses, particularly high-volume locations**

9. **Placing lawn signs recruiting call personnel at locations throughout the community**

10. **Implementing a fire explorer program**

**Although time-consuming, consideration should also be given to conducting a door-to-door recruitment campaign of every residence in the town.**

**The proposed SAFER Grant could be utilized to cover many of these expenses.**

**V-6** **The Plympton fire chief should develop a social media presence and involve other members of the department in this endeavor.**

**V-7** **The Town of Plympton and the Plympton Fire Department should attempt to enter into partnerships with local businesses to allow their personnel to respond, when needed, to emergency incidents during working hours, without any financial penalty.**

**V-8** **The Town of Plympton should explore the feasibility of utilizing, and in fact encouraging, town employees to perform "dual roles" by serving not only in their full-time positions but also serving the town as call firefighters and/or rescue personnel. Caution is needed here though as there are provisions of the Fair Labor Standards Act that would be applicable, particularly, if these personnel respond to incidents during times when they are not working.**

**V-9** **The Town of Plympton should consider the development of a program that would provide active responders with the opportunity to obtain health insurance. The town should pay a graduated percentage of this program based upon participation levels suggested in Figure V-2.**

**V-10** **The Plympton Fire Department should develop a series of team-based activities that build involvement in the organization.**

**V-11** **The Plympton Fire Department should seek assistance from the Massachusetts Call and Volunteer Firefighters Association (MCVFA) relative to enhancing recruitment and retention efforts in Plympton.**

# CHAPTER VI

## AMBULANCE REVENUE AND EXPENSE PROJECTION

The Town of Plympton maintains an Ambulance Fund where revenue generated through third-party billing for transporting patients with medical emergencies to the hospital is deposited. Third-party payers, such as private health insurers, Medicare, and Medicaid, are billed for EMS calls that result in the transportation of the patient to the hospital. The amount they will pay is determined in part by the level of care the patient required, whether BLS or ALS. However, they generally only underwrite the portion of prehospital emergency medical care associated with actually transporting the patient, and they generally only pay a portion of the amount billed. The base BLS rate on the Medicare schedule is $373.71, and for ALS it is either $443.78 or $642.33, depending upon the interventions performed by the ALS provider. The Medicare mileage rate is $7.17. In 2017, Plympton adjusted their third-party billing rates to Medicare +300%. The town was unable to provide an estimate as to what their insurance collection rate is.

The town contracts with a company named Comstar to perform the insurance billing. Comstar retains 5.5% of receipts collected for providing this service. Past due accounts are referred to a collection agency for action. Write-offs of balances due are authorized after the approval of a three member board, which includes the fire chief, town accountant, and a member of the board of selectmen.

The ambulance fund is used both for the acquisition of capital items such as replacement of ambulances, as well as, to supplement the fire department's annual salary budget. In fiscal year 2018, $250,000.00 was transferred from the Ambulance Fund to offset the fire department's total budget of $742,291.46. Figure VI-1 provides an overview and analysis of the ambulance fund for Fiscal Years 2012 through 2017, and the first quarter of Fiscal Year 2018 (through 9/30/17).

| AMBULANCE FUND | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 | FY 2017 | FY 2018 |
|---|---|---|---|---|---|---|---|
| **Beginning Balance** | $ 172,321.51 | $ 206,387.91 | $ 205,387.93 | $ 207,429.04 | 269,070.21 | 326,320.77 | 462,125.24 |
| Less: | | | | | | | |
| Appropriations | | | | | | | |
| EMS Budget Line | $ 61,800.00 | $ 107,161.00 | $ 125,000.00 | $ 125,000.00 | 125,000.00 | 135,000.00 | 250,000.00 |
| New Ambulance | | | | | | | |
| EMS Vehicle | $ 17,839.00 | $ 17,839.00 | | | | | |
| Fire Chief's Salary | $ 20,361.00 | | | | | | |
| **Total Appropriations** | $ 100,000.00 | $ 125,000.00 | $ 125,000.00 | $ 125,000.00 | $125,000.00 | $135,000.00 | $250,000.00 |
| General Receipts | $ 180,267.95 | $ 155,471.34 | $ 150,368.19 | $ 198,136.39 | $198,262.56 | $286,119.00 | $ 48,033.42 |
| Less: Payments- | | | | | | | |
| Other Towns | $ 36,854.91 | $ 22,371.11 | $ 17,165.79 | $ 7,071.02 | | | |
| Compstar | $ 9,346.64 | $ 9,100.21 | $ 6,161.29 | $ 4,424.20 | 16,012.00 | 15,314.53 | $ 2,508.93 |
| **Net Receipts** | $ 134,066.40 | $ 124,000.02 | $ 127,041.11 | $ 186,641.17 | $182,250.56 | $270,804.47 | $ 45,524.49 |
| **Balance - 6/30** | $ 206,387.91 | $ 205,387.93 | $ 207,429.04 | $ 269,070.21 | $326,320.77 | $462,125.24 | $257,649.73 |
| Actual Costs-EMS Service | | | | | | | |
| EMS Budget Line | $ 85,193.31 | $ 160,970.56 | $ 306,255.00 | $ 306,255.00 | 311,768.00 | 318,300.00 | 544,600.00 |
| New Ambulance | | | $ 255,000.00 | | | | |
| EMS Vehicle | $ 17,839.00 | $ 17,839.00 | $ 17,839.00 | | | | |
| Art. Modular Unit | | | $ 75,000.00 | | | | |
| Part of Chief's Salary | $ 20,361.00 | | | | | | |
| TOTAL BUDGETARY COS | $ 123,393.31 | $ 178,809.56 | $ 654,094.00 | $ 306,255.00 | $311,768.00 | $318,300.00 | $544,600.00 |
| All Fire Dept. Bud. Lines | | $ 320,352.00 | $ 496,669.00 | $ 501,669.00 | 510,240.00 | 519,907.00 | 637,600.00 |
| Lease Pay. - 3 Veh | | $ 107,283.00 | $ 104,691.46 | $ 104,691.46 | 104,691.46 | 104,691.46 | 104,691.46 |
| Articles- lst Res. Veh | | $ 7,971.49 | $ 7,971.49 | $ 7,971.49 | 7,971.49 | - | |
| New Ambulance | | | $ 255,000.00 | | | | |
| Modular Housing | | | $ 75,000.00 | | | | |
| Pers. Protective Equip | | | $ 28,600.00 | | | | |
| Communication Equip-Fire | | $ 20,300.00 | | | | | |
| SCBA bottles | | | | | | 16,800.00 | |
| Fire Pagers | | | | | | | 3,448.00 |
| Upgrades & Med Pumps | | | | | | 11,600.00 | 5,500.00 |
| Total Dept. Costs | | $ 455,906.49 | $ 967,931.95 | $ 614,331.95 | $622,902.95 | $624,598.46 | $742,291.46 |

**FIGURE VI-1: AMBULANCE FUND OVERVIEW AND ANALYSIS – FY 2012 – FY 2018 Q1**

Based on the data provided to the study team, we have developed a theoretical ambulance revenue and expense projection for the next five years as required within the scope of services. This projection considers the following assumptions that were utilized to build this projection:

1. The baseline call volume was 347 EMS calls for service as documented by the regional communications center (RECC). This number contradicts a higher number of 447 calls for service that was provided to the study team from internal documentation.

2. Projected call volume was adjusted at a growth rate of five percent (5%) per year. This is typical of the growth that our experience reflects in communities that have similar demographics to the Town of Plympton.

3. The average revenue generated per call currently stands at approximately $743.00. Based on experience, this amount was increased by two percent (2%) per year throughout the remainder of the model.

4. Net EMS revenue noted in the table considers the cost of billing and collections at a rate of five and one-half percent (5.5%) of actual revenue received.

5. The projected EMS expenses utilize the current operational expense of $544,600 and increases it at a rate of five percent (5%) per year. This is a conservative, but reasonable, increase based on the current operational model being utilized in Plympton.

6. A consistent amount of $36,000 per year was reserved to anticipate the capital costs of purchasing or refurbishing ambulances, and for the procurement of other new equipment.

7. Interviews conducted by the MRI study team indicated that the current year-to-year cost increases associated with EMS operations, particularly staffing, were not sustainable and that these costs needed to be further offset by ambulance revenues. Therefore, the amount allocated in year one (FY 2019) was increased to $325,000. This is a $75,00 increase that MRI believes was reflective of the tone of the interviews.

8. Annual increases in the allocation toward the fire department budget are set at $25,000 per year starting in Fiscal Year 2020 to address expected increases in wages and other expenses.

This revenue and expense projection reflects several assumptions, along with the desire of the Town of Plympton to increase the level of contribution from the ambulance fund, and further offset the fire department budget. A review of the information presented in Figure VI-2 indicates that the Ambulance Fund balance will decrease each year to the point of exhaustion in year five (FY 2023). The study team believes that the current ambulance rates are at the maximum amount sustainable and that these rates should be left in place. In addition, as it appears that Comstar and the town do a good job collecting these funds, we do not believe that further adjustment in rates or procedures will substantially enhance the revenue stream.

| | FISCAL YEAR 2019 | FISCAL YEAR 2020 | FISCAL YEAR 2021 | FISCAL YEAR 2022 | FISCAL YEAR 2023 | FISCAL YEAR 2024 |
|---|---|---|---|---|---|---|
| PROJECTED EMS CALL VOLUME | 382 | 401 | 421 | 442 | 464 | 487 |
| PROJECTED REVENUE PER EMS CALL | $743.00 | $758.00 | $773.00 | $788.00 | $804.00 | $820.00 |
| GROSS TOTAL PROJECTED EMS REVENUE | $283,826.00 | $303,200.00 | $325,443.00 | $348,296.00 | $373,056.00 | $398,520.00 |
| NET TOTAL PROJECTED EMS | $267,76.00 | $286,824.00 | $307,614.00 | $329,140.00 | $352,738.00 | $376,601.00 |
| STARTING BALANCE OF EMS FUND | $495,000.00 | $401,876.00 | $302,700.00 | $199,314.00 | $92,454.00 | - $15,808.00 |
| PROJECTED EMS TOTAL EXPENSES | $571,830.00 | $600,421.00 | $630,442.00 | $661,964.00 | $695,062.00 | $729,815.00 |
| CAPITAL EXPENSES | $36,000.00 | $36,000.00 | $36,000.00 | $36,000.00 | $36,000.00 | $36,000.00 |
| CONTRIBUTION TO FIRE DEPARTMENT TO OFFSET EXPENSES | $325,000.00 | $350,000.00 | $375,000.00 | $400,000.00 | $425,000.00 | $450,000.00 |
| ENDING EMS FUND BALANCE | $401,876.00 | $302,700.00 | $199,314.00 | $92,454.00 | - $15,808.00 | - $125,207.00 |

**FIGURE VI-2: AMBULANCE FUND PROJECTIONS**
**FISCAL YEAR 2019 THROUGH FISCAL YEAR 2024**

The assumptions made relative to call volume, revenue, and expense growth are conservative, but reasonable, and reflect the actual experience of several Massachusetts fire and EMS agencies that are similar to Plympton. Determining the exact amount of the contribution to the fire department budget is the largest variable that would have an impact on the overall sustainability of this model. As an example, if the fire department contribution was increased from the current rate of $250,000 at a constant rate of $25,000 per year, rather than the first year increase of $75,000, the model would still show a long-term decreasing balance, but enjoy several years longer in term of sustainability. As noted above, the study team believes increasing the contribution by $25,000 per year is a methodology to keep pace with cost increases.

The determination of the exact amount of the fire department contribution is a local decision. Our model considered the fiscal position of the community and reflected the annual contribution to be more aggressive as presented in the interviews that we conducted.

Several external environmental factors such as the structure of insurance payments and approved Medicare rates may produce a substantial deviation from this model as several changes are currently being considered. This includes both at the national, as well as the state level, where several legislative initiatives to curb the escalating cost of health care have been proposed. The town should closely monitor these changes and develop contingency plans should any change negatively impact the revenue stream.

As noted by the 2013 Ambulance Study Committee, *"without exception, municipal ambulance services are not profitable, similar to our highway, police and school departments. They provide a necessary service, a portion of which can be billed to insurance companies."* In the long run, the Town of Plympton will need to determine the exact level of the contribution from ambulance revenue and determine the level of service that will be supported by the community. This model indicates that providing ALS ambulance service through the Plympton Fire Department, with 24/7 staffing, is not a revenue neutral proposition. The service and expense level outlined within this projection should be considered as the community considers various service levels and shared service options.

## CHAPTER VII

## PRIVATIZATION OF EMS SERVICES

Privatization describes the process of shifting the delivery of what is normally a public service provided by the government, such as the provision of fire or EMS services, to a private sector enterprise. Private sector enterprises include non-governmental firms, partnerships, joint ventures, corporations, or other legal entities engaged in commercial activity for profit. There are two approaches to privatization that are usually explored relative to the delivery of public provided prehospital emergency medical services – contracting out and public/private partnership.

Contracting out may be defined as a governmental entity employing a private sector enterprise and its personnel to perform a service, rather than directly performing the service using government employees. The government may still pay and assume responsibility for the service, but hire a private company to provide the service. In the United States, contracting out is the most frequently used form of privatization. It may also be referred to as outsourcing.

In the United States, the emergency service most commonly handled by private entities is the provision of emergency medical services. This is true in New England, and specifically in Massachusetts. Some communities contract out the entire service, while others may only contract out certain components of the system such as the provision of ALS level care.

However, in many cases, when communities do not provide ALS level care themselves, they will enter into an agreement with a nearby community which does provide what is known as intercept care. In this situation, one or more paramedics from the community that provides ALS will respond to the incident scene, or "intercept" the ambulance at some point on its route to the hospital, to provide needed ALS care. Plympton has ALS intercept agreements, for when their own ALS service is unavailable, with both Carver Emergency Medical Services, a governmental agency, and Brewster Ambulance, a private EMS and ambulance provider. These intercept agreements require reimbursement of between $250 and $350 per patient.

The size of the community and expected call volume, and more specifically, hospital transports, play a large role in the cost-benefit equation to a municipality of contracting out EMS services in relation to continuing to provide their own service. In larger communities, where there is going to be a high number of requests for EMS service and transport, private companies will often offer to provide the service to the municipality at no direct cost. Instead, they will bill the patients that are treated and transported to the hospital. In these larger communities, these companies often supplement their income by also performing non-emergency, or non-urgent transports, for instance between medical facilities. They rely on volume to cover expenses and meet any performance standards for response times, number of staffed units, etc. to cover

their expenses and make their operation profitable. There are many communities in Massachusetts that have very successfully utilized these types of arrangements for many years. Third-party payers, such as private health insurers, Medicare, and Medicaid, only underwrite the portion of prehospital emergency medical care associated with transporting a patient to the hospital. As a result, because of its small size, and the low volume of EMS calls in Plympton, on average, less than one per day, it is unlikely that any private ambulance provider will provide service to the town at no cost. In all probability, any private entity that would provide this service is going to expect the town to contribute funding to subsidize and help to underwrite the costs associated with providing the service. This assumption is based on the town requiring an EMS unit and personnel to be stationed in, and dedicated to, Plympton solely for the purpose of proving emergency medical care.

Plympton has considered the option of privatizing EMS in the past. In 2013, an Ambulance Study Committee commissioned by the town reported that no private ambulance companies had responded to their requests for estimates to provide 24/7 service. One provider informed the town that they could provide the town with an ambulance if one was available. This type of service would be unpredictable, which could cause delays in patient care as a dispatcher tries to find an ambulance. Since that time, the companies providing those types of services in the Plymouth County area have decreased, further limiting options.

As part of this study, MRI requested that the Plympton Fire Chief send out an inquiry to several potential EMS providers asking for cost estimates. His inquiry stated:

> *The town of Plympton, Massachusetts, is currently studying costs associated with the delivery of fire and emergency medical services to our community. Part of this study asked that we determine what the cost would be if all ambulance service in the community was provided by a private service. The study assumes that the provider would station a fully staffed ambulance here in Plympton, at the fire station, as a dedicated unit providing advanced life support to the residents of the town. As such, please configure your quote based upon a 365 day a year, 24 hour a day staffing model that provides two personnel. Living quarters and apparatus bay space would be provided without charge. Please note that this request for information is purely for research purposes. Currently, the Town of Plympton is not requesting a bid for service.*

The chief received a single reply that estimated providing one dedicated ALS ambulance to the town, 24/7, would cost approximately $750,000 per year. It was noted that this estimate was very preliminary and did not involve the normal research and due diligence that would be involved in responding to a formal request for proposals.

The estimated cost of providing this service would be higher than the current cost of the service provided. This includes the overall fire department budget, which in fiscal year 2017 was

$624,598.46, and in fiscal year 2018 is approved at $742,291.46. Both of these figures are gross budgets without a revenue offset from the Ambulance Fund. In addition, the town would lose more than $200,000.00 that it generates each year through third-party billing to offset EMS operations, and which are deposited into the Ambulance Fund. In FY 2018, $250,000.00 was taken from the Ambulance Fund to offset the fire department's total budget. This resulted in the net fire department budget that the town needed to fund is $492,291.46.

Many private, and for-profit, EMS providers also use more aggressive billing and collection practices to collect payments for transports than municipal government providers normally do. This practice, known as hard billing, seeks to collect the transportation fees from the patient or their family even if they do not have insurance, or the insurance declines to pay, in full or in part. Most municipal governments, however, utilize what is known as soft billing which means they will often write off the cost of providing the transport, particularly for residents of the community who pay taxes, if they do have insurance, or the insurance declines to pay all, or part of the bill.

In many communities that have contracted with private ambulance providers to perform the patient transport function, the fire department is still involved in providing EMS response to varying degrees. In a town such as Plympton, it is reasonable to believe that the fire department would still need to be dispatched to assist EMS for life threatening incidents such as unconscious persons, and cardiac and respiratory arrests. Their assistance would also be necessary part time with lifting and moving patients.

Finally, municipal governments often provide service subsidies to the private EMS entity in the absence of an official partnership agreement. These subsidies are often in the form of system essentials provided to private companies by local fire departments, or permitting private ambulances to be deployed from public fire stations. This would be the case in Plympton. These facilities, paid for by the local taxpayers, still usually must be maintained by the local government even when they are being utilized continuously by another agency.

## RECOMMENDATION

**VII The Town of Plympton should not seek to privatize its EMS operations as, at the current time, it does not appear to make fiscal sense for the community.**

## CHAPTER VIII

## PERSONNEL PERCEPTIONS

During the course of this study, the MRI study team conducted more than 40 interviews of various Plympton Fire Department stakeholders. This included interviews with 17 current or former members of the Plympton Fire Department.

The basis of these interviews is summarized as:

1. Seventeen current or former members of the Plympton Fire Department were interviewed.

2. Seven of these interviews were conducted at the direction of the Plympton Board of Selectmen.

3. Ten interviews were individuals who responded to our invitation for a confidential interview.

4. Eight of those interviewed remain active in the department. Only two of those live in Plympton.

5. Seven of those interviewed either resigned or were forced to retire.

6. One member is currently under suspension by the department.

7. The two senior officers (captains) did not offer to be interviewed.

While everyone had unique opinions about the department there were some areas where the majority of those interviewed expressed a similar sentiment:

1. Most felt that the department was not operating at an optimal level.

2. Most felt that the chief was a "nice guy" but was not effectively leading the organization.

3. Many cited the chief's lack of administrative and managerial skills.

4. Many felt that the chief did not know how or care to perform payroll, scheduling, and budgeting.

5. Many felt that the chief hires, promotes, suspends, and terminates as he sees fit (no standards).

6. Most stated that training was not consistent, often impromptu, and had gotten away from basic skills training.

7. Many felt that the current staffing model was more concerned with providing advanced life support as opposed to staffing the shifts was qualified firefighters.

8. Most felt concerned about safety issues, including lack of trained personnel, and a lack of confidence in the command staff.

9. Many were concerned about the fact that the majority of those on the roster lived outside the community.

10. Most felt the need to recruit more residents to bolster the call force.

11. Each of those interviewed seems to point towards another individual or individuals that were undermining the department (there was no uniform agreement as to whom was at fault).

Some additional comments that serve to provide an important perspective on the issues currently facing the Plympton Fire Department include:

1. Nine of those interviewed were open to the idea of shared services, five were firmly opposed to any shared service agreement involving Halifax, while three were uncertain as to if the shared service model would work for the community.

2. Those opposing the shared service agreement were particularly critical of any involvement with Halifax. Two individuals commented *"anyone but Halifax"*.

3. Three of those interviewed felt as though the town needed to invest more money into the fire department.

4. Two of those interviewed felt the citizens did not fully understand the array of services provided by the department.

5. Of the vast majority of those interviewed, thirteen provided criticism of the fire chief. Of those, ten cited lack of leadership abilities, eight specifically mentioned an inability to perform administrative and managerial functions, seven specifically mentioned a lack of confidence in command, while six noted the

chief's preference to be a hands-on firefighter as opposed to as an effective administrator, leader, and fire ground commander.

6. Many of those interviewed expressed a specific discontent with current and former leaders of the organization beyond the fire chief including one of the lieutenants and a former deputy chief. Many of these personnel described incidents in which actions were taken by these individuals that would normally be performed by the chief (i.e., terminations and suspensions).

# CHAPTER IX

# FACILITY AND APPARATUS

## FIRE STATION FACILITY

Fire and EMS stations are a critical community asset. The station facilities of a modern fire and EMS department are designed to do much more than simply provide a garage for apparatus and a place for firefighters and EMS personnel to wait for a call. Well-designed fire and EMS facilities enable staff to perform their duties effectively, efficiently, and safely.

A fire EMS station should, at a minimum, provide adequate, efficiently designed space for the following functions:

1. Housing of fire apparatus and ambulances, with adequate space for apparatus length and height (and the housing of all equipment, including staff, service and support vehicles including trailers)

2. On-duty crew quarters, with sufficient toilet/shower/locker room space for both sexes

3. Adequate sized sleeping facilities (as necessary)

4. Kitchen and eating area

5. Training and meeting space

6. Administrative offices

7. Vehicle maintenance (as necessary)

8. Hose drying and storage (as necessary)

9. Supply and equipment storage

10. Public entrance/reception area

Many communities find that an emergency services station is an ideal place to locate the community's emergency operations center (a large room such as a training classroom can be designed to serve as the EOC when needed). Meeting rooms are also frequently made available to community organizations, thus increasing their versatility. However, in today's environment, serious consideration must be given to station security and whether allowing

members of the public, who are not members of the department, to utilize these facilities, particularly if there is open or easy access to the operational areas of the facility.

Fire and EMS capital facilities are exposed to some of the most intense and demanding uses of any public local government facility, as they are subject to use (and may be occupied) 24 hours a day. While the demands of use may be somewhat less in stations that are primarily staffed by call or volunteer personnel, the very nature of fire and rescue operations necessitate that all stations be functional, adequate to fulfill the department's core missions, and be well maintained.

Well-designed fire and EMS facilities enable staff to perform their duties effectively, efficiently, and safely. As a facility ages, it may no longer meet the needs of an evolving department and/or community, thus negatively affecting morale, efficiency, safety, security, technology, and overall efforts to provide quality fire, rescue, and emergency medical services. It may also hamper the ability of the department to keep pace with increasing and/or expanded requests for, and/or levels of, service. Older and/or obsolete facilities are also expensive to maintain due to inefficient energy systems. When these conditions occur, typical remedies include expanding, renovating, and/or replacing the existing facilities.

Typically, fire stations have an anticipated service life of approximately fifty years, although some newer stations are being designed to remain functional longer. In most cases, facilities require replacement because of the size constraints of the buildings, a need to relocate the facility to better serve changing population centers, the absence of needed safety features or service accommodations, and the general age and condition of the facility

The current Plympton fire station, located at 3 Palmer Road, was built in 1974 (Figure IX-1). The building measures approximately 52 feet wide x 50 feet deep. The station appears to be of Type V, wood frame construction, with a brick exterior and interior walls finished with sheetrock. The structure features an asphalt hip roof with a poured concrete slab floor. The building is heated by natural gas and electrical power is provided by the local utility. The station is equipped with an emergency generator, also powered by natural gas.

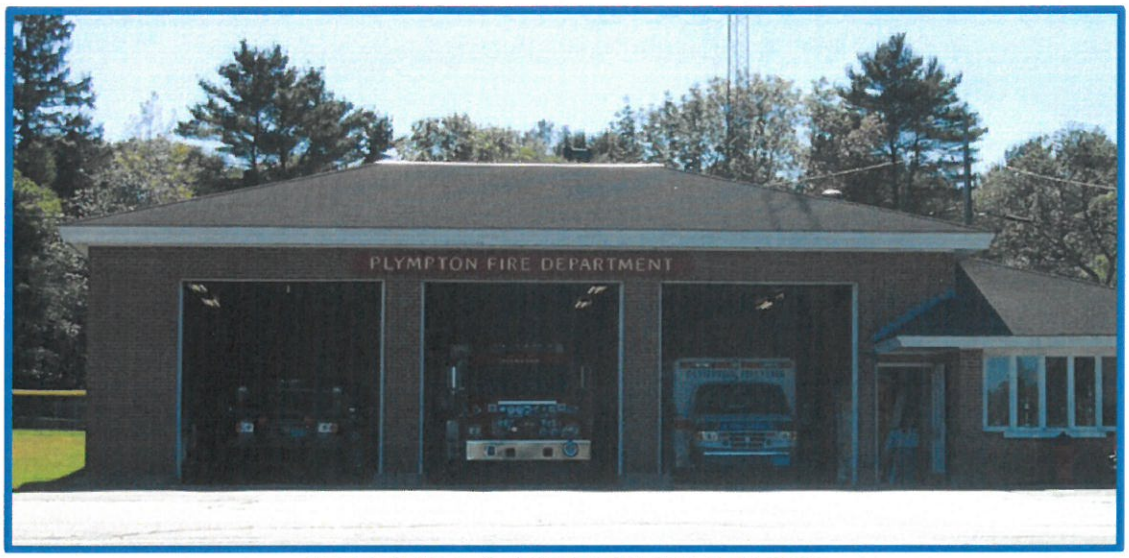


**FIGURE IX-1: PLYMPTON FIRE STATION**

The apparatus bay area consists of three double deep bays for the storage of apparatus that measures approximately 40 feet wide by 50 feet deep. The bays are non-drive thru, requiring vehicles to be backed into the station. The three overhead doors are each approximately 10 feet wide by 14 feet high. The apparatus bays are not equipped with a vehicle exhaust extraction system.

Vehicle exhaust extraction systems are designed to enable apparatus operators to attach a large flexible hose to the exhaust pipe before backing into the station. The system fan automatically discharges vehicle exhaust to the outside atmosphere. When the vehicle is driven out of the station, the discharge hose is automatically released once the apparatus clears the station. As a result of the lack of this type of system, the department's personnel are exposed on a regular basis to the harmful effects of breathing in both diesel and gasoline engine exhaust emissions. This exposure occurs during the response to, and return from, emergency responses, during training exercises, routine vehicle inspections, and any other time that any vehicle in the station must be started and driven either out of or backed into, the station.

Short-term, breathing in diesel and gasoline fumes can cause coughing, itchy or burning eyes, chest constriction, wheezing, and difficulty breathing. Long-term exposure to these fumes may increase the risk of lung cancer and possibly bladder and other cancers. There is additional evidence that the fine particles found in diesel emissions, particularly the soot, can aggravate heart problems and respiratory illnesses such as asthma. In addition, the members' personal protective equipment (PPE), which is stored in the apparatus bays in many stations, is continuously exposed to deposits of soot and other exhaust emission products that are released every time a vehicle is started in the station, resulting in a secondary exposure hazard to personnel as they perform emergency response duties. At least one major study has

concluded that diesel exhaust can penetrate into and be absorbed into clothing, furniture, and other items which firefighters routinely are in contact with, where it can later be absorbed into the firefighter's skin. Every time the firefighters put on this gear they are being exposed to these contaminants and potential carcinogens.

At the time of this assessment, a total of seven vehicles are tightly stored within the building. Four vehicles are lined up against the back wall, inches apart from each other. Three additional vehicles in the front of the bays are positioned literally inches away from the overhead doors in the front of the station. The tight proximity of apparatus in this area makes it very difficult to move around in this area particularly during cold or inclement weather when the doors would normally be closed. It also creates a safety concern. Figures IX-2 through IX-7 illustrate the concerns regarding the apparatus bays. It should also be noted that Breaker 183 is not stored in the fire station as there is no room for it. It is housed in a building nearby on Center Street.

**Figure IX-2 (left) and IX-3 (right): Four vehicles are parked tightly in the rear of the station with almost no room to move around them.**
**Three vehicles are stored in space designed for two.**

**Figure IX-4 (left): Engine 1 and Tanker 1 are parked close to each other. Note bollards to protect air compressor in the rear of the station between the two vehicles.**
**Figure IX-5 (right) Rear bumper of Engine 3 and front bumper of Tanker 1 when parked in the station.**

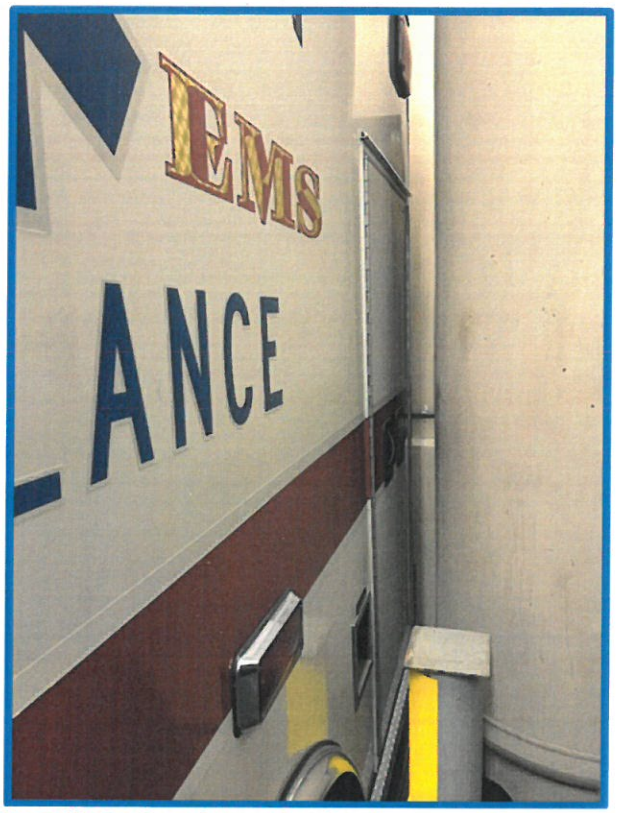


**Figure IX-6 (left): Front bumper of Engine 3 is literally inches from the front apparatus bay door when parked in the station leaving no room to move around the vehicle.**
**Figure IX-7 (right): Ambulance 1 is parked literally inches from old air compressor for station horn. Note bollard protection.**

**Figure IX-8: Workshop area along left side of apparatus bays. Oxygen is stored in the rear of this area.**

In addition to apparatus storage, the bay area also contains a workshop area along the left wall (Figure IX-8). An air compressor and oxygen storage are located along the rear wall. The large compressed air storage cylinder (previously used for the station's air horn) (Figure IX-7, above) is also located here. In addition, protective gear storage areas for personnel's PPE line both the left and right walls.

A smaller wing measuring approximately 12 feet wide x 50 feet deep contains a small reception area, the chief's office, general storage areas, one restroom with a shower (used by all genders), and a kitchen area (Figures IX-9 thru IX-11). The station was not originally designed with living quarters. It is not equipped with an automatic fire suppression system. It is equipped with a limited fire detection system but the condition of that system and whether it is even operational could not be ascertained.

**Figure IX-9 (left): Storage room also contains universal weight machine. Notice hose and other clutter in the room.**
**Figure IX-10 (right): Storage room used for secured storage of controlled substances used by paramedics.**

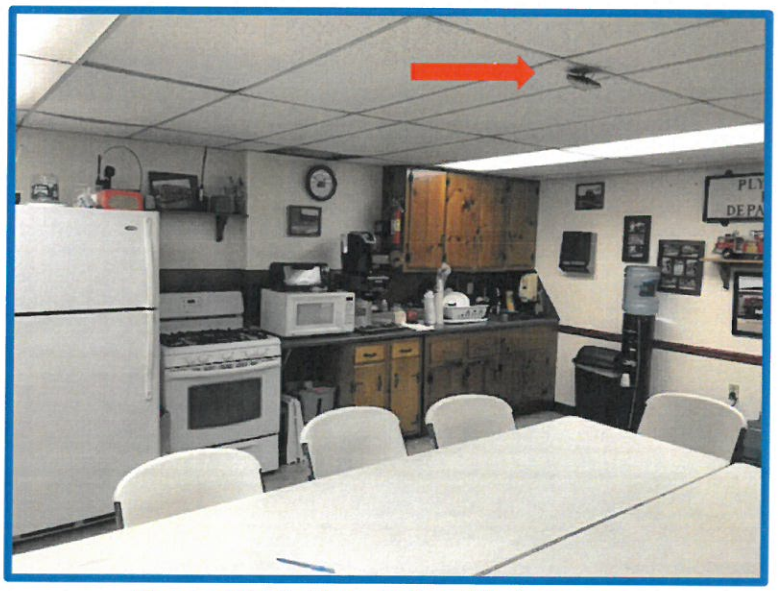

**Figure IX-11: Fire station kitchen area.**
**Note the hanging heat detector.**

In 2014, the department obtained a modular building to provide living space for the department's on-duty personnel (Figures IX-12 and IX-13). This modular structure measures approximately 50 feet wide by 12 feet deep. This structure is located approximately 10 feet away from the fire station. The building contains separate sleeping quarters for males and

females, including bathrooms and showers. There is also a common day room area and a shared office area. Water, sewer, electricity, and natural gas are supplied to this building from the fire station and wastewater is plumbed to the town hall's septic system located nearby.

**Figure IX-12 (left): Male bunkroom in the modular building contains two sets of bunk beds. (The female area contains a single bunk bed.)**
**Figure IX-13 (right): Report writing area in the modular building. The main fire station is visible outside the windows.**

While the original fire station appears to be in relatively good condition for its age, the building no longer provides adequate space to safely store all the apparatus and equipment needed to protect the community. Fortunately, the height of the apparatus is sufficient to accommodate modern fire apparatus. Should the community choose to renovate and expand the size of the current station, sufficient land exists to do so.

The modular structure which provides living space appears to be a temporary solution. Typically, buildings of this type have a limited lifespan. As the town considers the expansion, renovation, or replacement of the current fire station, use of this temporary modular structure should be discontinued.

The MRI team does have a number of concerns about the current fire station facilities. These range in severity from significant to minor, and include, but are not limited to:

1. Neither the fire station or the modular crew building is equipped with an automatic fire suppression (sprinkler) system. These structures are equipped with limited automatic fire alarm systems. However, the systems are not monitored, so they only sound in the building itself. They do not transmit an alarm to either the dispatch center or a central monitoring station meaning that a fire that starts when either building is unoccupied will not be reported until someone physically discovers it.

- ✓ The heat detector in the main station kitchen was observed to be hanging down from the ceiling.

- ✓ It could not be determined if the alarm systems had been tested and inspected, or were even in working order.

2. The facilities are not in compliance with the requirements and recommendations of **NFPA 1500:** *Standard on Fire Department Occupational Safety and Health Program* (2013 edition), which provides requirements for facility safety, maintenance, and inspections.

3. The fire station is not in compliance with the requirements and recommendations **NFPA 1581:** *Standard on Fire Department Infection Control Program*, which has requirements to provide minimum criteria for infection control in the fire station.

4. Firefighter personal protective equipment was stored in open lockers on the apparatus floor. The facility is not in compliance with the requirements and recommendations **NFPA 1851:** *Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting*. This standard provides safety requirements for storage and cleaning of personal protective equipment.

5. The apparatus bays are marginally adequate in size for a modern fire station: however, they, as well as other areas in the station, were very cluttered with disorganized storage.

6. Although they are not far apart, the on-duty crew must physically walk from the modular building to the fire station when they are dispatched to an incident. This situation occurs in all types of inclement weather and can add seconds onto "turnout" time, the all-important time that the fire department can control, from when a call is dispatched until a unit is actually responding to the incident.

## APPARATUS

The geography, infrastructure, hazards, and construction features within the community all play a major role in determining the composition of each department's unique and individualized apparatus fleet and equipment inventory. Plympton is primarily a rural community with the expected limited fire potential such communities usually present. However, new single-family dwellings are nearly all built utilizing lightweight construction which presents many safety hazards to firefighters. These factors, as well as, projected future needs, must be taken into

consideration when specifying and purchasing apparatus and equipment. Every effort should be made to make new apparatus as versatile and multi-functional/capable as is possible and practical.

A review of the Plympton Fire Department's apparatus fleet in terms of age, condition, and capabilities finds an older fleet, although overall it appears to be well maintained and in fair to good condition. The department's pumpers are ten, eleven, and twenty-two years old. The two brush trucks are twenty-seven and forty-four years old. Few department members can drive or operate the latter unit. The department's most heavily used vehicles, it's ambulances, are four and eleven years old. The newest piece of fire suppression apparatus is Tanker 1 which is five years old. Figures IX-14 thru IX-24 summarize the Plympton Fire Department apparatus fleet.

**Figure IX-14:**
**Engine 1 – 1996 Freightliner/Central States**
**Pumper – 1000 GPM pump capacity – 1000 gallon water tank**
**Fair condition. Several pump valves are no longer operational.**

**Figure IX-15: Engine 2 – 2008 Spartan/Smeal Pumper**
**1250 GPM pump capacity – 1500 gallon water tank**
**Very good condition**

**Figure IX-16: Engine 3 – 2007 GMC Danko pumper**
**110 GPM pump capacity – 400-gallon water tank**
**10-gallon foam tank**
**Good condition.**
**Undersized wheels for off-road operations which are no longer permitted.**

**Figure IX-17: Tanker 1 – 2013 Spartan/EVR pumper tanker**
**1500 GPM pump capacity – 3000-gallon water tank**
**Excellent condition**

**Figure IX-18: Breaker 183 – 1974 AM General Brush Truck**
**250 GPM pump capacity – 750-gallon water tank**
**Fair condition.**
**This unit is not stored at the fire station**

**Figure IX-19: Breaker 184 – 1991 Ford/EJ Murphy Brush Truck**
**200 GPM pump capacity – 450-gallon water tank**
**Fair condition**

**Figure IX-20: Ambulance1 – 2007 Ford E-450/ Wheeled Coach**
**Type III modular ambulance**
**Good condition**

**Figure IX-21: Ambulance 2 – 2014 Ford E-450/PL Custom**
**Type III modular ambulance**
**Excellent condition**

**Figure IX-22: Car 1 – 2011 Ford Expedition**
**Assigned to Fire Chief**
**Very good condition**

**Figure IX-23: Car 2 – 2014 Ford Explorer Command vehicle**
**Command unit/duty car**
**Assigned to duty officer**
**Excellent condition**

**Figure IX-24: Car 3 – 1986 Chevrolet 4 X 4 Utility Vehicle Fair condition**

For its staffing, and normal expected operational needs, the Plympton Fire Department has too large of an apparatus fleet. Although this situation is not necessarily unusual in volunteer and call fire departments, we believe that the department and community would be better served long-term by rightsizing and consolidating the current apparatus fleet into one with more operationally diverse capabilities.

When compared to national averages a community the size of Plympton would typically have the following resources to conduct effective fire service operations:

- 1-2 pumpers, one of which would be a fire/rescue pumper
- 1 water tender/pumper
- 1 wildland suppression vehicle
- 1 fire station

A fire/rescue pumper or squad combines the functions of an engine (pump, hose, water) with vehicle extrication and possibly other basic special hazards/operations (technical rescue/hazardous materials) tools and equipment. It is our opinion that this concept of operations should be adopted, in fact, be the basis of Plympton's rescue operations which are almost exclusively going to be related to vehicle rescue and extrication operations.

The MRI study team believes that Plympton having two ambulances is appropriate operationally. In any community, there are going to be occasions where there are simultaneous, or at least overlapping incidents, or situations, even relatively minor motor vehicle accidents, where more than one ambulance may be required. The odds of simultaneous or overlapping incidents increases in a community such as Plympton where every transport to the hospital will take time by virtue of the fact that all the local hospitals are located in neighboring communities, some with extended travel distances that lengthen turn-around

time. This is especially true when road conditions may be hazardous, particularly during the winter. In addition, any time an ambulance must be taken out of service for routine maintenance or minor repairs, the department needs another vehicle to back up the one that is out of service. Long-term, and obviously dependent upon what the town ultimately decides to do with its EMS service, the town should continue to maintain two ambulances in its emergency vehicle fleet. One will function as the primary response unit, while one would serve as a back-up and second unit when needed. Based on usage, a new ambulance should be purchased every seven to ten years.

## RECOMMENDATIONS

**IX-1** **The existing automatic fire alarm systems in the fire station and modular building should be upgraded to include appropriate heat and smoke detection devices throughout both facilities. These systems should not only be equipped with both audible and visible warning devices, they should automatically transmit an alarm to either the Duxbury RECC or an approved central monitoring station.**

**IX-2** **Both the fire station and the modular building should be outfitted with Carbon Monoxide (CO) detectors.**

**IX -3** **Long term, if the Town of Plympton is going to continue to utilize this fire station, consideration should be given to equipping it with a complete, automatic fire sprinkler system for the protection of the occupants, buildings, and equipment.**

**IX-4** **The Plympton Fire Department should apply for an assistance to Firefighters (AFG) Grant for the installation of a vehicle exhaust extraction system for all vehicles in all of the apparatus bays at the fire station.**

**IX-5** **A proper decontamination area should be constructed in the fire station for both personnel and equipment.**

**IX-6** **The station requires significant housekeeping and storage attention. While storage space is admittedly at a premium, the study team noted significant amounts of tools and equipment laying haphazardly throughout the station. Equipment that is obsolete, broken, or no longer used, should be properly disposed of which will free additional storage space. Arranging storage in an orderly manner rather than haphazardly will also maximize the use of available space.**

**IX-7** **The Town of Plympton and the Plympton Fire Department should conduct a spatial needs analysis of the fire department and its existing station, based upon the future,**

**long-term operational mission(s) of the department to determine whether to renovate, expand, or replace the existing facility.**

**IX-8 The Plympton Fire Department should right-size its apparatus fleet and surplus vehicles that are no longer needed. The MRI study team believes:**

- **Engine 1 and Breaker 183 can be removed from service.**
- **Consideration could be given to also replacing Breaker 184 with a modern, up-to-date brush unit.**
- **When the time comes for replacement, Engine 2, 2008, Spartan Smeal pumper, and Engine 3, 2007 GMC Danko pumper, should be combined into a single versatile, multi-purpose fire/rescue pumper.**

**IX-9 The Town of Plympton should give consideration to including funding to re-chassis Ambulance 1 at the Fiscal Year 2019 capital budget for town meeting when it will be 12 years old.**

**IX-10 The Town of Plympton should take advantage, if possible, of the fire apparatus and ambulance group purchasing system that is sponsored by the Fire Chiefs Association of Massachusetts (FCAM) and the Metropolitan Area Planning Council (MAPC). Municipalities may select a specific design and manufacturer from a pre-determined bid list and are not required to establish their own bid process. It is estimated that this group purchasing system will save approximately five to ten percent of the cost of a fire truck or ambulance (see www.mapc.org).**

# CHAPTER X

# SHARED SERVICES DEVELOPMENT

## OVERVIEW

Shared services can help municipalities increase effectiveness and efficiency in their operation. As municipal responsibilities become increasingly complex and demanding, municipalities should explore shared services and other cooperative opportunities as a way to reduce or avoid costs, improve service delivery, or maintain services.

Local governments such as Plympton and Halifax that are considering the exploration of shared services should perform a "needs assessment" in order to determine if an existing function can be provided more cost effectively or more efficiently through a cooperation agreement. That is a driving factor in the commissioning of this study. Finding a partner with which to share services is often accomplished by contacting neighboring local governments that already provide the function or that do not provide the function, but wish to do so. In this case, Plympton and Halifax have reached this stage in the process. The next step, after finding a partner, is to study jointly whether the cooperative arrangement is feasible. This process has already been placed in motion and will be developed more fully later in this chapter.

A word or caution is appropriate at this point, as many shared services efforts have been initiated, and promptly failed, because well-intended local officials did not lay a solid foundation for their cooperative efforts. If a program starts off on the "wrong foot," make sure efforts are promptly made to get it back on track. Focusing on a good start will form the solid foundation necessary for success.

## PLYMPTON AND HALIFAX

In the fall of 2016, the Town of Halifax contacted the Town of Plympton to inquire if there was any interest in exploring doing something collaboratively with regard to the provision of fire and EMS services. Halifax was interested in trying to improve the cost effectiveness of the services they were already providing, while Plympton was concerned about their service level and its continued viability. In November 2016, the boards of selectmen and fire chiefs of both communities met to discuss the potential for some type of shared service collaboration. This initial meeting was very positive, and the parties agreed to continue discussion.

In the spring of 2017, the Town of Plympton approved funding to have this study conducted, which was to perform an assessment of the current conditions in the Plympton Fire Department and provide some insight into whether the town should further explore the possibility of entering into a shared services collaborative with Halifax for fire and/or EMS services. As has been noted throughout this report, Plympton's current fire and EMS service is

struggling at many levels. This includes significant operational, administrative, staffing, and training issues.

Perhaps the best snap shot of these problems, and the associated concern over the continued viability of the current service, is that with only slightly over 50% of Plympton's personnel certified to the basic Firefighter I/II level, the goal of having a cross-trained fire and EMS initial response force was achieved just 7% of the time in November 2017. Complicating the problem for Plympton is the fact that their fire and EMS per diem, on call, and recently even full-time, career staff experience high levels of turnover. This situation is going to create problems in any work environment, but can be especially problematic in the emergency services.

When looked at more broadly, both Plympton and Halifax have resources, that if properly managed, can benefit the other. Both also have needs, beyond the issues specifically identified with Plympton. Primary among these needs is finding ways to more efficiently allocate scarce tax dollars to providing credible emergency services. Being small communities, with relatively low emergency call volumes, and limited resources with which to fund emergency services, makes the cost-effective provision of emergency services a challenge. Because they would not generate enough return on an investment, privatizing services like EMS in small communities such as Plympton and Halifax, while still maintaining dedicated resources for timely response to emergency incidents, is not economically feasible for commercial ambulance providers.

During the course of the MRI study team's work in Plympton, all of the current members of the Plympton board of selectmen were interviewed, as was one member of the Halifax board. In addition, both fire chiefs were interviewed multiple times. There was unanimous support for the two communities to explore a possible collaborative effort between the two communities for the provision of, at a minimum, EMS services at the ALS level.

As part of this process to date, the Halifax fire chief has already developed several possible options for his department providing EMS services to Plympton. He has also developed very rough cost estimates for each of these proposals. An initial, very basic analysis of all of these options indicate that each of them could possibly be achieved more cost effectively than Plympton is currently attempting to provide the service themselves. Of course, the challenge with these types of proposals is always in the details so they would need to be developed much further, and evaluated carefully, to determine their ultimate feasibility.

In order to facilitate the continued exploration of the feasibility of sharing these services between the two communities, and whether they can be done cost effectively, in November 2017, the board of selectmen in both Plympton and Halifax voted to apply jointly for a state grant to continue with the process. The grant application requested $20,000.00 to cover the cost of this study, $30,000.00 for negotiating the inter-municipal agreements, and contingent upon approval by voters in both communities, $100,000 for cost associated with the actual steps needed to cross-train, equip, and start-up the shared services system. On January 12,

2018, the towns were notified that the Division of Local Services has awarded them $132,300.00 for the research, development, and implementation of a shared service model for Fire and EMS.

It is the very strong opinion of the MRI study team that, considering the deficiencies noted in the current Plympton Fire Department operations, and the long-term challenges we believe the department will face with providing effective fire and EMS service, but in a cost-effective manner, that shared services may present the town with its only viable option. As illustrated in Chapter VI, Ambulance Revenue and Cost Projection, given the rapidly escalating cost of providing EMS services to the town, at the ALS level, while revenues grow at a much slower pace (and have much uncertainty for the future) the Ambulance Fund will start operating at a deficit in just about five years, At that point, the annual financial burden on the town's taxpayers will then continue to increase substantially each year.

## RECOMMENDATION

**X.1 The Town of Plympton should definitely continue to explore all options for possibly sharing fire and EMS services with the Town of Halifax, that will significantly enhance the level of service being provided to both communities.**

## MOVING FORWARD

Considering the development of a shared services partnership with the Town of Halifax requires a well thought out, phased approach. The success of shared services within New England is limited based on several fiscal, political, and culture issues that develop as a shared services partnership is explored. Therefore, to attain success in the development of a shared services project, a realistic timeframe must be established, and all stakeholders should be involved as the project is developed.

**Levels of shared services include the following:**

- ***Administrative*:** Two or more fire departments remain legally separate, but groups from each perform special functions (e.g., sharing and staffing a fire station; sharing a fire chief, developing a jointly owned training facility; creating joint powers agreement to facilitate beneficial purchasing arrangements, or owning capital infrastructure such as radios, SCBA, or turnout gear.)

- ***Functional:*** Legally separate, but perform as if one department. (Examples: Combined dispatch; combined training; standardized on-scene protocols.)

- ***Operational:*** Remain legally separate, but joint administrative, operations, and delivery of services is performed as if it is one department.

- ***Selected Geographical:*** Often found in large cities, departments combine in low-incident areas.

- ***Full:*** Two agencies completely merging into one, single, legal agency.

**Why do communities pursue the development of integrated or shared services?**

The largest benefit derived from the development of a shared service model is most often an increase in the level of service provided to both communities. Although many believe that the primary benefit is a cost reduction created by the economy of scale, our experience indicates that shared services projects are usually developed based on a service level issue. Therefore, cost reduction may be a secondary benefit. It should be noted that the level of savings attained is usually well below the expectations of those that believe consolidation of operations is a fiscal silver bullet.

Benefits of shared service development often includes the following:

1. A larger pool of personnel to respond to emergencies;

2. Elimination of municipal service boundaries;

3. Decreased response times;

4. During periods of high activity, a consolidated department may allow for more effective deployment of apparatus and avoidance of extended response times;

5. Reduced use of call-backs and overtime;

6. The ability of consolidated departments to create uniform procedures to serve a larger geographic area (as opposed to several independent departments with their own procedures covering the same area) produces higher efficiency and enhanced safety to firefighters; and

7. Proponents also argue that consolidation of several small departments can present an important opportunity to establish a strong organizational culture in a new department that replaces outdated standards and norms and emphasizes best practices.

As discussions are initiated with the Town of Halifax, current organizational configurations and costs should be documented. The second level of consideration is to determine the extent and configuration of a shared services model. Finally, the Town of Plympton would need to

determine how a proposed shared services model would impact the community. This includes determining budgets, staffing levels, coverage in the community, response times, and the use of existing resources.

Small to medium size communities often have trouble maintaining Advanced Life Support (ALS) coverage. This often results in a smaller community utilizing the ALS resources of a larger adjacent community to provide the level of care necessary. In this case, the larger service provides ALS intercept services on an as needed basis in consideration of a negotiated fee.

An ALS intercept is infrequently called to Plympton, as the ambulance is staffed the majority of the time at the advanced life support level. In fact, it appears that most of the department's energy is devoted to providing 24/7 ALS coverage often at the expense of fire coverage. Based on this situation, a model to consider would be providing a first response system within Plympton to provide rapid emergency medical care and contracting EMS services to an adjacent community. This would allow the department to continue to provide a rapid response and allow the organization top refocus on the delivery of fire services within the town.

If a transport unit cannot be staffed in Plympton, mutual aid is requested from an adjacent community and the ambulance sent provides patient care and transportation. In the case of Plympton, the level of service has become inconsistent, and the development of a shared service model is appropriate to meet the level of service expectation that exists within the community.

The process for any communities that are considering some level of shared services implementation include three phases.

- ***Planning Phase:*** Decisions regarding participation, funding formulas, organizational structure, governance model, and human resources issues occur in this phase.

- ***Implementation/Transition Phase:*** Activating the newly agreed upon shared service model.

- ***Post-Shared Phase:*** This is the time immediately after activation of the newly shared services.

  - ✓ Service and technology issues are common during this phase.
  - ✓ Not usually indicative of the success of the shared service model.
  - ✓ Keeping these issues in proper perspective is vital.

## Documentation of Current Conditions

**The following questions are foundational and should be the basis of information sharing between the two communities. Each community should develop a profile based upon these questions. Specific to Halifax, the following questions should be asked by the Town of Plympton:**

1. What was the Fiscal 2018 Fire/EMS Budget in Halifax?
2. What is the proposed Fiscal 2019 Fire/EMS Budget in Halifax (not including Plympton)?
3. How many EMS transports did the Halifax Fire Department complete in 2017?
4. What was the total amount of EMS services billed in 2017?
5. What was the total amount of the EMS revenue collected in 2017?
6. What are the current EMS billing rates?
7. What would be an average bill for a Plympton resident requiring ALS care to be transported to a local hospital by a Halifax ambulance?
8. What would be an average bill for a Plympton resident requiring BLS care to be transported to a local hospital by a Halifax ambulance?
9. What hospitals could Plympton residents be transported to?
10. Who bills or collects for your EMS Services delivered?
11. What percentage of payments is charged by the billing company?
12. What is the amount of overtime budgeted for Fire/EMS in 2017?
13. What is the amount of overtime expended for Fire/EMS in 2017?
14. How many administrative staff do you have?
15. How many full-time staff are certified as Firefighter I/II?
16. Number of on-call personnel?

17. How many personnel are required to maintain the minimum on duty per shift strength in Halifax (do not include day staff)?

18. Average number of personnel that respond to a structure fire?

19. What is the shift schedule that career personnel are currently working?

20. How many on-call or volunteer personnel?

21. How many on-call or volunteer are Firefighter I/II Certified?

22. How many on-call members are EMT certified

23. How many fire stations does Halifax currently operate?

24. How Many:

    a. Engines
    b. Ladders
    c. Tankers
    d. Rescues
    e. Ambulances
    f. Forestry units

25. Please list the number and ranks of:

    a. Chief
    b. Deputy/Assistant
    c. Captains
    d. Lieutenants
    e. Firefighters
    f. Other

26. What bargaining will need to be completed to pursue the concept of shared services?

27. What is the percentage of participation by Halifax on-call firefighters?

28. Will fire prevention education, inspection, and investigation services be provided?

29. Will training be provided to Plympton personnel?

## Contractual Option for EMS Coverage

**If the Town of Plympton decided to contract with the Town of Halifax to provide patient care and transportation, the following questions would be relevant:**

30. How would EMS response be restructured?

31. What would be ambulance response times to the Town of Plympton?

32. How many ambulances would the Town of Halifax operate?

33. What would happen to Plympton's ambulance and existing capital assets?

34. What is the expectation relative to having the Town of Plympton provide a non-transport first response?

35. What first response capabilities are expected?

36. Which community would collect ambulance revenue?

37. If Halifax collects ambulance revenue as they are the transporting service, would funds be paid to Plympton to support first responder training and response?

38. What is the cost to Halifax to provide transport EMS in Plympton?

39. How long would it take to implement this system?

40. After considering ambulance revenues generated from transports in Plympton, what is the remaining annual cost to Halifax?

41. What would be the annual cost to the Town of Plympton for this service?

42. What would be the basis of this cost (number of calls, population, land area)

43. How would this cost be adjusted?

44. How frequently would this cost be adjusted?

45. What level of service and cost stability will be provided to the Town of Plympton (examples include: a ten-year contract and an annual cost adjustment based on an agreed methodology).

46. What would be the length of a contract?

47. What would be the terms or provisions of contract renewal?

48. What role would current Plympton EMS personnel play?

49. Will Halifax provide first responder and EMS training for Plympton personnel?

50. How would Plympton EMS personnel be compensated (through Halifax)?

**Development of Full Automatic Aid – Dual Response**

Mutual aid is provided upon request at no cost to the requesting community as defined by Massachusetts state law. Communities strive to balance the level of mutual aid between communities to balance resources and costs.

Automatic aid, also known as a dual response model, is the simultaneous deployment of multiple resources upon the receipt of an emergency call. In this case, Halifax would immediately respond to all emergencies in the Town of Plympton and Plympton resources would be available to respond to the Town of Halifax. The utilization of this response methodology has become commonplace across the United States. Within Massachusetts, the use of this response model is not wide spread, but it is expanding within geographic pockets based upon a limited resource pool and the decreasing availability of on-call and volunteer personnel.

**If the Town of Plympton sought to expand the use of mutual aid and develop a system of automatic aid/dual response, the following questions would be relevant:**

51. Would Halifax be interested in developing a dual response model?

52. What would the cost of this response change be to the Town of Halifax?

53. When could this response change be implemented?

54. As a step toward integration, personnel from both agencies would constantly work together. How would they train together?

55. How would joint Standard Operating Guidelines (SOGs) be developed and shared?

56. Would bargaining based on a change of working conditions be required? How would this be addressed?

57. What are the cultural issues and barriers between the two departments?

58. How can these barriers be addressed?

59. How would this response model operationally function in terms of coordination and communication?

60. Would both agencies be dispatched utilizing a common radio frequency?

61. How would Plympton on-call personnel be integrated into and utilized within this model?

62. How would this response model be administratively managed in terms of budgets?

63. How would this response model be managed between the two Fire Chiefs?

64. What role would the two Boards of Selectmen have in managing this response model?

65. How frequently would the respective Boards of Selectmen be briefed by the Fire Chiefs?

**Integration/Consolidation of both Agencies**

NFPA 1720 - Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public by Volunteer Fire Departments is the standard that applies to fire service operations (not EMS) in the Town of Plympton. The full standard is available online at: https://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards.

For EMS services, since they are being provided by personnel being paid, and, who are physically staffing the station, NFPA 1710 - Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public by Career Fire Departments would be applicable.

The NFPA 1720 Standard of Cover required by this document for structure fires is to initially have six personnel at an incident within 14 minutes, 80% of the time. However, as recommended earlier in this report, we recommend a higher level of personnel within the recommended time frame so that personnel can implement more than just strictly defensive actions.

**If the Town of Plympton decided to pursue a full consolidation of fire and EMS services, the following questions would be relevant:**

66. Would the response requirement and standard of cover outlined within NFPA 1720 be attained?

67. Would it be possible to achieve the higher number of personnel on scene in order to facilitate more than defensive fire operations?

68. What would be the on-scene response time targets for EMS operations?

69. How would the new agency be governed?

70. How would costs be shared?

71. How would costs be controlled?

72. What would be the staffing model associated with this integration?

73. How many personnel would be on duty day/night?

74. Where would personnel be deployed?

75. How would bargaining be pursued and stakeholders involved as this option develops?

76. What is a realistic timeline for implementation?

77. What approval is needed within the Town of Halifax? (Vote of the Board of Selectmen? Town Meeting approval?)

78. What does Halifax see as the benefit to Plympton and their own community?

79. What is a realistic period of commitment?

80. How would a community exit this agreement?

81. How would costs be shared?

82. What would a five-year cost projection show when compared to current fire/EMS costs in both communities?

83. What would be the difference in terms of services between the current service level provided, and the services proposed by an integrated agency?

84. How would response times be changed?

85. What would happen to the Plympton Fire Station in terms of use, ownership, and maintenance?

86. What would happen to Plympton's apparatus set, and how would costs be considered in this regard?

87. What would change for the citizens of Plympton?

88. How would employees be integrated?

89. How would cultural issues be addressed?

90. What training standards would personnel need to meet?

91. Would all personnel be required to attain Firefighter I/II certification?

92. What would happen to the position of Fire Chief in the Town of Plympton?

93. What would be the name of the integrated agency?

94. What steps would be taken to build a new group social identity?

## CHAPTER XI

## CONCLUSIONS AND SUMMARY

Based on our analysis of the current day operations of the Plympton Fire Department we have found an organization that is currently in crisis. The majority of department stakeholders believe that there is a lack of leadership which has led to a lack of focus, direction, and common vision within the department.

Although most appear dedicated to their department, as one would expect from emergency services personnel, many department personnel do not possess even the most basic of emergency services certifications. Even though the department provides both fire suppression and ALS level EMS services, only slightly over 50% of the department members are properly trained and certified at the basic Firefighter I/II level. A newly hired career member did not possess certifications at the time of hire, and is in the process of completing both basic firefighter and paramedic training.

Staffing remains a problem for the department. The number of call firefighters is limited, few of them actually live in Plympton, there has been no active recruitment or retention program in place, and as noted many do not possess basic certifications. This situation caused the department to achieve its goal of having a two-person, cross-trained initial response force (IRF) for both fire and EMS just 7% of the time (48 hours) in the month of November 2017.

Responses are also problematic. Despite the fact that Plympton is not that large, and the station is generally staffed 24/7, many incidents reflect extended response times. The ability to get accurate and consistent data is also an area of concern.

Having a sense of common vision is important for any organization to ensure that the organization and its personnel are moving in unison toward common goals. Having a common vision is not just making sure that all parties are aware that they are in the same boat and rowing, but even more importantly, that they are rowing in the same direction. The impact of not sharing a common vision will be very noticeable in the quality and quantity of work performed, but also with the spirit and passion that the work of the organization is accomplished.

The department lacks any type of long-range or strategic plan to chart its projected path to the future. The department does have a mission statement, which if truly accurate, should provide the very foundation for the Plympton Fire Department. The mission statement should provide the broad direction that everything else that the fire department does is going to be built upon. The fire department does not currently have any formal vision statement, nor has it developed any core values that will help to drive the organization forward.

Although it does have standard operating guidelines (SOGs) manuals for both fire and EMS, they are both very limited in scope and lack many basic operational procedures. Administrative oversight and supervision appear to be lacking.

The department's station is no longer adequate for the needs of the department. It also has some code and life safety concerns. The department's apparatus fleet, while generally well maintained and equipped, is too large.

The department is facing serious challenges both today and looking toward the future. With volunteerism declining and the ranks of call emergency services personnel dwindling nationwide, the Town of Plympton will face the dual challenges of attempting to balance a credible emergency response system staffed primarily with call members supplemented by a small career staff, while simultaneously facing a slowly increasing number of requests for service, both emergency and non-emergency. The rising costs of attempting to provide a cost-effective ALS level EMS system will continue to an area that will challenge the town financially. However, there are excellent, and we believe viable, shared services opportunities available that have the potential to provide the town with continued ALS level EMS service but do so more cost-effectively.

To that end, we propose the following recommendations as a roadmap for initiating the significant change and major rebuilding that need to be done to the department.

1. **Objective #1: The Board of Selectmen and town administrator should take an active role in setting appropriate goals and a vision for the fire department. Town officials should include residents and the department in an open and honest discussion within the goal-setting process. This process could provide the foundation for the formation of a long-range strategic planning committee comprised of a cross-section of community stakeholders.**

2. **Objective #2: The Board of Selectmen and town administrator should establish an annual goal-setting workshop with the fire chief to develop the sense of common vision necessary to improve the department and the quality of fire and EMS services the town receives.**

3. **Objective #3: The fire chief should develop a formal process for developing a long-term vision for the fire department, and if necessary, to revise the department's mission statement to properly and accurately reflect the department's overall mission within the community. In addition, a vision statement along with a set of core values should be developed by utilizing the input of department stakeholders. Although this is a time-consuming process it serves as a foundation to bridge divided loyalties and set a common direction for the organization.**

4. **Objective #4: The fire chief should form a membership/management committee within 30 days. This committee is designed to enhance communication, construct more positive relationships and provide a mechanism for members to have an active voice within the organization and begin setting the direction for the future. This committee should consist of as many stakeholders as wish to participate. The chief should hold two meetings per month for the first six months to a year and then meet monthly for the foreseeable future. Minutes of these meetings should be developed, shared with the department, and the Board of Selectmen and town administrator, as an attachment to the chief's monthly report. If necessary, outside professional assistance is available to assist in facilitating this endeavor.**

5. **Objective #5: The Plympton Fire Department must implement an aggressive, and mandatory, back to basics fire training program for all personnel that is based on Massachusetts Fire Academy's call and volunteer basic skills program. (243 hours of instruction and 23 hours online learning).**

6. **Objective #6: Conduct a comprehensive review of existing training records. The fire chief should meet individually with each member to review the training file and develop a prescriptive training plan.**

7. **Objective #7: A concerted effort should be made to certify as many existing per-diem and on-call members as possible to the level of Firefighter I/II through the Massachusetts Fire Training Council. This action should include a training effort that is designed to train and refresh all candidates on the 85 specific "non-fire" hands-on skills and 20 "live fire" skills essential for certification and basic level.**

8. **Objective #8: The fire chief should form a committee for the purpose of putting together an aggressive and wide-ranging program for recruitment and retention of call personnel, targeting residents of Plympton. While a long-term strategy to address this issue needs to be developed there are also short-term actions that can be taken to try to immediately recruit additional personnel.**

9. **Objective #9: The fire chief, assisted by a committee comprised of a cross section of department stakeholders, should begin the revision and updating of the department's standard operations guidelines (SOG) manuals starting with mission critical procedures such as, but not limited to, b*asic engine company and truck company operations, dwelling fires, commercial structures, rapid intervention team operations, personnel accountability, gas leaks, hazardous materials incidents, ice rescue, vehicle extrication operations, and thermal***

***imaging camera, automatic external defibrillator use, and EMS protocols and procedures.*** **The committee should be given whatever support is necessary to complete at least a basic manual update within one year.**

10. **Objective #10: Based upon the foundation that currently exists and building upon the results of the recommendations contained in this letter, the Town of Plympton and Plympton Fire Department should develop a formal process for implementing a long-term vision for the department and developing a strategic plan.**

11. **Objective #11: The Town of Plympton should enter into discussions with the municipal administrations, and fire department leadership of its adjacent communities, particularly Halifax, for the purposes of identifying and thoroughly studying possible opportunities for shared services. Additionally, in the longer term, the Town should explore the feasibility of a more regional approach to fire protection and EMS delivery systems.**

In conclusion, the missions performed by the fire department are some of the most basic and fundamental functions of government; to ensure the safety and protection of its residents and visitors. The real issue facing the Plympton Fire Department, and the Town of Plympton, as it is for every community, is to determine an acceptable level of risk and then define an appropriate level of service for the community. There is no "right" amount of fire protection or EMS delivery. It is a constantly changing level based on the expressed needs of the community. Determining the appropriate level of service also involves deciding upon the municipalities' fiscal ability, and willingness, to pay for the desired level of service. These are decisions that the citizens of the town and board of selectmen will ultimately need to make.

## CHAPTER XII

## SUMMARY OF RECOMMENDATIONS

### CHAPTER III: Fire and EMS Operations

**III-1** **The Plympton Fire Department should make it a priority to complete a comprehensive fire and rescue community risk assessment. This assessment should be done in conjunction with a fire and EMS calls for service demand analysis, including the development of a pre-incident planning program for target and high-hazard locations in the community, and take into consideration the fire department's operational capabilities and preparedness.**

**III-2** **The Plympton Fire Department should work to develop and implement an internal risk management plan following the recommendations of NFPA 1500, *Standard for a Fire Department Occupational Safety and Health Program*, and NFPA 1250, *Recommended Practice in Fire and Emergency Services Organization Risk Management.***

**III-3** **The Plympton Fire Department should establish a formal pre-incident planning program with the goal of having an up-to-date pre-plan for every business and commercial occupancy (including schools, churches, etc.). The purpose of a pre-incident planning program is to develop a fire/emergency response plan for buildings in the district. A pre-fire/incident plan includes data such as the occupancy type, floor plans, construction type, hazards to firefighting, special conditions in the building, apparatus placement plan, water supply plan, and forcible entry and ventilation plan. Pre-planning will improve the firefighter knowledge of the specific tactics needed to handle a fire or other emergency at a facility, and will alert them to on-site hazards and risks. Pre-fire/incident plans should be reviewed regularly and tested by periodic table-top exercises and on-site drills.**

**III-4** **The Town of Plympton and the Plympton Fire Department should strongly consider adopting a municipal by-law requiring the installation of a fire water supply cistern in any new development consisting of three or more homes or for any individual home of larger than a designated square footage.**

**III-5** **The Town of Plympton should make it a priority to improve its first unit on scene response times including the adoption of a Standard of Cover (SOC) for the town. The SOC should be based upon a hybrid of the NFPA 1710/1720 and CAAS recommendations.**

**III-6** **With Plympton covering only 15.3 square miles, the Town of Plympton should adopt SOC benchmarks to have the first unit responding to emergency incidents within one**

**minute of dispatch (career/staffed station) and have the first unit on scene within eight minutes after responding, to all types of calls, 90% of the time. In areas within 2 miles of the fire station, a response time of four minutes or less should be the goal, particularly for life threatening medical emergencies.**

**III-7 Although more stringent than the requirements found in Table 4.3.2 of NFPA 1720 for rural communities, through the utilization of automatic aid agreements with neighboring communities, as part of its standards of cover benchmarks, and in order to initiate other than limited defensive fire attack operations, the Plympton Fire Department should seek to have the entire first alarm assignment for reported structure fires, with at least 15 personnel on scene, within 15 minutes from dispatch, 90% of the time, throughout the entire district.**

**III-8 The Plympton Fire Department, in consultation and cooperation with its neighboring departments, should, if necessary, revise its run cards to ensure that a sufficient number and type of various resources (engines, ladders, tankers, etc.) are dispatched to various types of reported emergencies to allow the department to achieve its SOC benchmarks. The numbers and types of resources initially dispatched should be based on a risk management process or pre-fire/incident plan.**

**III-9 The Plympton Fire Department should establish a formal "performance improvement" process for fire suppression operations. The process should include the adoption of performance standards such as NFPA 1720, including on-scene performance indicators such as:**

- **On-scene to the charged line at the front door of a structure fire: two minutes or less, 90% of the time.**
- **Water from the hydrant to supply engine: three minutes or less, 90% of the time.**

**The point of the performance measures is to identify the community's expectations in a quantifiable way and to use the measurement of the fire company's performance against these objectives to identify areas which may need improvement or additional resources. The process should also include a provision for modifying SOGs, training priorities, and equipment as determined by the performance improvement program.**

**III-10 The Town of Plympton should purchase the administrative modules that accompany the fire department management software to allow the better extraction and analysis of important response time data and other necessary information.**

**III-11** **An engine from the fire department should be dispatched automatically to every emergency medical call that is triaged through emergency medical dispatch (EMD) and is believed to be an unconscious person, or a respiratory, or cardiac arrest.**

**III-12** **The Plympton Fire Department, with the support of the Town of Plympton, should make it a priority to develop and implement a plan for providing and requiring, that all personnel, both career and call, attend, and successfully, complete a state-sponsored training program that will result in their achieving basic Firefighter I/II certification.**

**III-13** **The Plympton Fire Department should implement a formal standard, either through an SOG, or policy, that specifies a minimum number of hours of training personnel must complete in order to remain active. Seventy-two hours per year, so an average of six hours per month would be reasonable.**

**III-14** **The Plympton Fire Department should implement periodic basic skills proficiency evaluations for ALL active personnel. These proficiency evaluations, consisting of standardized evolutions, can be based upon recognized standards and benchmarks, in conjunction with performance criterion and benchmarks, established through evaluation of, and based upon, fire department operations and procedures, both fire and EMS.**

**III-15** **The Town of Plympton should require that all officer positions, from lieutenant to fire chief, should be filled based upon the person's firefighting/emergency medical services training, certifications, and experience commensurate with the position being sought, along with successful completion of a formal, rank appropriate assessment process, and a basic practical skills evaluation.**

**III-16** **In order to assist with the large amount of training that needs to be done, and in recognition of their important role in the delivery of training and the success of the program, the Plympton Fire Department should require that all officers be formally certified at a minimum of Fire Instructor Level I.**

**III-17** **The Town of Plympton should strongly consider requiring its fire officers to obtain a certain level of fire officer certification as a job requirement, such as Fire Officer I for lieutenant, Fire Officer II for captain, and Fire Officer III for chief level officers.**

**III-18** **The Plympton Fire Department should encourage personnel to seek additional training on their own, and to the financial and practical extent possible, send personnel to outside training opportunities such as the Firehouse Expo, and the Fire Department Instructors Conference in Indianapolis. Information gained at this training can then be brought back and delivered to other members of the department.**

**III-19** **The Plympton Fire Department should mandate that all officers participate in additional officer related training each year in order to be eligible to retain their position. A reasonable requirement might be thirty-two hours of training consisting of:**

- **Firefighting strategy and tactics, incident management, EMS operations, or safety training (sixteen hours)**
- **Leadership or management training (sixteen hours)**

**III-20** **The Plympton Fire Department should ensure that all department members are trained/certified to the minimal NIMS level required for their duties/responsibilities and ranks. In addition to the basic I-100/I-700 training mandated, it is our recommendation that all officers should be trained to the ICS-300 level. All chief level officers should be trained to the ICS-400 level.**

**III-21** **The Plympton Fire Department should require that all officers be certified as Incident Safety Officers. Additional personnel who may be interested should be encouraged to take this training and obtain this important firefighter safety certification.**

**III-22** **As part of the succession planning process, the next fire chief should work to implement a career development program to ensure that all officers can perform their superior's duties, as well as identify the core future leaders of the department.**

**III-23** **The Plympton Fire Department should form a committee to begin development of a comprehensive department standard operations guidelines (SOGs) manual starting with mission-critical procedures such as, but not limited to, b*asic engine company and truck company operations, dwelling fires, commercial structures, rapid intervention team operations, personnel accountability, gas leaks, hazardous materials incidents, ice rescue, vehicle extrication operations, and thermal imaging camera and automatic external defibrillator use, and important EMS procedures.***

**The committee should be comprised of a cross-section of members of the department. The committee should be given whatever support is necessary to complete at least a basic manual within one year. If necessary, outside professional assistance is available to assist with facilitating this endeavor.**

**The general set up and organization of the manual is a very important consideration and the department must ensure that the manual/system is easy to utilize and cross-reference the necessary procedure. If personnel are going to be required to learn and adhere to the department's procedures, then the format, organization, and filing of them must be user-friendly, otherwise, they will sit on a shelf unused.**

**The first operational procedure should identify and explain the components of the Written Communications System, including the use and organization of the SOG Manual and other components of the system such as standardized forms. This procedure should also contain a provision that the entire SOG Manual will be reviewed on at least an annual basis and that updates and revisions can/will be made at any time, as necessary. All procedures/revisions should be approved and issued after being signed by the fire chief. <u>EMS procedures should also be approved by the medical director.</u>**

**III-24 The Plympton Fire Department should adopt a standardized SOG form that includes the following information:**

- **Title of the SOG**
- **Number of the SOG**
- **Category of the SOG (EMS Operations, Fire Operations, Training, Administration, etc.)**
- **Page number and total number of pages**
- **Effective date**
- **Revision date (if applicable)**
- **Approval/signature of the fire chief and medical director, if appropriate. If a procedure is re-issued with only minor to moderate revisions it can carry the original issue date with the revision date also noted. Revisions from the previous version should be identified by some means within the revised document. Full-scale revisions to a procedure should result in it being reissued with a new issue date.**

**Each SOG should, at a minimum, contain the following sections:**

- **Purpose**
- **Scope (If necessary and/or appropriate)**
- **Definitions of terms (If necessary and/or appropriate)**
- **Procedure(s)/Main body**
- **References (If necessary and/or appropriate)**

**III-25** **The Plympton Fire Department should develop and implement a procedure that provides for the documented review of policies and SOGs that includes a provision requiring each member of the department to sign that they received the document, have read it, and understand it.**

**III-26** **<u>The Town of Plympton and Plympton Fire Department must take immediate steps to improve administrative oversight and supervision particularly with regard to the storage of, and accountability for, the controlled substances and narcotics utilized in the ALS program.</u>**

## CHAPTER IV: Fire and EMS Staffing Analysis

**IV-1** **The development of an expanded pool of fully trained firefighting personnel who are residents of Plympton, and providing training to increase the level of certification to existing personnel, should be an ongoing operational priority of the Plympton Fire Department.**

## CHAPTER V: On-Call Personnel and Retention Program

**V-1** **The Town of Plympton and the Plympton Fire Department should apply for a federal SAFER grant for on-call recruitment and retention. This grant should be utilized to develop a comprehensive marketing program to attract new members, and provide incentives for the retention of those personnel such as tuition reimbursement, health care benefits, tax abatements, etc.**

**V-2** **The Town of Plympton should recognize that the only way to develop a more active and properly staffed fire department in the absence of hiring a larger force of career firefighters is to determine what would motivate potential responders and craft a program of investment that meets these extrinsic and intrinsic needs.**

**V-3** **The Town of Plympton should convene a focus group to determine what concepts and recruitment and retention strategies are feasible and most attractive to potential candidates.**

**V-4** **The Plympton Fire Department should set a realistic goal of recruiting at least 15 new <u>residents of the town</u> as members over the next three years, and simultaneously set a goal of increasing the overall call member force to around 25 to 30 active personnel, most preferably town residents or residents of contiguous municipalities. These personnel should be required to be properly trained and certified to the Firefighter I/II level and preferably to the EMT-basic level. Other personnel who live farther away but**

**possess specialized skills, such as paramedic, should still continue to be utilized as needed.**

**V-5 The Plympton Fire Department should make it a priority to develop an active on-call recruitment program led by a ranking call officer. At a minimum this program should consist of:**

1. **Developing a recruitment brochure and mailing it to all residents**
2. **Holding periodic open houses at the fire station**
3. **Performing public outreach and advertising through the local media**
4. **Contacting community and service groups**
5. **Developing an eye-catching banner on the town's website and the fire department's Facebook page**
6. **Placing signs recruiting call personnel at the main entrances to town**
7. **Placing a temporary signboard at various locations within the community**
8. **Placing signs recruiting call personnel in town buildings and local businesses, particularly high-volume locations**
9. **Placing lawn signs recruiting call personnel at locations throughout the community**
10. **Implementing a fire explorer program**

**Although time-consuming, consideration should also be given to conducting a door-to-door recruitment campaign of every residence in the town.**

**The proposed SAFER Grant could be utilized to cover many of these expenses.**

**V-6 The Plympton fire chief should develop a social media presence and involve other members of the department in this endeavor.**

**V-7 The Town of Plympton and the Plympton Fire Department should attempt to enter into partnerships with local businesses to allow their personnel to respond, when needed, to emergency incidents during working hours, without any financial penalty.**

**V-8** **The Town of Plympton should explore the feasibility of utilizing, and in fact encouraging, town employees to perform "dual roles" by serving not only in their full-time positions but also serving the town as call firefighters and/or rescue personnel. Caution is needed here though as there are provisions of the Fair Labor Standards Act that would be applicable, particularly, if these personnel respond to incidents during times when they are not working.**

**V-9** **The Town of Plympton should consider the development of a program that would provide active responders with the opportunity to obtain health insurance. The town should pay a graduated percentage of this program based upon participation levels suggested in Figure V-2.**

**V-10** **The Plympton Fire Department should develop a series of team-based activities that build involvement in the organization.**

**V-11** **The Plympton Fire Department should seek assistance from the Massachusetts Call and Volunteer Firefighters Association (MCVFA) relative to enhancing recruitment and retention efforts in Plympton.**

## CHAPTER VII: Privatization of EMS Services

**VII.** **The Town of Plympton should not seek to privatize its EMS operations as, at the current time, it does not appear to make fiscal sense for the community.**

## CHAPTER IX: Facility and Apparatus

**IX-1** **The existing automatic fire alarm systems in the fire station and modular building should be upgraded to include appropriate heat and smoke detection devices throughout both facilities. These systems should not only be equipped with both audible and visible warning devices, they should automatically transmit an alarm to either the Duxbury RECC or an approved central monitoring station.**

**IX-2** **Both the fire station and the modular building should be outfitted with Carbon Monoxide (CO) detectors.**

**IX -3** **Long term, if the Town of Plympton is going to continue to utilize this fire station, consideration should be given to equipping it with a complete, automatic fire sprinkler system for the protection of the occupants, buildings, and equipment.**

**IX-4** **The Plympton Fire Department should apply for an assistance to Firefighters (AFG) Grant for the installation of a vehicle exhaust extraction system for all vehicles in all of the apparatus bays at the fire station.**

**IX-5** **A proper decontamination area should be constructed in the fire station for both personnel and equipment.**

**IX-6** **The station requires significant housekeeping and storage attention. While storage space is admittedly at a premium, the study team noted significant amounts of tools and equipment laying haphazardly throughout the station. Equipment that is obsolete, broken, or no longer used, should be properly disposed of which will free additional storage space. Arranging storage in an orderly manner rather than haphazardly will also maximize the use of available space.**

**IX-7** **The Town of Plympton and the Plympton Fire Department should conduct a spatial needs analysis of the fire department and its existing station, based upon the future, long-term operational mission(s) of the department to determine whether to renovate, expand, or replace the existing facility.**

**IX-8** **The Plympton Fire Department should right-size its apparatus fleet and surplus vehicles that are no longer needed. The MRI study team believes:**

- **Engine 1 and Breaker 183 can be removed from service.**
- **Consideration could be given to also replacing Breaker 184 with a modern, up-to-date brush unit.**
- **When the time comes for replacement, Engine 2, 2008, Spartan Smeal pumper, and Engine 3, 2007 GMC Danko pumper, should be combined into a single versatile, multi-purpose fire/rescue pumper.**

**IX-9** **The Town of Plympton should give consideration to including funding to re-chassis Ambulance 1 at the Fiscal Year 2019 capital budget for town meeting when it will be 12 years old.**

**IX-10** **The Town of Plympton should take advantage, if possible, of the fire apparatus and ambulance group purchasing system that is sponsored by the Fire Chiefs Association of Massachusetts (FCAM) and the Metropolitan Area Planning Council (MAPC). Municipalities may select a specific design and manufacturer from a pre-determined bid list and are not required to establish their own bid process. It is estimated that this group purchasing system will save approximately five to ten percent of the cost of a fire truck or ambulance (see www.mapc.org).**

## CHAPTER X: Shared Services Development

**X.1 The Town of Plympton should definitely continue to explore all options for possibly sharing fire and EMS services with the Town of Halifax, that will significantly enhance the level of service being provided to both communities.**

## CHAPTER XIII

## PROJECT TEAM

**Robert C. Craig** most recently served as Interim Director of Fire and Emergency Medical Services for the Town of Acton, Massachusetts. Immediately prior to this, he had served the Town of Acton during his entire career of almost 44 years of service as a member of the Acton Fire Department which included his last 22 years as Fire Chief. The Town of Acton Fire Department is staffed by 42 career personnel, housed in three Fire/EMS stations and provides full fire, rescue and emergency services including EMS for approximately 23,000 residents. During his career, Bob administered an annual fire department budget of approximately 3 million dollars. Together with the Acton Police Chief, he also managed a joint Public Safety Dispatch Center. Bob holds an Associate Degree in Fire Science and Technology as well as a Bachelor of Arts Degree and is a graduate of the Executive Fire Officer Program of the National Fire Academy. He is a member of the International Association of Fire Chiefs; the New England Association of Fire Chiefs; the Fire Chief's Association of Massachusetts and the National Fire Protection Association. Bob has served for over twenty (20) years as a member of the Massachusetts Fire Training Council as one of the representatives of the Fire Chiefs Association of Massachusetts and now continues to serve as appointed by the Governor to represent the Citizens of the Commonwealth. He has attained professional status and recognition as a credentialed Fire Chief in Massachusetts. Bob has a diverse background and expertise in Firefighting, EMS, Dispatch, Fire Prevention and Investigation, Emergency Planning and Operations, Municipal Finance and Government and Labor/Management relations. During his career, he has also participated in the study of and /or implementation of a number of regional programs including Fire Investigation, Dispatch, and EMS to include ALS services. In addition, he has been instrumental in the planning and construction of a public safety facility which included a joint dispatch center and Fire/EMS station construction and renovations. He has also participated in a number of Fire/EMS management studies.

**Peter J. Finley, Jr**. most recently served as Chief of the Winslow Township Fire Department in New Jersey, where he was responsible for the planning, establishment, and initial deployment of the career component of the department. He previously served for 4 ½ years as the Chief of Department for the City of Vineland, New Jersey Fire Department where he initiated significant changes within the department including updating and modernizing equipment, providing the department's first ever formal officer training, and significantly increasing the capabilities of the regional hazardous materials response team. During his tenure, the department received more than one million dollars in various grants. He formerly commanded the Vineland Rescue Squad gaining significant EMS operations and command experience, as well as completing an overhaul of that organization's operations. Chief Finley serves as an Adjunct Professor in the Fire Science Program at Camden County College. Chief Finley received his Associate of Applied Science degree from Atlantic Community College in New Jersey, and earned his Bachelor of Science degree in Fire Science/Administration from the University of Maryland. He is a graduate of the

National Fire Academy's Executive Fire Officer Program, earning perfect scores on three of his four Applied Research Projects. He was awarded an Outstanding Research Award for his 2002 paper titled, "Residential Fire Alarm Systems: The Verification and Response Dilemma". Chief Finley holds nearly two dozen state and national certifications and is a member of a number of fire service organizations, including achieving the prestigious Chief Fire Officer designation from the Commission on Fire Accreditation International. He is a member of a number of fire service organizations and is currently serving as President of the New Jersey Career Fire Chiefs Association where he has been involved in the development and administration of fire service promotional examinations. From 2003–2005 he served on the Training and Education Committee of the Governor's Fire Service and Safety Task Force. He also previously served on the state committee that developed New Jersey's first Firefighter I Instructor Manual.

**Robert F. Loomer** has enjoyed a successful career as a fire service leader, state instructor, and mentor, and still remains active in each of those fields, with over 40 years of real-world experience. In 2012, Bob retired as Chief of the Wayland, Massachusetts, Fire Department, culminating his 38 years as a career fire service professional. As chief, he successfully commanded a combination fire department, with an annual operating budget of $2.5 million, which provided a full array of fire, rescue, emergency medical, and emergency management services to a community of 15,000 residents. During his tenure, Chief Loomer successfully advanced that department's emergency medical services delivery model to the paramedic level and also successfully implemented a fire service based, regional approach to providing advanced life-support services. Since joining Municipal Resources in 2012, Bob's assignments have included providing Interim leadership, coaching, and mentoring services to communities in Massachusetts and New Hampshire. Bob also serves as a subject expert on MRI public safety projects including organizational assessments. During his fire service career, Bob has been extremely active in all aspects of fire service training. Today, Bob remains active as a program coordinator and senior fire instructor with the Massachusetts Department of Fire Services. Since 2102, Chief Loomer has coordinated that state's Chief Fire Officer and Senior Fire Officer Training Programs. Chief Loomer remains a credentialed Fire Chief and Fire Prevention Officer for the Commonwealth of Massachusetts. He holds a degree in Fire Protection Technology from Oklahoma State University and is a 1997 graduate of the University of Massachusetts/Donahue Institute Chief Fire Officer Program. Mr. Loomer is nationally certified as a fire officer level IV, a certified fire inspector, as well as, a nationally certified fire instructor.

## CHAPTER XIV

## ACKNOWLEDGEMENTS

MRI would like to take this opportunity to thank Chief Warren Borsari of the Plympton Fire Department, John Traynor, Mark Russo and Christine Joy of the Plympton Board of Selectmen, Plympton Town Administrator Elizabeth Dennehy, the members of the Plympton Finance Committee, the Plympton Town Hall staff, Halifax Fire Chief Jason Viveiros for being most cooperative and helpful in assisting us in carrying out our work on this project. We especially appreciate the candor and integrity of these personnel, along with the current and former members of the Plympton Fire Department, all of whom demonstrated their professionalism and genuine desire to improve and strengthen the fire and EMS services that they deliver to the citizens of, and visitors to, the Town of Plympton.

# APPENDIX A

Municipal
Resources
Inc.

# A Call for Action

# The Blue Ribbon Report

## Preserving and Improving the Future of the Volunteer Fire Service

Volunteer & Combination

Est. 1994

Officers Section

# A Call for Action

# The Blue Ribbon Report

## Preserving and Improving the Future of the Volunteer Fire Service

Volunteer & Combination Officers Section

MARCH 2004

# A Call for Action

# The Blue Ribbon Report

## Preserving and Improving the Future of the Volunteer Fire Service


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Houston, Texas

## Executive Summary

America's volunteer fire service has faithfully served our nation for more than 300 years. Volunteer firefighters serve their communities with dedication and enthusiasm. Volunteer fire departments save local communities approximately $37 billion[i] per year—money that can be reinvested to improve local infrastructure, social programs and minimize the local tax burden.

Since the terrorist attacks of September 11, 2001, America has learned that local emergency responders are the community's FIRST line of response, regardless of the event. Community protection and well-being depends on the experience, expertise and tenure of local emergency service providers. The volunteer fire service faces significant challenges in overcoming a basic lack of resources—both financial and in human capital. Only by aggressively confronting both of these issues will we create the necessary atmosphere of stability that will allow volunteer fire and rescue departments to meet the new expectations and challenges of the 21st century.

While volunteer firefighters and emergency workers provide a tremendous contribution to our country, they are often under-funded and ill-equipped. Lacking cohesive national leadership, efforts to correct these problems are often fragmented and ineffective. Additionally, volunteer fire departments have a difficult time retaining volunteers. Ultimately, much of the blame for these problems can be attributed to poor leadership. Unfortunately, there are few programs at the local, state or national level to assist fire chiefs and volunteer managers in acquiring the knowledge and skills necessary for effective management.

Support from the local, state and federal levels is necessary to ensure that the volunteer fire service continues to be a full partner with all facets of homeland security response and effectively functions as the first line of defense within local communities. The International Association of Fire Chiefs believes that by enacting the specific recommendations outlined in the text of this report, we can enhance the role of the volunteer fire service in this critical mission. The most important of those recommendations are outlined below.

At the **local** level, we must:

1. Emphasize the importance of local support for this basic community service
2. Provide appropriate levels of funding for necessary safety gear and training
3. Engage in strategic planning that emphasizes volunteer retention
4. Use mutual aid to offset service and technical deficiencies
5. Use uniform incident management systems
6. Use performance measurement to measure and analyze response times, fire fighting effectiveness, training and retention rates of volunteer fire departments.

At the **state** level, we must:

1. Emphasize the importance of the state government in developing and promoting disaster planning
2. Certify fire and emergency medical services (EMS) personnel to comply with basic training standards
3. Promote regional service delivery where local capabilities and technical expertise are weak
4. Provide statewide volunteer benefit programs to protect both the firefighter and employer from the risks associated with volunteer fire service.

Finally, at the **federal** level, we must:

1. Work to produce a national climate encouraging individuals to volunteer within their local communities

Volunteer & Combination Officers Section

# A Call for Action

# The Blue Ribbon Report

## Preserving and Improving the Future of the Volunteer Fire Service

**Introduction**

America's volunteer fire service is deeply woven into the basic fabric of our nation. According to the National Fire Protection Association (NFPA), there are close to 800,000 volunteer firefighters across the United States, and the majority of this nation's geographical area is protected by volunteer fire departments. Of all the fire departments in America, 73 percent are all-volunteer departments.

Firefighters, both career and volunteer, are extremely dedicated to public service. This trait explains why firefighters often take tremendous risks to save the lives of the citizens they are sworn to protect. Volunteer firefighters, because of their diverse educational and employment backgrounds, bring tremendous depth and diversity to any emergency scene based upon their regular jobs and expertise in their communities. In many cases, volunteer firefighters invest an enormous amount of time and dedication to fire fighting, moving the fire service forward through improved fire fighting techniques and technological innovations.

Volunteer firefighters provide an enormous economic benefit to our nation. It is estimated that volunteer firefighters save the American taxpayers $37 billion[ii] per year that can be reinvested in each community's infrastructure, social and other community programs, and/or a general reduction in local taxes.

Unfortunately, despite their tremendous contribution to American society, volunteer fire departments are often underfunded and ill-equipped, putting many in a position where they must raise their own operational funds to provide apparatus and safety equipment. In addition, the number of volunteer firefighters is declining across the country. During the mid-1980s, it was estimated the volunteer fire service was more than 880,000 members strong, but those numbers have dropped to less than 800,000 in recent years.[iii] Finally, the volunteer and combination fire service continues to be unorganized across the nation with no clear leadership representing the volunteers. It has no unified position on national legislative initiatives or research issues affecting their services. Volunteer departments and their managers will continue to struggle until local, state and national attention directs a concentrated effort to assist in preserving and improving the management of this long-standing American tradition.

The perception of the role of emergency services changed with the events of Sept. 11, 2001. These attacks against America changed the expectations of local emergency providers who are now clearly each community's first line of response, regardless of the event. As the country and local communities re-evaluate their abilities to respond and

handle new threats, such as weapons of mass destruction and biological incidents, the stability of the American volunteer fire service has become a significant issue. Community protection and well-being depends on the experience, expertise and longevity of local emergency service providers. It becomes imperative that local communities understand that the homeland is secure when the hometown is secure. Local communities and the leadership of those communities will look toward the volunteer fire department for answers to questions of terrorist threats and threat assessment. Enhancing the overall community safety is a new responsibility for local responders. Significant improvements in the volunteer fire service will be necessary to improve retention and create an atmosphere of stability, allowing local, volunteer fire departments to meet the new expectations and challenges of the 21st century.

**Volunteer and Combination Fire Departments Across the United States: Examples of Value and Effectiveness**

***Campbell County, Wyo.***, is governed by a Joint Powers Fire Board and covers the City of Gillette, the Town of Wright and all of Campbell County, with a total response area of 5,000 square miles and a population of approximately 40,000 residents. One third of the nation's coal supply is mined in this community. The combination fire department is composed of 19 career positions and 175 volunteers. The volunteer firefighters of Campbell County have saved local taxpayers more than $21 million in wages alone since 1996. The department's savings are calculated on the reduced need for full-time career staffing and the actual dollar savings for 226,243 donated hours[iv] during the study period. When assigned a value of $16.05 per volunteer hour[v] (used as a national mean), the volunteer contribution of $3,413,244 annually becomes a significant savings for the community.

The Campbell County Fire Department provides all of the normal city emergency services—fire suppression, emergency medical response, rescue, etc. It enjoys an above average working relationship with law enforcement and provides extensive industrial and wildland fire response expertise. The department offers full administrative services including building inspections, plan reviews, investigations, public education, vehicle and building maintenance, and an aggressive industrial fire training and hazardous materials training program to community businesses. All career employees provide both shift coverage and administrative duties. Tactical operations are considered fully integrated and all personnel, regardless of career or volunteer status, meet the same training and experience standards for the rank that they hold. The department retention rate for volunteers is 17 years per person.

The department is family based with yearly activities that support and promote a strong family unit. The department sponsors the Campbell County Cadet Program, which functions as a worksite for juvenile offenders and was chosen as the number one Junior Emergency Services program in the United States in 2000 by Volunteer Fire Insurance Services. Volunteers are active in a number of community events throughout the calendar year, including a community pancake feed serving more than 2,000 people on the Fourth of July and a number of fundraising projects to assist less fortunate families in the community.

The midwest village of ***Tinley Park, Ill.*** is protected by a 120-member paid on-call volunteer fire department. All firefighters are certified and tested under the state of Illinois certification program. Tinley Park provides coverage for hazardous materials incidents, and features a Combined Area Rescue Team (CART) that provides special services for building collapse and major structural incidents, as well as a Rapid Intervention Team (RIT). All department members are trained to the Hazardous Materials Awareness level, and members of CART and RIT are certified by the state of Illinois.

The department also employs two personnel specializing in public education, inspections, preplanning, and investigations, supporting the overall safety mission of the department and relieving these administrative duties from the volunteers. It is the largest volunteer fire department of this type in the state of Illinois, protecting a population of 56,000 residents and an estimated 100,000 daytime work population within the 17-square mile area. Full city services are provided from four fully equipped fire stations, and personnel are trained at a state-of-the-art training center. Tinley Park has an Insurance Services Office (ISO) rating of Class 3. The department averages 800 calls per year with a

turnout rate of 30 firefighters per call.[vi] The department also assists the local EMS provider with incidents requiring extrication or reported entrapment. All fire department motorized equipment is secured through fund drives. For example, in 2004, community fund drives will finance and pay for the cost of one Class A pumper and a one combination Quint 95' aerial unit with a total cost $1,500,000.

The department boasts a retention rate of approximately six years per firefighter. Because of the volunteer coverage, the estimated yearly savings to the village exceeds $3,744,000 per year, deducting the direct volunteer expenses. This is one-quarter the cost of a full-time department.

In ***German Township, Ind.***, the predominantly volunteer department (two paid personnel and 70 active volunteers) serves 11,000 residents and provides the community a direct savings in staffing costs of $441,000 per year. German Township Volunteer Fire Department responds with an average of 10 volunteer personnel per call. To replace the volunteers with an all paid staff would cost their residents more than $1.5 million dollars annually.

The community is a suburban bedroom community. Nearly 99 percent of the residents own their residences, and 50 percent of the population has moved into the community within the last 10 years. The fire protection challenges are significantly impacted by the availability of water. A large segment of the population and geographical area has a rural water system that does not provide hydrants every 500 or 1,000 feet. The other portion of the population is protected by a municipal water system that does provide hydrants in the normal configuration. The water or lack of it requires the department purchase apparatus with large water tanks.

The department historically has made a significant commitment to training its members. It has always been its goal that each member is highly trained and competent in all necessary skills. The department's training program is outcome-based and requires a significant investment of time and energy. The instructional staff has identified more than 70 basic skills, and written drills have been developed to allow members to train and measure their competency without attending every regular training session. These basic skills drills have significantly improved the members' competency. They know that when confronted with a dangerous situation, they will be able to perform the fire ground evolution safely and effectively.

Leadership development and certification are encouraged, and in most cases tuition reimbursement is available for course work. The promotional process for leadership positions is based upon a written test, experience, education, seniority and personal performance evaluation. It is not based upon an election or the buddy system. Officers maintain their ranks on a permanent basis provided they continue to receive satisfactory evaluations.

The ***Ponderosa Volunteer Fire Department*** is an ISO Class 3 rated, combination fire department in northern Harris County (Houston), Texas—the third most populous county in the nation. The department, formed in 1972 as population growth in the area exploded, currently serves a population of approximately 45,000 people in 13 square miles and provides the community a direct savings of $439,000 per year based on the hours donated by volunteers. To provide the same coverage with an all-career department would cost the taxpayers an additional $3,315,000 per year in personnel expenses.[vii]

The county lacks the tax base to provide the necessary funding to transition to full-time career positions. The Emergency Services District levies a tax of 6 cents per hundred dollars of evaluation, which equates to $60 per $100,000 of property value that fund all operating and capital expenditures. The 65 volunteers continually demonstrate their commitment to the community by their performance and by maintaining a very effective response system that includes fire, technical rescue, EMS first response, water rescue, hazardous materials response, public education and a host of other services. The cost of the high quality services is only $27 per resident, which compares to full career departments that are above $110 per resident.[viii]

The ***Roseville, Minn. Fire Department*** is staffed by two full-time career firefighters and 70 volunteer firefighters serving a first-ring suburb of Minneapolis and St. Paul. The volunteers represent a vast cross-section of the community, ranging in age from 18 to 55. The chosen full-time career fields of Roseville's volunteers include: police officers, accountants, software engineers, bankers, career firefighters, city employees, teachers and a dentist. More than half of the department's members have college degrees. In addition to their very demanding full-time jobs and family commitments, each volunteer contributes an average of 16 hours every week serving the community. Many say that serving as a volunteer firefighter completes their lives, giving them an opportunity to serve others during difficult times and gives them a reward and sense of fulfillment and teamwork they are unable to achieve in their full-time occupations.

Providing fire and rescue services from three stations, the volunteer department consumes only 3.8 percent of the city's $35 million budget, easily earning it the accolades of best value in town. In addition to an intense commitment to provide high quality service for the department's 700 annual emergency responses, members contribute thousands of hours supporting hundreds of community events each year. Throughout the summer, Roseville firefighters are frequent visitors to the city's 28 parks, giving hundreds of kids of all ages an opportunity to ride a fire engine and learn fire prevention tips. Firefighters will dress-up a parent in firefighter gear, using the opportunity to teach kids about the equipment firefighters use while educating the parents about the cost of a firefighter's ensemble. Kids are quizzed on fire safety and awarded prizes for correct answers. Roseville's firefighters attend more than 100 community block parties each year, regularly visit senior centers and pre-schools, hosts birthday parties in the fire stations and occasionally show up with a fire engine when the candles are lit on the cake during a celebration of a special senior resident's birthday.

Each and every one of these events represents an opportunity to educate, a role the department takes seriously. While some departments focus primarily on the response to emergency calls, in Roseville, the priority is prevention and education. It's no accident that first line of the department's mission statement reads "To continually strive for the prevention of fires, injuries and accidents…" When it comes to emergency responses, the department is well-trained, well-equipped and well-prepared. In 2001, the ISO scored the department with a 79.36 (ISO Rating 3).

## Issues Confronting the Volunteer Fire Service

While there are many volunteer fire departments across the country that play a vibrant role in their community—as exemplified by the examples mentioned in the previous section—much of the volunteer fire service across the United States is currently in crisis. While many departments function at a very high level, many other departments struggle for their very existence. Particularly in rural areas, volunteer departments are closing their doors and shuttering their windows for two basic reasons: 1) lack of financial resources and 2) lack of volunteers. But this problem is not only found in rural America. Many volunteer departments in more populated areas are in a state of crisis and face a deep-seated struggle to provide adequate services. In order to ensure that we maintain a vibrant, capable volunteer fire service throughout the United States, we must confront both of these complex problems head on.

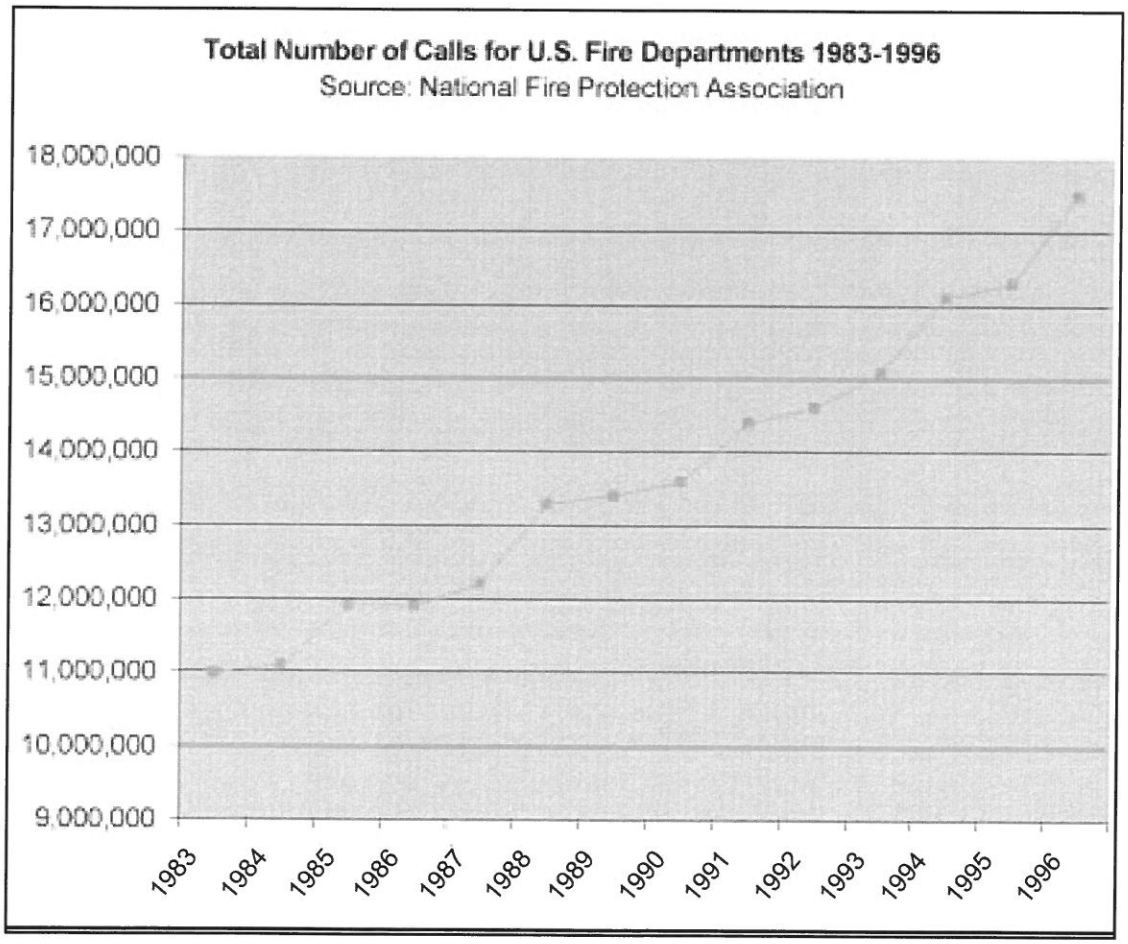
### LACK OF RESOURCES

Few local governments understand the true value of their local volunteer fire department—both in financial terms as well as the social capital generated by the department. A number of departments are independent corporations that do not have direct attachment to their local government, yet they are the sole providers of emergency services. In addition, volunteer fire departments often serve as the social and communal hub of their towns. As detailed by the earlier examples, volunteer fire departments save local communities significant expenses. Unfortunately, most volunteer firefighters not only donate their time for this basic community service but also are required to spend a significant amount of time conducting fundraisers to generate revenue. In many communities, local governments take for granted the services provided by the volunteer fire department. They are not willing to assist with even the most basic expenses, such as appropriate safety gear, functional apparatus or station facilities.

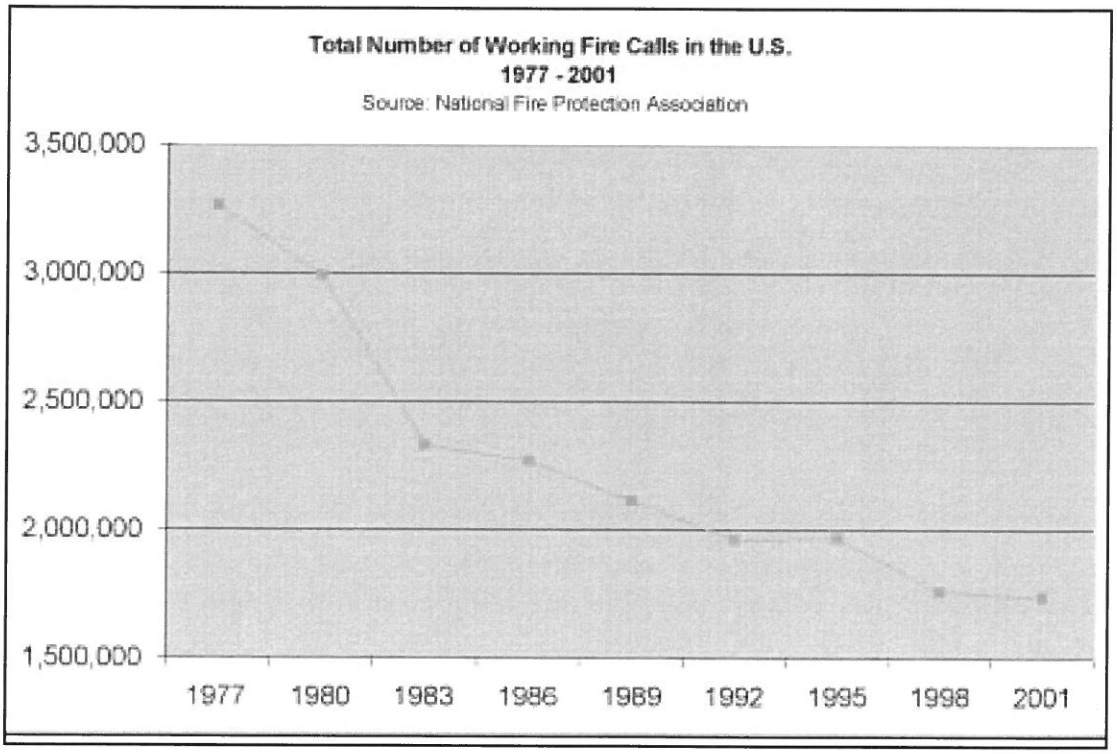
Compounding this problem, the demands on volunteer fire departments have increased significantly over the past 20 years. Today, because of increasing call volumes, departments provide more and more traditional services (firefighting, EMS response, etc.). However, volunteer fire departments also are being asked to expand their role in order to address new problems, the most prominent of which are new duties surrounding homeland security. This increase in responses and responsibility, combined with the lack of resources noted above, means that many departments must make hard choices about the level of service they can provide. This is difficult in a mobile society, where urban dwellers often move to more remote locations and continue to expect the same level of service they were receiving previously. Often, they do not appreciate the funding constraints placed on rural communities.

In addition, the costs associated with new apparatus and equipment have increased exponentially. In 1972, a Class A pumper was about $25,000; today a new pumper can easily approach $350,000. Just a few years ago, a single self-contained breathing apparatus (SCBA) cost about $1,900; today an SCBA unit costs about $3,500. The cost for this basic equipment has increased over and above the funding levels available to many volunteer fire departments. As a result, many communities have had to reduce their capabilities by not purchasing needed apparatus, equipment and technology. Other communities have reacted by extending the life of their current equipment. Unfortunately, this decision can give rise to numerous safety related issues.

The following charts demonstrate the growth in emergency response calls in the United States. Total emergency calls in the United States have increased by an estimated 61 percent since 1983[ix] to nearly 18,000,000 responses per year.



What is particularly interesting about these statistics is the change in the nature of emergency responses. While total responses have increased, the number of actual working fires has decreased 47 percent since 1977.[x] Residential fires have decreased from a reported 472,000 incidents in 1992 to 396,500 fires in 2001, a 16 percent reduction.[xi] Because departments are responding to fewer fires, managers are often concerned about the promotion of engine/command officers who lack sufficient experience actually fighting fires. This problem affects the safety of emergency operations and could lead to increased liability exposure for departments.




**Detailing the Lack of Resources**

As part of an effort to better understand the needs of the fire service, the Congress directed the National Fire Protection Association (NFPA) to conduct a Needs Assessment Study of the U.S. Fire Service for the United States Fire Administration (USFA). The study attempted to define problem areas in the nation's fire service as well as function as a guide for future planning to enhance the fire service and firefighter safety.[xii]

The following issues were outlined in the executive summary provided in the NFPA report.[xiii] While the report surveyed all types of fire departments, items selected for this report have the most impact on volunteer/combination departments. All of the problems documented below are a greater problem in smaller communities.

*Concerns with Facilities, Apparatus and Equipment*

- Roughly 15,500 fire stations (32 percent) are at least 40 years old and 27,500 fire stations (57 percent) have no backup electrical power.
- It is estimated that 60 to 75 percent of fire departments have too few fire stations to meet maximum response distance guidelines promulgated by the Insurance Services Office.
- Approximately half of all fire engines are at least 15 years old and more than one-third are over 20 years old.
- One-third of firefighters per response are not equipped with self-contained breathing apparatus (SCBA) and nearly half of SCBA units are at least 10 years old.

- Fifty percent of emergency responders per shift are not equipped with personal alert safety system (PASS) devices that assist in locating firefighters trapped in burning buildings.
- An estimated 57,000 firefighters lack even basic personal protective clothing, and an estimated one-third of personal protective clothing is at least 10 years old.

*Communications and Communications Equipment*

- Fire departments do not have enough portable radios to equip more than half of the emergency responders. This is a particular problem in small communities.
- Only 25 percent of fire departments can communicate on scene with all of their public safety partners at the local, state and federal level.
- Forty percent of all fire departments lack internet access.

*Training Concerns*

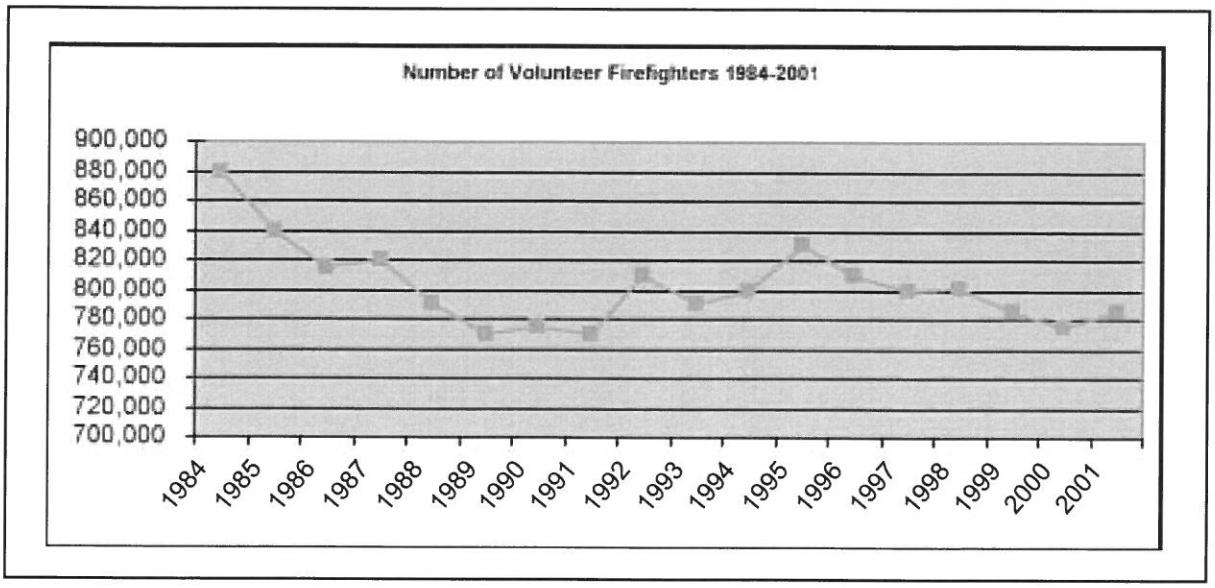
- An estimated 233,000 firefighters, most of whom are volunteers serving in small communities, lack formal training in structural firefighting—the most basic service the volunteer fire service provides. An additional 153,000 firefighters have received some training but lack certification in structural firefighting.
- An estimated 27 percent of fire department personnel involved in delivering EMS lack formal training in those duties. And in the majority of fire departments, EMS personnel are not certified to the level of Basic Life Support.
- An estimated 40 percent of fire department personnel involved in hazardous materials response lack formal training in those duties; the majority of them serve in smaller communities. In 80 percent of fire departments, personnel involved in hazardous materials response are not certified to the operational level.
- An estimated 41 percent of fire department personnel involved in wildland fire fighting lack formal training in those duties; there are substantial training and certification needs in communities of all sizes.

*Ability to Handle Unusually Challenging Incidents*

- Only 11 percent of fire departments can handle a technical rescue with EMS at a structural collapse of a building involving 50 occupants with local trained personnel. Nearly half of all departments consider such an incident outside their scope.
- Only 13 percent of fire departments can handle a hazmat and EMS incident involving chemical and/or biological agents and 10 injuries with locally trained personnel. Forty percent of all departments consider such an incident outside their scope.
- Only 26 percent of fire departments can handle a wildland-urban interface fire affecting 500 acres with locally trained personnel. One-third of all departments consider such an incident outside their scope.
- Only 12 percent of fire departments can handle mitigation of a developing major flood with locally trained personnel. The majority of departments consider such an incident outside their scope.

## LACK OF VOLUNTEERS

Nationally, the number of volunteers has continued to drop since a high of 880,000 in 1984.[xiv] Today, the total number of volunteer firefighters has declined by about 10 percent, representing a reduction of approximately 90,000 individuals to 790,000.




The decline in the number of volunteers is a two-faceted problem. It stems both from difficulties in retaining current volunteers as well as problems with recruiting new volunteers.

### Retention

Retention of volunteer firefighters is a substantial concern for the fire service. It is estimated that the national retention average of volunteer firefighters is approximately four years[xv] per person, per department. When recruiting volunteer firefighters, the fire department will spend approximately $4,000 per person in orienting, equipping and training those recruits. While this figure would appear to be conservative in some jurisdictions, the cost to maintain one volunteer for the national retention rate average of four years is approximately $1,000 per year. This may not be an effective investment based on the return by the volunteer.

Retention of volunteer firefighters is a complex issue with a number of variables that can contribute to the lack of longevity. In 1993, the consulting firm Tri-Data, on behalf of the United States Fire Administration (USFA), conducted a national study titled *Retention and Recruitment in the Volunteer Fire Service, Problems and Solutions.* The study was assembled with input from volunteer departments across the country. The following areas were identified as major issues affecting retention of volunteer firefighters:

- Volunteers face increased demands from the fire department stemming from the increase in emergency response calls, the need for ongoing training and the increasing need to undertake specialized training.
- Demands on the volunteer's time are also increasing away from the fire department as families struggle to balance the career and family obligations of today's two-income families.
- Many of those who volunteer for the fire department do so in order to improve their employability. A volunteer fire department will provide training at no cost. This training can then be used to obtain a full-time position within the profession.

- The lack of a comprehensive benefit and incentive program. Benefits are necessary to protect the livelihood of the volunteer and his or her family in the event the volunteer suffers a significant injury or dies while on duty, while incentives are designed to recognize their personal achievements and to motivate them to improve their skills and participation.
- Finally, the lack of quality local leadership within the fire department is cited as the most significant problem to retaining volunteer firefighters. Echoing the sentiment of that finding, it is the opinion of the contributing authors that ineffective leadership will doom an otherwise excellent organization. Sound management practices have the potential to significantly enhance retention rates.

**The Value of Good Management**

The following passage is taken directly from the Tri-Data report discussed above.

> The ability of a fire department to retain its people is directly related to its ability to manage those people. *It was unanimous among workshop attendees that poor management contributed heavily to people leaving the volunteer fire service.* The leadership issue was considered the most important; in one way or another, nearly all the other causes were either directly or indirectly traced back to the leadership problem. (emphasis added)[xvi]

The lack of quality leadership is the most critical issue confronting the volunteer and combination fire service. Few programs at the state or national level have been established to assist and provide fire chiefs and/or managers with the skills necessary for effective management. An example of how poor management can exacerbate a problem, such as an increase in call volume, is illustrated through the example below.

An increase in emergency service calls can significantly affect volunteer retention, so an effective manager will look at ways to minimize this intrusion on the daily life of a volunteer. A department that provides emergency medical services (EMS) will intrude on the life of a volunteer more often than those departments without EMS. EMS is an emergency response that can be reasonably predicted. As a result, staffing for EMS response is generally easier than staffing for activities that occur with a much lower frequency—such as structural fires. In addition, the number of staff required to respond to each call is relatively low. Three emergency care providers can handle the overwhelming majority of EMS calls. When a volunteer fire department providing EMS alerts a volunteer component of 20 members to an EMS call when only three members are needed, it can be damaging to a system. This intrusion into the life of the volunteer sets up a "cry wolf" syndrome where the pager is alerted but the volunteer is not needed. This increases the risk that the volunteer will not respond when actually needed.

**The Challenges of Managing a Combination Department**

Another difficult management challenge is the management of fire departments staffed with both career and volunteer personnel—combination departments. Combination fire departments are difficult to manage because career and volunteer firefighters often have different institutional interests. Administrative changes such as the transition from an all-volunteer department to a combination system may exacerbate the problem. The individual volunteer's sense of identity is important. Although the financial consequence of resigning a volunteer position is small, the psychological cost to an individual is extremely high because of the firefighter's great personal investment in the organization. The structural distrust the volunteer and career groups have for each other might be more tolerable if each group did not have to work with the other, but they usually do. Efficiency is a desirable goal; however, reaching that goal can be a tortuous path of management anxiety arising from personnel conflict between the two groups. The conflicts within a combination department can lead to unproductive involvement by the local government that sees itself as legally and often politically responsible for resolving the conflict.

A combination system will not work when it is based on prejudice or when either group of firefighters, volunteer or career, functions in a minority role and is perceived as subservient to the other. This situation often creates an atmosphere where the department is unable to tap the knowledge and expertise possessed by the individual. This can be perpetuated when we lose site of our basic mission—serving the public. The real test of a successful combination department is its ability to fully integrate tactical rank structure. The training and performance standards should be the same, regardless of the firefighter or officer status with parallel lines of authority, bringing personnel resources into harmony. The quantitative measure of that success is the retention rate of the minority group.

**Nature of Volunteerism in the United States and its Implications for the Volunteer Fire Service**

In 2002, the Bureau of Labor Statistics of the U.S. Department of Labor released the Volunteer Service Indicator, a new national measurement of volunteer behavior developed by the Census Bureau, the Bureau of Labor Statistics and the USA Freedom Corps. The indicator provides a wealth of information relating to volunteerism in the United States. Those findings indicate that 27.6 percent of individuals (more than 59 million) over the age of 16 volunteered with a volunteer service organization between September 2001 and September 2002. The findings suggest that certain groups are more likely to volunteer, while others are more likely to volunteer more hours. The findings also offer information regarding what types of organizations and activities enjoy support from different segments of the population. Finally, they give information on how much time people are dedicating to volunteer work, including data that more than 34 percent of those who volunteered did so for more than 100 hours during the past year.

Perhaps the most striking statistic from the survey is that volunteers spent a median of 52 hours volunteering during the year. Volunteering for the fire service can be and most often is substantially more demanding. Depending on the call volume, designated shift coverage and the level of training standards mandated by the local community, an average volunteer could easily contribute in excess of 1,000 hours per year in community service. In Campbell County, Wyo., an active average volunteer can expect to donate 750–1,000 hours of service per year,[xvii] German Township, Ind., 500 hours per year[xviii] and in Ponderosa, Tex., 360 hours per year.[xix] In two communities with mandatory 24-hour volunteer shift coverage—Tinley Park, Ill. and Roseville, Minn.—an active volunteer will be required to provide 1,000 hours[xx] to maintain his or her volunteer membership. Both departments provide volunteers with a monetary stipend as part of the compensation for services provided.

The estimated 800,000 volunteer firefighters account for less than one fifty-ninth of the estimated number of individuals who volunteered, in some fashion, for their communities during the time of this study. The available personnel pool for volunteer firefighters may be more extensive than we realize, and a more detailed review of this study may provide insight into the recruiting strategies and diversification options that must be developed to fill open positions within our departments.

To be competitive, the volunteer fire service may need to refocus recruiting efforts, develop diversification strategies and design other volunteer opportunities within the organization that utilize skills outside of traditional recruitment considerations.

## RECOMMENDATIONS – A CALL FOR ACTION

The International Association of Fire Chiefs represents the leaders of America's fire service, both career and volunteer. Through the technical expertise and guidance of its Volunteer & Combination Officers Section (VCOS), the IAFC is well positioned to lead the volunteer fire service forward to confront the difficult issues detailed in this report. The recommendations that follow are broken down by the level of government that should address the solution. While most of these recommendations must be implemented at the local level, the IAFC will be active at the national level to secure the necessary resources and climate to make these important changes in the volunteer fire service.

### Federal Responsibilities/Recommendations:

- Advance a Congressional Resolution supporting the American Volunteer Firefighters Bill of Rights.
- Create an Office of Volunteer and Combination Fire Service within the Department of Homeland Security.
- Develop a grading system for evaluating local emergency response capability.
- Create a national definition of allowable compensation for volunteer firefighters.
- Develop and support administrative changes to the Internal Revenue Code to clarify legislative issues related to length of service awards programs and allow "cafeteria style" benefit programs for volunteers.
- Create national job protection for volunteer firefighters.
- Fund the Assistance to Firefighters Grant Program (FIRE Act) at its full authorization, allowing the fire service to build a solid baseline of apparatus and safety equipment within its hometown communities.
- Appropriate funding for the Staffing for Adequate Fire and Emergency Response Firefighters Act (SAFER Act).
- Provide tax incentives for the installation of automatic fire suppression and alert systems.
- Provide national tax incentives for certified volunteer firefighters, reducing federal income tax by 3 percent annually.

### State-Level Responsibilities/Recommendations:

- Develop community, regional and state disaster plans with specified review dates. Plans should include identified resources and certifiably trained personnel available for regional and statewide deployment.
- Develop methods for certifying fire and EMS personnel to enhance their professional commitment and achieve minimum training standards.
- Develop a benefits plan for all emergency responders to protect and provide for responders who are injured or killed in the line of duty.
- Develop a benefits plan that provides college tuition, including books, to the immediate family members of firefighters killed in the line of duty.
- Develop regional and statewide recruitment campaigns.
- Assure that volunteer liability protection is provided.
- Assure that statewide mutual aid places response liability on the responding agency versus the requesting agency.

### Local Responsibilities/Recommendations:

Volunteer firefighters, leadership within the volunteer fire department, community leaders, elected officials and citizens should expect that standards, rules and regulations be used, adopted and enforced at the local level that measure the effectiveness of services provided.

**Strategic planning** must become institutionalized as an integral part of fire department operations and community resource allocation.

- Plan development should be performed in conjunction with the community to meet community expectations, growth and staffing requirements.
- Planning should be done in conjunction with surrounding communities affected by automatic mutual aid agreements. A multi-jurisdictional approach must be utilized to provide specialized services such as technical rescue, hazardous materials response and water rescue as well as covering training needs for these responses.

- The planning process should be developed with immediate, intermediate and long-range goals and have established review dates.
- An evaluation of the current volunteer response capabilities must be completed as part of the strategic planning process.
- A risk management policy must be instituted that clearly identifies the necessity of performing defensive fire suppression operations under noted conditions.
- A management structure must be developed and maintained. It should address business management operations, training, EMS, member benefits and operational leadership strategies.
- The number of calls significantly increases the business aspect of running a fire department. A department that responds to more than 750 calls per year, which is an average of two calls per day, should consider providing a compensated leadership position for developing and executing an organizational plan.
- If transition to paid personnel is necessary, the emergency service delivery system must prepare for an orderly transition from an all-volunteer to a partial career staff with identifiable funding options. Critical issues such as pay rates, job descriptions, duties, responsibilities, positions and status authority for career and volunteer personnel must be examined. When the overall composition of the department is predominately volunteer, then career personnel serve to support the volunteer system.
- A funding plan for vehicle and equipment maintenance and replacement, as well as a plan to replace personal protective gear and accessory equipment in order to ensure adequate protection of emergency service personnel should be developed.
- Local, county, regional, state, federal and industrial resources that are available within the jurisdiction should be identified as part of a mutual aid agreement.
- The organization must develop a service delivery approach to meet the risks that are presented, consistent with what the community expects and can afford (standard of response cover).

**Recruiting and retaining quality personnel** continues to be the most important element in the overall success of a volunteer or combination fire department. Therefore, it is important to look at developing the following:

- Programs designed to certify and credential volunteer and career firefighters as well as officer positions at the state minimum level (NFPA Firefighter I/Fire Officer I or equivalent) to improve individual educational levels, emergency scene proficiency and safety.
- A diversification plan that maximizes individual talent and skill in order to enhance the overall efficiency, safety and effectiveness of the department. It should also guide the educational growth of the individual while maximizing his or her potential and enthusiasm in a specific discipline(s) within the organization.
- Ongoing educational opportunities that reinforce minimum training standards, enhance awareness and reinforce safety precautions dealing with local target hazards.
- Training that is measurable and emphasizes safety, command, multi-company drills, multi-agency drills and multi-jurisdictional responses.
- Benefit programs that encourage long-term participation from individual volunteers. Programs could include, but are not limited to, workers compensation; health, accident and life insurance; and coverage that will protect the livelihood of the individual volunteer against lost wages.
- A housing analysis to document housing availability and, if necessary, contingent housing alternatives for retaining reliable and well-trained volunteers within a community. Those options may include, but are not limited to, subsidized housing, dormitories, low or no-interest loans or relief on property taxes.
- Adequate liability coverage to protect an employer from costs associated with injuries that occur while performing duties. This consideration may extend to policies that provide the employer with overtime coverage to fill the position of the injured volunteer.
- A recruitment program that ensures adequate staffing and delivery of emergency services.
- Appropriate recognition and award programs to identify individuals or team members because of their performance or commitment to the department and community.

- A promotional process that ensures fairness for all members within the existing rank structure. Promotional systems should replace the traditional method of electing officer positions. It should be based upon merit with appropriate performance, education, training, skills and experience.
- Partnerships with other community emergency entities working to maximize resources.
- Partnerships with civic organizations and local businesses to integrate the fire department within the local community.
- Training programs that provide all new recruits with basic firefighting skills and First Responder level training before they are allowed to respond to and perform on fire, medical or rescue emergencies.
- A physical assessment program designed to evaluate each member's physical ability to perform the activities and tasks required for every job description within the organization. This assessment should be performed at least annually.
- A written policy prohibiting drug and alcohol use with specific enforcement, discipline and follow-up procedures.
- An "Emergency Vehicle Operational Policy" to qualify each member as a driver/operator of fire and rescue apparatus.
- A process to check the status of each member's driver's license annually.
- Criminal background checks on all prospective members.

**Community Support Services** are necessary elements to the overall image and success of the department and the well-being of the community. Departments should develop the following:

- Fire prevention and education programs to educate at risk groups as identified by the USFA. Programs should direct educational, awareness, prevention and support groups to assist in reducing concerns.
- Safety and accident prevention programs beyond the normal scope of fire prevention to augment identified needs of the community. Those programs could include, but are not limited to, drowning prevention; bike, rollerblade and car safety; and sponsorship of SAFE KIDS projects.
- Practices that would prevent fire loss, injury or death based upon occupancy, construction, apparatus, water supply, available personnel, communication abilities and response capabilities.
- An annual evaluation of water systems that affect local operations, including county, industrial and/or private delivery. Evaluations should include the capability of the water supply to deliver the required fire flows based upon existing occupancy as well as planned growth. Ensure that appropriate steps and procedures are in place to properly maintain supply.
- Customer service programs that provide community feedback and satisfaction ratings.
- The capability to complete investigations in an efficient and reliable manner involving police agencies where applicable.
- Appropriate preplan documents, including target hazards, to provide timely and accurate information to incident commanders.
- A partnership with the Local Emergency Planning Committee to work for a fire safe community.

The volunteer fire service is at a critical juncture in the United States. On one hand we have a positive can-do spirit, on the other hand we have forces that are creating ever-increasing challenges that attack that spirit. The needs and realities of the volunteer fire service appear to be moving in divergent directions, so when the spirit dies, all that remains is historic fact. It is imperative that local, state and federal government understand the challenges listed in this document, develop a problem solving attitude and be proactive in creating a new pathway that will allow the volunteer fire service to survive and flourish. The IAFC stands ready to work with all partners to lead this charge. This great country cannot afford to lose the rich legacy of the volunteer fire service.

## END NOTES

[i] *Fire Protection in Rural America: A Challenge for the Future.* National Association of State Foresters, 1993.

[ii] *Fire Protection in Rural America: A Challenge for the Future*. National Association of State Foresters, 1993.

[iii] *U.S. Fire Department Profile Through 2000.* National Fire Protection Association, Quincy, Massachachusetts, December 2001.

[iv] *Coal Bed Methane Exploration, Campbell County Fire Department Partners in Progress*, Impact Study Prepared for the Campbell County Commissioners January 2002, - Addendum Report 2003. Campbell County Fire Department managed by a Joint Powers Fire Board responsible for the City of Gillette, WY, Town of Wright, WY, and unincorporated areas of Campbell County, WY.

[v] Figure of $16.05 per hour provided by the National Volunteer Center as a national means for calculating time donated by volunteers.

[vi] Tinley Park Village Fire Department volunteer firefighter staffing agreement per 24-hour shift.

[vii] Ponderosa VFD Response and Training Statistics 2002, Ponderosa, TX.

[viii] *Firehouse* magazine, Fire Department Annual Statistics

[ix] *U.S. Fire Department Profile Through 2000.* National Fire Protection Association, Quincy, Massachusetts, December 2001.

[x] *U.S. Fire Problem 1977 – 2001.* National Fire Protection Association, Fire Analysis and Research Division, Quincy, Massachusetts, March 28, 2003.

[xi] *U.S. Residential Fire Data 1992 – 2001.* National Fire Protection Association, Fire Analysis and Research Division, Quincy, Massachusetts, March 28, 2003.

[xii] *A Needs Assessment of the U.S. Fire Service*, A Cooperative Study Authorized by U.S. Public Law 106-398, FA-240/December 2002.

[xiii] *ibid.*, pages iii – ix.

[xiv] *U.S. Fire Department Profile Through 2000.* National Fire Protection Association, Quincy, Massachusetts, December 2001.

[xv] Figure is estimated based on the experiences of the authors. No formal studies have been developed to accurately define this figure.

[xvi] Retention and Recruitment in the Volunteer Fire Service, Problems and Solutions, National Volunteer Fire Council and The U.S. Fire Administration, August 1993, pg 1.

[xvii] *Coal Bed Methane Exploration, Campbell County Fire Department Partners in Progress*, Impact Study Prepared for the Campbell County Commissioners January 2002, - Addendum Report 2003. Campbell County Fire Department managed by a Joint Powers Fire Board responsible for the City of Gillette, WY, Town of Wright, WY, and unincorporated areas of Campbell County, WY. Volunteers actively participate in numerous wildland campaigns each summer.

[xviii] Calculation based on an average of three hours of training and seven hours of emergency response each.

[xix] Ponderosa VFD Response and Training Statistics 2002, Ponderosa, TX.

[xx] Based on an average of 16 hours of shift coverage and three hours of training per week.

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