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FINAL REPORT

MARLBOROUGH, MA

ASSESSMENT OF THE ORGANIZATION
AND
MANAGEMENT OF THE
MARLBOROUGH FIRE DEPARTMENT

NOVEMBER 2014

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TABLE OF CONTENTS

Municipal
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TABLE OF CONTENTS

Municipal Resources

Municipal Resources

APPENDICES

FINAL REPORT

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CHAPTER 1

EXECUTIVE SUMMARY

OVERVIEW

The purpose of the executive summary is to offer a brief synopsis of the key issues and recommendations found in the study as an overview of the complete report. It is not intended to provide the reader with a detailed analysis of the results in a few pages; nor is it intended to direct attention to certain issues, or suggest that others, developed in more detail in the main body of the report, are less important. The complete report should be read, in all of its detail, to gain a full understanding of the issues facing the Marlborough Fire Department as evaluated by Municipal Resources, Inc. (MRI).

The department has the potential to resolve the internal conflicts and cultural attitudes, many of which are self-imposed, that have seriously affected its standing in the community and in the region. The MRI study team believes that the Marlborough Fire Department has the skills and capabilities to become an effective, highly trained, and motivated organization that meets or exceeds nationally recognized standards for operational readiness. However, there will need to be an infusion of strong leadership at the top of the department and a simultaneous change in

Municipal Resources

attitude and loyalty by the members of the department. The challenges are many, but as will be seen, many of the recommendations can be accomplished within existing budgetary restrictions.

MRI has identified a number of areas that require improvement within the Marlborough Fire Department. Although many practices do meet contemporary standards for municipal fire and EMS agencies, there are numerous ones that need improvement. Many of the issues in the fire department are the result of a lack of consistent, strong leadership within the department, caused primarily by the frequency with which the city's fire chief has changed. The lack of a fire chief with an extended tenure has resulted in no sense of vision or long-term direction for the department. This situation has also provided an opportunity for the union to step in and fill the leadership void, resulting in a significant percentage of the department's members being more loyal to the union than they are to the department or the city. The fire chief has also been an island with absolutely no support staff or team, which severely hampers his ability to lead and manage the department. In addition, the line between management rights and union authority has become blurred over the years. As a result, the fire chief must consult or negotiate with the collective bargaining unit before making operational changes that benefit the department and the community. On a positive note, there is a solid foundation of members of the department who are hungry for change and want the department to move forward.

The mission performed by the fire department is one of the fundamental functions of government: to ensure the safety and protection of its residents and visitors. The expectations for the quality and quantity of fire and emergency services must come from its residents and other taxpayers. There is no "right" amount of fire protection and EMS delivery. It is a constantly changing level based on the expressed needs of the community. It is the responsibility of elected officials to translate community needs into reality through direction, oversight, and the budgetary process. It is their unenviable task to maximize fire, EMS, and other services within the reality of the community's ability and willingness to pay, particularly in today's economic environment.

KEY AREAS OF MAJOR CONCERN

1. Lack of consistent leadership and an inadequate organizational/management oversight structure

2. Incomplete and inadequate department policies, procedures, and rules resulting in a lack of discipline

3. Obsolete and seriously code deficient Fire Station 2

4. Service gaps and response time/distance concerns in west end of city

5. Lack of a formal training program and performance improvement system

6. Inadequate fire prevention program

A brief narrative on each concern can be found in the following pages.

LACK OF CONSISTENT LEADERSHIP AND AN INADEQUATE ORGANIZATIONAL/MANAGEMENT OVERSIGHT STRUCTURE

Effective management and oversight of the fire department is essential to ensure that the department maintains a strong and progressive vision, attains its goals, and delivers high quality services to the citizens of Marlborough. The current management team of the fire department is solely comprised of the fire chief, who is the only non-union member of the department. In essence, this makes the chief an island who has no support staff or "team". He/she needs assistance and a team to support them. Complicating this critical issue is the fact that the frequent turnover of fire chiefs has caused a lack of leadership consistency with a corresponding absence of vision and long-term direction for the department. The union has managed to fill this leadership vacuum and exerts undue influence in the department and its operations. As a result, a number of the department's officers are more loyal to the union than they are to the department and the city.

The deputy fire chiefs, who are nominally the shift commanders, do not work the same rotation/shift as the other personnel. In addition, when there is no deputy chief on duty, the shift commander vehicle is not staffed 24/7. The department has not fully embraced the implementation of a strong incident command system (ICS) as required under the National Incident Management System (NIMS). This creates issues with incident command, management, and control. There is also a lack of consistency and accountability in the management of the department in areas such as training, performance improvement, and employee accountability.

A mission critical related issue is the establishment of the role of safety officer to monitor conditions at incident scenes to ensure the appropriate safety procedures are being followed. The Marlborough Fire Department has not instituted a formal safety officer program as of the time this report was developed. Written procedures concerning operational safety are either outdated or non-existent.

All ranks, firefighter to deputy chief, are in the same union/bargaining unit which creates the potential for split loyalties and conflicts of interest related to supervision, management, and discipline. Some officers informed the study team that they were concerned that if they raise an issue or implement discipline, that they might not be supported by administration. MRI believes strongly that the next fire chief must come from outside the department, be carefully chosen, and be a proven leader with a record of success as a change agent.

Concurrently, the City of Marlborough should reorganize the fire department's management structure. The position of deputy chief should be eliminated through attrition and retirements. The captains should be reclassified as shift commanders. MRI recommends that the City of Marlborough fill the existing assistant fire chief positions, and, if necessary, increase the number of authorized positions to three for the Marlborough Fire Department. They should ensure that these positions are executive management positions that are exempt from civil service and the firefighters collective bargaining unit. The fire chief should delegate significant management responsibility and authority to the three assistant fire chiefs commensurate with their demonstrated knowledge, skills, and abilities. MRI has identified the following assignments as one possible approach, but it is not our intent to limit the flexibility of the fire chief to develop a management structure that is most appropriate for the needs of the department. From MRI's perspective, the responsibilities of the three assistant fire chiefs *could* be divided as follows:

1. Assistant Chief for Operations: Second-in-command of the department ("executive officer"), responsible for the direct supervision of the fire captains, daily operational activities, personnel management, facilities, apparatus, and equipment. He/she will directly supervise the four platoon commanders.

2. Assistant Chief for Support Services: Third-in-command of the department, responsible for administration, training (fire & EMS), and safety.

3. Assistant Chief for Fire Prevention: Fourth-in-command of the department, responsible for all fire prevention and code enforcement activities.

In order to assure that the important position of overall incident commander is filled, and that there is mission critical command continuity and consistency on the emergency scene, the Marlborough Fire Department should take whatever steps are necessary to staff the department's command vehicle on a 24/7 basis. The department should develop formal procedures for implementing an ICS system that is compliant with the National Incident Management System (NIMS). ICS procedures should be aggressively enforced so that they become a routine component of any emergency response. The department should also establish a fireground/incident safety officer program that includes mandating that all department officers receive safety officer training and obtain safety officer certification. Safety should be the highest priority for all operational policies, procedures, and training activities.

The department has sufficient overall staffing to operate and staff per recommended standards. However, an overly generous labor contract allows 50% of scheduled staff off at any time, making it difficult to maintain adequate on duty staffing. On duty staffing should be increased to fifteen from the current thirteen. A lieutenant should be assigned to Engine 1

when the captain goes into the car as the shift commander. A lieutenant should be assigned to Ladder 1 to provide supervision. This will increase staffing on this unit to three.

INCOMPLETE AND INADEQUATE DEPARTMENT POLICIES, PROCEDURES, AND RULES, RESULTING IN A LACK OF DISCIPLINE

The use of rules and regulations, operational procedures, guidelines, 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 modern emergency services organization. Operational procedures and guidelines ensure the consistent, effective, efficient, and safe operation of various aspects of the department's operations, both emergency and routine.

The Marlborough Fire Department does not have a stand-alone rules and regulations document. It has adopted a limited number of standard operating procedures (SOPs) that cover certain areas concerning field operations and safety. This includes some rules and regulations interspersed throughout. The SOP manual is by no means complete, as many important procedures are missing. Many of the existing procedures are outdated. None of them appear to have been reviewed, revised, or updated. The lack of rules, regulations, and comprehensive SOPs has contributed to an overall lack of discipline within the department.

The Marlborough Fire Department should form a committee to develop a stand-alone rules and regulations document, which sets accepted standards of behavior and conduct and also identifies prohibited behaviors. The rules and regulations should then be formally adopted by the city.

A complete revision of the department's SOPs will improve operational efficiency, establish measureable performance and evaluation criterion, and will improve employee performance and morale by establishing defined expectations. An internal committee or process should be developed that includes input and participation from all levels of the department, the documented receipt by each employee, a process for regular review and updating, and training for all personnel on policies and procedures. It is important to note that it is fully appropriate to use policies and procedures from other fire departments or fire organizations as a template for Marlborough's efforts. A disciplinary policy/procedure should also be developed in conjunction with the city's personnel and legal departments. The required mandatory plans should be developed as soon as possible.

OBSOLETE AND CODE DEFICIENT FIRE STATION 2
SERVICE GAPS AND RESPONSE TIME/DISTANCE CONCERNS IN WEST END OF CITY

The adequacy, quality, and appearance of fire station facilities have a great impact on the performance of the department as a whole. Attractive, functional, clean, and well-designed quarters contribute substantially to the morale, productivity, and operational effectiveness of the agency, as well as to its public image, dignity, and prestige. Well-designed fire and EMS facilities enable staff to perform their duties efficiently and effectively. As a facility ages, it may no longer meet the needs of an evolving department, thus negatively affecting morale, efficiency, safety, security, technology, and overall efforts to provide quality fire, rescue, and emergency medical services. Old and obsolete facilities are also expensive to maintain due to inefficient energy systems.

In MRI's opinion, there are two issues that while different, are somewhat related, and share a common recommended solution. First, the current Fire Station 2 is old, and while still marginally adequate, has really outlived its usefulness. Apparatus floor space, door dimensions, and the property upon which it is situated are all barely adequate for modern-day fire apparatus and operations. Crew quarters are deficient and do not meet current fire safety codes.

The second issue is the continued significant growth in the west end of the city, which has been unmatched by the city's fire protection system. At the present time, there is no fire station located west of I-495 where there is major growth still occurring. This situation creates longer travel distances, which results in longer response times, and a corresponding lower level of service to customers in that area. Although certain response statistics were difficult to obtain, and appeared to be inconsistent, resulting in questionable accuracy, Marlborough achieves the recommended five minute response time benchmark (which includes one minute for personnel to turnout) from incident dispatch to first unit on location just 70.4% of the time, well below the NFPA recommended standard of 90%.

Short-term, the city should immediately address the most serious fire code and life safety issues in all the stations, particularly Fire Station 2. Beyond that, we strongly recommend that the city begin the process of designing and constructing a new Fire Station 2. The station should be relocated west of I-495 to provide coverage that is more effective, reduce travel distances, and improve response times. The facility should also be constructed with capabilities to serve as a training facility for the department. MRI believes the city should consider the feasibility of this being a joint police/fire facility. Patriot Ambulance would also be interested in deploying an ambulance from this location for all the same service improvement reasons that support this move for the fire department. The city should explore the possibility that developing this facility could be an excellent joint public/private partnership opportunity.

LACK OF A FORMAL TRAINING PROGRAM AND PERFORMANCE IMPROVEMENT SYSTEM

Training is, without question, one of the most important functions that a fire department should be performing on a regular basis. A department that is not well trained, prepared, and operationally ready, will be unable to effectively, efficiently, and safely fulfill its emergency response obligations and mission. A comprehensive, diverse, and on-going training program is absolutely critical to the fire department's level of success.

At the present time, the Marlborough Fire Department has no real formal training program. Other than required EMS training, very little training gets done. The chief does issue a monthly training schedule, but it was reported that compliance with it is very limited, at best. Training is nominally coordinated on a part-time basis by a fire captain who serves as the training officer as an ancillary duty. There is little overall coordination between platoons, and training is often interrupted by emergency calls. There appears to be little consistency between platoons concerning the frequency and types of training that is offered. The department has no requirement for additional training/certification beyond Firefighter I. There are currently no annual proficiency evaluations. There is clearly a need for daily, documented, training that is based on formal lesson plans.

Training needs to be designated as a high priority for the department. MRI has made a series of recommendations concerning the establishment of a comprehensive, formal training program, and a formal performance improvement program for all department operations. Training should occur every day and all training should be documented. Annual proficiency evaluations should be implemented. All officers should be required to obtain fire instructor and fire officer certifications. The proposed assistant fire chief for support services would be responsible for overseeing and coordinating these activities.

INADEQUATE FIRE PREVENTION AND PRE-FIRE PLANNING PROGRAMS

Fire prevention should be promoted as a key component of the vision of the Marlborough Fire Department and should be a major aspect of its primary mission. Aggressive fire prevention programs are the most cost efficient and cost effective way to reduce fire risks, fire loss, and fire deaths and injuries in the community. Every member of the department should have a responsibility for fire prevention.

Despite the size of the City of Marlborough, and amount of continued commercial growth and development, at the time of this assessment there is no one dedicated full-time to fire prevention activities. Deputy chiefs perform fire prevention duties in addition to their shift/operations duties. The in-service companies assist in a limited manner. However, the system seems to be primarily reactive rather than proactive. This creates a high probability of issues falling through the cracks.

One of the most effective tools the fire department has to assist them with handling fires and other emergencies in commercial and industrial facilities are pre-fire plans. The purpose of a fire pre-planning program is to allow firefighters to become familiar with buildings and/or facilities within their response area prior to an emergency, alert them to on site hazards and risks, and develop a detailed fire response plan for them that includes specific tactics that will be required to mitigate fires or other emergencies. A comprehensive pre-fire plan includes as much data about the building as possible. It was reported to the MRI study team that the Marlborough Fire Department has done some limited pre-planning on some of the major target hazards in the city. This data is accessible by use of the mobile data terminals, but the fire department does not use the ones they have to access this information on scene. Lack of a pre-fire plan was one of the contributing factors in the six alarm fire in April 2012 at the Lake Williams Condos.

Fire prevention should be a high priority for the Marlborough Fire Department especially with the current commercial and industrial base and continued development. One of the new assistant chiefs should be dedicated to fire prevention full-time. There should be at least one full-time fire inspector to assist the chief with the multitude of fire prevention activities that need to be performed. An expanded and robust fire prevention program may provide opportunities for revenue enhancements, as well as the formation of public/private partnerships.

The Marlborough Fire Department should establish a formal in-service inspection program. On duty and in-service companies should conduct regular fire safety inspections of buildings within their respective response districts. The purpose of these inspections is to: a) identify and mitigate fire hazards and fire code violations; b) enable firefighters to become thoroughly familiar with buildings, including the design, layout, structural conditions, building systems, hazards, and challenges to firefighting operations; c) educate property owners and occupants on good fire safety practices; and d) establish a positive relationship with property owners and occupants.

The department should also enhance its existing limited pre-fire planning program into a comprehensive one for all structures other than one and two family dwellings. Pre-fire plans should be reviewed, and updated, regularly. They should be tested and validated by tabletop exercises and on-site drills. Appropriate pre-planning software should be obtained and installed in mobile data terminals (MDTs) in all apparatus and command/staff vehicles.

ADDITIONAL CONCERNS

The MRI study team identified several other issues that have a significant impact on the Marlborough Fire Department and its operations, and ultimately, the city and its taxpayers. First, is a labor contract that is overly generous in certain benefits and has ceded too many management rights. The fire chief has very limited flexibility to assign personnel based upon

the needs of the department and best interests of the city. In addition to 50% of on duty staffing being permitted off on scheduled leave at any time, there is no requirement that supervisors or management approve leave requests.

The Massachusetts collective bargaining environment appears to be tilted to heavily (and unfairly) in favor of labor. As a result, chiefs and municipalities are forced to impact bargain virtually every change in policy, procedure, the way things are done, etc. The arbitration process is tilted far too heavily toward labor, rather than the stewards of public funds, management. There is too much emphasis on past practice.

The City of Marlborough needs to exercise the management rights that are already in place. They need to negotiate to regain other rights through the collective bargaining process. The city also needs to actively work with the Massachusetts Municipal Association (MMA) to lobby the state legislature to modify the arbitration process so the playing field is more level for the cities and towns. They should also work with MMA to enact legislation to eliminate or at least minimize the importance of past practice.

IN CONCLUSION

The full body of this report contains 173 recommendations in 18 chapters. The report should be studied in its entirety to gain a complete picture of MRI's recommendations. There are a large number of very significant (and some serious) issues that are confronting the Marlborough Fire Department. These areas that require attention and improvement are by no means insurmountable or beyond the city administration's ability to deal with them. However, it will require a strong commitment to changing the status quo and making necessary changes for the common good...that of the citizens of Marlborough... rather than narrowly focused special interests.

In spite of the issues identified in this report, the citizens of Marlborough should feel confident that the Marlborough Fire Department is a professional public safety organization that is capable of satisfactorily handling the majority of incidents that it is called upon to mitigate. We appreciate the high level of support and cooperation that we received from all of the department's stakeholders during our evaluation of the department. We encourage them to work cooperatively to implement the recommendations in this report. We commend Mayor Vigeant, his staff, and the city council for their willingness to address these very complex issues in an open and positive manner.

CHAPTER 2

PURPOSE, SCOPE, AND METHODOLOGY

MRI (Municipal Resources, Inc.) was engaged by the City of Marlborough, to review the organizational structure and operations of the Marlborough Fire Department, to determine how it compares to contemporary fire service practices, and to assess the need for any necessary modifications; organizational, staff, facilities, and operations. We have attempted to produce a report containing recommendations that will assist the department and the city to set a clear course of action for future service improvements.

OUR OBJECTIVES

- To help municipalities and agencies obtain maximum value for limited tax dollars;
- To raise public awareness of the value and professionalism of their municipal resources; and
- To help local leaders develop and execute plans that best meet their community's needs, given available resources.

SCOPE OF WORK

The evaluation completed herein is designed to assist the Marlborough Fire Department and the City of Marlborough in their desire to provide the highest level of service, in accordance with national standards and accepted industry best practices, to all its residents, balanced with reasonable, effective costs for personnel, equipment, and related benefits. In performing this study, MRI focused on the following aspects of the fire department and its operations:

- Organizational structure and governance
- Organizational, managerial, and operational practices
- Policies, rules and regulations, and standard operating procedures (SOPs)
- Staffing levels and personnel scheduling

- Community risks, vulnerabilities, and concerns
- Fire and EMS operations, including incident analysis and deployment of resources
- Training and professional development
- Fire prevention
- Fire department apparatus and equipment
- Fire department facilities
- Communications and use of technology
- Labor relations and collective bargaining
- Budgeting, fiscal management, and grants
- External stakeholders' perceptions concerning the fire department and relationships with various officials
- Sense of common vision and employee perceptions and feedback
- Benchmarking and comparative analysis
- Long-range and strategic planning
- Possible legislative and/or regulatory changes

METHODOLOGY

To fulfill the requirements of this study, members of the study team held an initial orientation meeting with city officials and the fire chief, and in partnership with them, gathered a variety of statistical information and data on the city and department. MRI consultants performed several weeks of on-site work, interviews, and observations in Marlborough.

The MRI study team made numerous visits to Marlborough and conducted a variety of activities in the development of this report. There were twenty-seven major work elements involved in this review. These are:

1. A review of compiled data regarding key operational aspects of the Department.

2. A thorough tour of the community to gain a sense of the physical environment, the primary fire and life safety risk exposures, and the location of population and commercial centers in relation to existing facilities.

3. Interviews with the Mayor and his aide.

4. Individual interviews with nine of eleven members of the city council.

5. Interviews with the police chief, dispatch center supervisor, emergency management coordinator, personnel director, city comptroller, and IT director.

6. Extensive interviews with the fire chief.

7. Individual interviews with each of the deputy fire chiefs.

8. Group interviews with the fire department officers (captains and lieutenants) by platoon.

9. Interview with the fire union executive committee, Local 1714, Marlborough Professional Firefighters, International Association of Fire Firefighters (IAFF).

10. Interview with the department's mechanic.

11. Interview with the department's administrative assistant.

12. Interviews with area fire chiefs.

13. Tour and observation of the city's public safety dispatch center, including interviewing the on duty dispatchers.

14. Inspection and review of all fire department facilities, apparatus, and equipment.

15. Analysis of the department's current deployment strategy including evaluation of the operational impact of a potential relocation of Fire Station 2.

16. Review and evaluation of mutual aid capabilities.

17. Review and evaluation of existing department policies, procedures, and practices.

18. Analyze compliance with applicable regulations and standards.

19. Review and evaluation of training and fire prevention/inspection records.

20. Review and evaluation of maintenance records.

21. Review of the fire department's incident reporting system.

22. Review and analysis of fire department's incident/response time statistics.

23. Review of numerous documents, including municipal budget, fire department budget, grants, and fire department collective bargaining agreement.

24. Development and analysis of a confidential, on-line, survey to receive the concerns, opinions, and ideas of fire department members.

25. Development and analysis of a summary comparative using nationally accepted norms and practices of other Massachusetts communities of similar type and size.

26. Observation of two training sessions.

27. Worked collaboratively with the city to develop GIS mapping that is reflective of recommended changes in deployment outlined in this report.

The MRI study team investigated areas such as the command structure, chain of command, span of control, budgeting, staff recall, service demand, fire prevention services, the deployment of personnel, the communications and data processing functions, internal discipline, working relationships with other persons and agencies, responsiveness, internal regulations, facilities and equipment, and compliance with various state and federal regulations.

Following the on-site visits, the data collected and observations made were subjected to analysis by the project team, both individually and collectively. The information was then compared with contemporary fire service and public safety standards, recommendations, and best practices, in order to formulate the recommendations contained in this report.

This report is the work product of several months of extensive observation, information gathering, research, and analysis. The observations made within this report are believed to be accurate based on the information gathered and the combined judgment of the entire MRI fire study team. The resulting recommendations are based upon an acknowledgement that fire departments are living and constantly evolving organizations. They must constantly change and adapt to current, and anticipated, conditions and realities. A municipal fire and emergency service, while steadfastly holding onto traditions, is an organization that must be progressive and proactive, and requires a perpetual commitment to improvement. The modern fire service is constantly besieged with ever increasing demands from the public and must readily adapt to changes in technology, constantly evolving risks and hazards, and new generations of men and women entering this highly rewarding and challenging public service career. The delivery of high quality fire and emergency services requires energetic, enlightened, progressive, and proactive leadership at all levels of the fire department. Every day must include an effort to improve and move forward.

MRI would like to take this opportunity to thank the City of Marlborough, Mayor Arthur Vigeant, the city council, the city's senior management staff, and the entire staff of the Marlborough Fire Department 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 Chief James Fortin, and the members of the Marlborough Fire Department who demonstrated their professionalism and genuine desire to improve and strengthen the fire and emergency services that they deliver to the citizens of, and visitors to, the City of Marlborough.

CHAPTER 3

BACKGROUND, DEMOGRAPHICS, AND COMMUNITY RISK PROFILE

The City of Marlborough is located in Middlesex County, in east, central Massachusetts. It is located approximately 25 miles west of Boston in the Metro West area. Marlborough is bordered by the Town of Hudson to the north; the Towns of Northborough and Berlin in the west; the Town of Southborough to the south; and the Town of Sudbury and a very small piece of the City of Framingham on the east.

The city traces its origins back to 1657 when the first permanent settlement was established. It was officially incorporated as a town in 1660 by an act of the Massachusetts General Court (state legislature)[1]. From 1836, when the first factory opened, until the mid-1970s, Marlborough's industrial base was anchored by the shoe manufacturing industry. In recognition of its growing population and importance, Marlborough was incorporated as a city on July 14, 1890[2].

According to the United States Census Bureau, Marlborough had an official 2010 population of 38,499 in 15,918 households[3]. This represents an increase of 6.2% from 2000. The city's estimated 2013 population was 39,414[4], a 2.4% increase from 2010. Marlborough has grown steadily in size, with the population more than doubling since 1960. Most recently, the population has increased 22.6% in the last 23 years. In addition, the Massachusetts Area Planning Council (MAPC) projects that Marlborough's resident population will continue to grow, reaching 41,140 in 2020 and 44,061 by 2030[5]. The daytime population increases by approximately 8,733 (+22.7%) due to commuting and 7,154 workers (32.2%) both live and work in the city[6]. While there are no supporting statistics available, it was reported to the study team that the city's population actually swells to more than 75,000 during normal work days.

[1] www.citytowninfo.com August 26, 2014
[2] http://freepages.history.rootsweb.ancestry.com/~historyofmarlborough/history.htm#HISTORY August 26, 2014
[3] http://quickfacts.census.gov/ August 26, 2014
[4] http://quickfacts.census.gov/ August 26, 2014
[5] http://www.mapc.org/data-services/available-data/projections August 28, 2014
[6] http://www.city-data.com/city/Marlborough-Massachusetts.html August 28, 2014

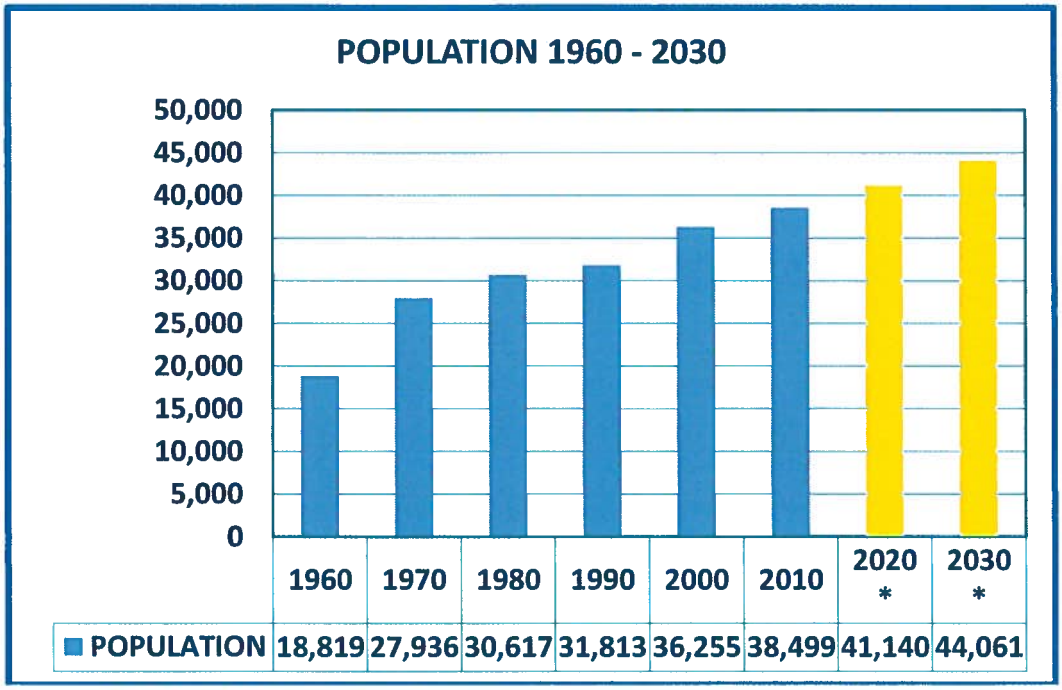
Municipal Resources

POPULATION 1960 – 2013

YEAR	POPULATION	POPULATION CHANGE	PERCENTAGE (%) CHANGE
1960	18,819	N/A	N/A
1970	27,936	+ 9,117	+ 48.4%
1980	30,617	+ 2,681	+ 9.6%
1990	31,813	+ 1,196	+ 3.9%
2000	36,255	+ 4,442	+ 14.0%
2010	38,499	+ 2,244	+ 6.2%
2013	39,414*	+ 915	+ 2.4%

* Estimated

Source: U. S. Census 1960 - 2013



* 2020 and 2030 populations are projections

Sources: U.S. Census 1970 – 2010 and MAPC Projections 2010 – 2030

Municipal Resources

Marlborough covers 22.1 square miles[7] (20.87 land area[8]) with a 2010 population density of 1,845.1 people per square mile, compared with a Massachusetts average of 839.4[9]. The estimated 2012 per capita income was $37,105 and the median household income was $71,550 (Massachusetts average: $65,339)[10]. The city's poverty rate of 7.5% is significantly below the state rate of 11%[11]. The city's unemployment rate of 5.7% is also lower than the Massachusetts rate of 7.2%[12].

The city has 11,528 residential and 962 commercial/industrial properties[13]. There are a total of 16, 980 housing units, of which 15,918 (93.7%) are occupied and 1,062 (6.3%) are vacant[14]. Of these, 9,540 (59.9%) are owner occupied (Massachusetts Average: 63.2%) and 6,378 (40.1%) are renter occupied (Massachusetts Average: 63.2%)[15]. Nearly one in four housing units (3,950/23.3%) are located in structures with 10 or more units, considerably higher than the Massachusetts average of 14.3%[16]. Just over one-half of the city's housing units (9,048/53.3%) are single-family dwellings. The median 2012 home value was $311,964, slightly below the Massachusetts median of $323,800[17]. The median monthly rent in 2012 was $1,062[18]. MAPC projects that the city will gain an additional 1,895 housing units by 2020, an increase of 11.55%[19]. By 2030, they project 1,743 more units, another 9.52% increase[20]. In 2011, Bloomberg Business Week Lifestyles ranked Marlborough as the "Best Place in Massachusetts to Raise Kids"[21].

Marlborough is still an important, and growing, commercial and industrial hub in the Metro West area, home to more than 3,438 businesses[22]. It is traversed by Interstates 495 and 290, US Route 20, and Massachusetts Route 85. The Mass Pike (Interstate 90) is located just a few miles south of the city. This extensive highway system with easy access has resulted in the city hosting numerous modern facilities with a 21st century focus on research and production of cutting edge technology and specialized electronics. It is also home to a growing number of mid-rise office complexes housing a wide array of companies. In acknowledgement of its rich

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[7] Marlborough Fire Department
[8] http://quickfacts.census.gov/ August 26, 2014
[9] http://quickfacts.census.gov/ August 26, 2014
[10] http://www.city-data.com/city/Marlborough-Massachusetts.html
[11] http://quickfacts.census.gov/ August 26, 2014
[12] http://www.city-data.com/city/Marlborough-Massachusetts.html August 26, 2014
[13] City of Marlborough Tax Assessor via Marlborough Fire Department
[14] U.S Census Bureau, 2008-2012 American Community Survey 5 year estimates
[15] U.S Census Bureau, 2008-2012 American Community Survey 5 year estimates
[16] U.S Census Bureau, 2008-2012 American Community Survey 5 year estimates
[17] http://www.city-data.com/city/Marlborough-Massachusetts.html August 28, 2014
[18] http://www.city-data.com/city/Marlborough-Massachusetts.html August 28, 2014
[19] http://www.mapc.org/data-services/available-data/projections August 28, 2014
[20] http://www.mapc.org/data-services/available-data/projections August 28, 2014
[21] http://images.businessweek.com/slideshows/20101214/the-best-places-to-raise-your-kids-2011#slide22 August 28, 2014
[22] U.S Census Bureau, 2007 Survey of Business Owners

history, and the city's successful melding of its past, present, and future, Marlborough's downtown village was recognized as a cultural district on October 12, 2012[23].

Like many New England towns and cities, Marlborough has an older center core and downtown area with numerous closely spaced, abutting, and even interconnected buildings. Many of these structures date to the later part of the 19th and early years of the 20th century. Interspersed throughout this area are newer and refurbished buildings and facilities. The eastern section of the city (as well as the closer in areas to the west) was developed in the boom years of the 1960s and 1970s, and includes numerous apartment complexes, shopping and commercial areas, as well as extensive residential neighborhoods. The western section of the city, primarily west of I-495, is the area of the city which has been developed most recently. In addition to newer residential developments, this area of Marlborough is where the new high tech research and manufacturing facilities are located, as well as a number of mid-rise office complexes, hotels, and other shopping and commercial areas.

The City of Marlborough is organized under a Mayor and City Council form of government. The mayor serves as the city's chief executive officer. The city council is composed of eleven members, seven of whom are ward councilors elected from within their respective wards throughout the city. The remaining four serve as "at large" councilors and are elected by a vote across the entire city. The mayor and council members serve concurrent two year terms. The fiscal year city operating budget (not including schools) was $44,662,368.00[24]. The tax rate for 2014 was set at $16.11 per $1,000 of assessed value for residential properties and $28.22 per $1,000 of assessed value for commercial/industrial occupancies[25].

The Marlborough Fire Department was established on May 4, 1853[26]. Today the department is a fully career fire department comprised of 77 personnel that provides fire suppression, basic technical rescue and hazardous materials response, and first responder BLS emergency medical services to the city. The department also provides fire prevention and fire inspection services. The department is part of Massachusetts Fire District 14 and participates in the statewide fire mobilization system. In 2013, the Marlborough Fire Department responded to a total of 6,088 requests for service, of which 2,599 were fire calls and 3, 489 were EMS incidents[27]. Total property damage from fire in 2013 was estimated at $1,209,925[28].

All members of the department, except the fire chief, are members of the union represented in collective bargaining by Local 1714 of the International Association of Fire Firefighters. This

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[23] http://marlboroughedc.com/2012/10/marlborough%E2%80%99s-downtown-recognized-as-a-cultural-district/ August 26, 2014
[24] City of Marlborough
[25] City of Marlborough via Marlborough Fire Department
[26] http://freepages.history.rootsweb.ancestry.com/~historyofmarlborough/history.htm#HISTORY August 26, 2014
[27] Marlborough Fire Department
[28] Marlborough Fire Department

includes firefighters, lieutenants, captains, and deputy fire chiefs. Although it was reported that there has long been contentious relations between the city and the fire union, the last several labor agreements have been settled without the need for the sides to pursue binding arbitration. This includes the current Memorandum of Agreement that was signed on January 3, 2013, extending most provisions of the previous contract, along with some amendments from July 1, 2012, through June 30, 2015. Approximately six grievances a year reach the personnel director which means they were unable to be settled at the department level.

The Marlborough fire chief is a non-union, non-civil service position, that is appointed by the mayor, with the consent of the city council, as outlined within the City Charter. The current chief is a 29-year veteran of the department. He started his career as a call firefighter in 1983 and was appointed a full-time firefighter in 1988. He was promoted to fire chief in April 2012, the fifth change in the department's chief since January 1, 2010. In January 2014, he announced that he will be retiring effective December 31, 2014, setting the stage for another change in the department's leadership heading into 2015.

The city has received a designation of "Class 3" (on a scale of 1 to 10, with 1 being the most favorable) from the Insurance Services Office (ISO) Public Protection Classification Program (PPC), a rating achieved by fewer than 10% of fire department nationwide. The PPC rating is based on an evaluation of the fire department, the emergency reporting and communications system, the municipal water system (including fire hydrants and fire flows), code enforcement, and the building environment. Contrary to common perception, the municipal water system is the most heavily weighted factor in the scoring methodology comprising approximately 50% of the final rating with the fire department and its support agencies (such as dispatch) accounting for the remainder of the points awarded during an evaluation. The ISO rating is the basis for fire insurance rates for commercial and residential properties. ISO was in the process of conducting a periodic evaluation of the City of Marlborough at the time this study was being conducted. It was anticipated that the rating would remain the same.

The MRI study team conducted a basic fire safety risk assessment of the City of Marlborough. The greatest fire safety concern is the potential life loss in fires that occur in non-sprinklered, single- and multi-family residential dwellings during sleeping hours, which is consistent with national trends. Other critical challenges for fire department response, training, and fire prevention capabilities include the following:

- Congested downtown area with multi-use buildings that about one another, which can result in the rapid spread of fire to adjoining structures
- Numerous large multi-family residential structures and facilities including six senior citizen housing complexes
- Marlborough Hospital (90 beds)
- Facilities for "high-risk" populations, including:

  - Two nursing homes
  - Two assisted living facilities
- Six public schools with a 2012 student population of 4,654:
  - One high school (grades 9-12)
  - One intermediate/middle school (grades 5-8)
  - Three elementary schools (grades K-4)
  - One pre-school
- Six additional schools including:
  - Regional vocational-technical high school
  - Two high school level schools for troubled youth
  - One Catholic elementary school (grades K-8)
  - One charter school in three separate buildings (grades 6-12)
  - One private residential school
- Private detention center for troubled youth
- Fourteen day care centers
- One adult day care center
- Numerous shelters and group homes
- Six hotels (seventh currently under construction; two more proposed)
- Lincoln Inn and Marlborough Hotel (combination of long-term and transient populations)
- 8-10 Rooming/boarding houses
- Solomon Pond Mall, a regional shopping mall with 120 stores, including 3 major anchor stores
- Large retail strip malls
- "Big box" retail and home improvement stores
- Multiple places of assembly, including large 15 screen multiplex movie theater at Solomon Pond Mall and the Royal Plaza Trade Center
- Large office complexes
- Numerous mid-rise buildings (city does not permit buildings over six stories)
- Large churches
- Ken's Foods (food manufacturing)
- Dow Chemical plant
- Ren Chemical
- Air Products
- Suburban Propane
- Safety Kleen

- Bio-chemical hazards (numerous locations)
- High-tech and specialty electronics product research, development, and manufacturing facilities
- Freight rail line (including hazardous materials transportation and storage on industrial sidings in the city)
- Hazardous materials transportation on Routes I-495, I-290, US 20, and MA 85.

Figure 3-1: Marlborough is home to 6 senior citizen housing complexes.

Figures 3-2 thru 3-4: Downtown Marlborough has a number of large and closely spaced mixed commercial and residential buildings that will present serious life safety and fire control challenges to firefighters requiring an effectively sized initial response.

Figure 3-5: The city is home to six (6) hotels with several more either under construction or planned creating a significant sized transient population.

Figure 3-6: Solomon Park Mall, with 120 stores including 3 anchors, is one of the city's largest commercial buildings.

Fortunately, many of the larger and newer facilities are protected with automatic fire suppression systems, which considerably reduce the overall risk of these structures. Some of the high tech, and electronics research, development, and manufacturing complexes, as well as the chemical processing and storage facilities oversee their own specialized in-house risk management and loss prevention programs. However, aggressive enforcement of fire and building codes in both new and existing facilities will continue to be a critical factor in managing risk in the city.

In preparing this study, the MRI study team took great care to craft recommendations that are specifically suited for the City of Marlborough based on its community risk profile, anticipated growth, and recent fire and EMS response history. It is hoped that this report will provide the city, and its new fire chief, with a template for instituting much needed change within the organization that will improve the level of fire and EMS services that are provided to the citizens of Marlborough.

CHAPTER 4

FIRE AND EMS OPERATIONS

OVERVIEW

Firefighting, emergency medical services and rescue operations, an incident command system, and safety procedures are critical components of a municipal fire department. Because the greatest number of calls for service are predominantly for emergency medical incidents, in reality, many fire departments have shifted from being fire protection service agencies that provide EMS, and have become EMS agencies that provide fire protection services. However, while no longer generating the majority of most departments' responses as they once did, fire related incidents are still justifiably an extremely high priority for the "fire" department, and comprise a significant part of their operational missions.

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,* 2010 edition (National Fire Protection Association, Quincy, MA), addresses the organization and deployment of fire suppression operations, emergency medical operations, and special operations to the public by career fire departments[29]. It is the benchmark standard that the United States Department of Homeland Security utilizes when evaluating applications for staffing grants under the Staffing for Adequate Fire and Emergency Response (SAFER) grant program.

In addition to structural firefighting and emergency medical services, 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, and natural and technological disasters. These types of incidents require specialized equipment and specialized training. 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[30]. Since safety is the primary focus throughout all

[29] NFPA 1710 is a nationally recognized standard, but it has not been adopted as a mandatory regulation by the federal government or the Commonwealth of Massachusetts. It is a valuable resource for establishing and measuring performance objectives in the Marlborough Fire Department, but should not be the only determining factor when making local decisions about the city's fire and EMS operations.

[30] In order to remain eligible for fire, EMS, law enforcement, and emergency management grants from the U.S. Department of Homeland Security, the City of Marlborough must adopt and implement NIMS/ICS for all emergency incidents. ALL personnel who have emergency management and disaster response duties, including the city administration, fire, police, and public works, must receive NIMS/ICS training.

operations, a formal component of the ICS program includes the consistent assignment of an on-scene safety officer when appropriate.

Fire department operations and service delivery can be dramatically improved in those departments that commit resources to goal-setting, master planning, risk assessment, and performance measurement. A number of tools and resources are available to guide management in these efforts from organizations such as the US Fire Administration (USFA), National Fire Protection Association (NFPA), International Association of Fire Chiefs (IAFC), International Association of Fire Fighters (IAFF), the Massachusetts Firefighting Academy, U.S. Department of Transportation (USDOT), and the Massachusetts Office of Emergency Medical Services (OEMS).

OBSERVATIONS

Fire Operations, Incident Command, Mutual Aid, and Safety

The Marlborough Fire Department is equipped and staffed to respond to a wide variety of emergency incidents. Although EMS calls are more prevalent, the department must still be prepared to fulfill its core firefighting mission. As with most communities in the United States, the primary focus of firefighting operations is on fires in residential occupancies (single- and two-family dwellings, multi-family units, etc.) due to the high potential for loss of life. Firefighting in commercial occupancies is important to the economic well-being of the community, but large commercial occupancies are often equipped with automatic fire suppression systems to reduce risk and damage from fire. Until residential fire sprinkler systems become commonplace as a critical lifesaving feature in homes, the fire department will continue to be the only "front-line" resource available for firefighting and rescue.

The Marlborough Fire Department operates from three fire stations. Fire Station #1 is located at 215 Maple Street, near downtown Marlborough. Fire Station # 2 is located at 100 Pleasant Street, serving the west end of the city. Fire Station #3 is located at 260 Boston Post Road, and is first due into the east end. Interstate 495 bisects the city in a north-south direction, while I-290 does so in an east-west direction. These two roads interchange at the northern edge of the city. US Route 20 also crosses the city from east to west while Massachusetts Route 85 traverses it in a north-south direction. All three stations are located to the east of I-495, which has only a few overpasses from one side to the other, limiting response routes to the still growing and developing west end of the city. While generally not a major issue, these barriers could, in certain instances, create operational challenges for the department. This is also an area of the city where travel times and associated response times are going to be the highest.

The Marlborough Fire Department utilizes a response matrix for various types of emergency responses that is fairly typical of those found in many Massachusetts fire departments. For the most part, the resources dispatched to various incidents are appropriate. In emergency

response situations, it is always best to have a reasonable number of resources responding that ultimately may not be needed or utilized, as opposed to needing additional resources and not having them immediately available. As discussed later in this chapter, MRI recommends adjustment be made to the current medical response procedures. The department does have a box alarm system for resources up to a 10 alarm assignment.

MARLBOROUGH FIRE DEPARTMENT INTIAL RESPONSE MARTRIX

TYPE OF RESPONSE	RESOURCES INITIALLY DISPATCHED
STILL ALARM	1 ENGINE, 1 LADDER, CAR 2*
FULL RESPONSE	2 ENGINES, 1 LADDER, 1 RESCUE, CAR 2*
FIRST ALARM (STRUCTURE FIRE)	3 ENGINES, 1 LADDER, 1 RESCUE, CAR 2*
MOTOR VEHICLE ACCIDENT (MVA)	1 ENGINE, CAR 2*
MVA: HIGHWAY OR REPORTED ENTRAPMENT	1 ENGINE, 1 RESCUE, CAR 2*
MEDICAL	1 ENGINE

*** Car 2 is the deputy chief's vehicle. This vehicle and the chief would only respond if there is a deputy on duty.**

The MRI study team did not evaluate the performance of the fire department during actual firefighting operations. However, it is apparent that the Marlborough Fire Department has not fully embraced the National Incident Management System (NIMS) for the command and control of all emergency incidents. This system has proven its value across the country, and it should be taught, utilized, and valued in the Marlborough Fire Department. A special effort should be made to educate all Marlborough firefighters and command staff in the value of improved firefighter safety, and increased operational efficiency and effectiveness provided by a well-organized and managed incident (or event).

The MRI study team heard anecdotal reports of fire ground operations that did not follow basic ICS protocol. Complaints included command personnel not wearing personal protective equipment (PPE) while on scene; conflicting commands to personnel; inattentiveness by the various officers; no regular designation of a safety officer; and incident commanders who roam the fire ground rather than remain at the command post.

One of the study team's most significant concerns regarding the Marlborough Fire Department operations is the lack of consistency in staffing the department's shift commander position and command vehicle. When there is no deputy chief on duty, the on duty captain (who may be a lieutenant filling in) serves as the shift commander. However, he is still simultaneously serving as the company officer on Engine 1, an important role in its own right. On fire incidents, this causes the captain to need to make difficult choices between functioning as a company officer, or functioning as the incident commander, leaving his company to operate without supervision. In addition, since the captain does not respond with the command vehicle, an important resource necessary to effectively manage incidents is not available to him. The lack of

command consistency and no on duty command officer played a role in early operations at the eight alarm fire in downtown Marlborough in June 2010.

A critical component of the incident command system is the establishment of the role of safety officer to monitor conditions at fires and emergency incident scenes to ensure that appropriate safety procedures are being followed. The Marlborough Fire Department does not have a formal safety officer program at the time of this study.

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 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.

The Marlborough Fire Department should be (and we believe is) capable of fully handling fires in single-family dwellings that are limited in size and intensity. This goal becomes fully achievable for the most part provided that staffing recommendations contained in Chapter 5, *Organizational Structure, Staffing, and Scheduling* of this report, are implemented, AND the fire department can arrive at the fire incident and take definitive action to mitigate the situation prior to flashover occurring.

NFPA 1710 MINIMUM STRUCTURE FIRE STAFFING NEEDS

TASK	# Personnel
Incident Commander	1
Attack engine driver/operator	1
Water supply engine driver/operator	1
Two handlines with two personnel each	4
Support/back-up Firefighter for each handline	2
Search & rescue team	2
Ventilation team	2
Ladder company driver/operator	1
Rapid intervention team (RIT)	2
TOTAL MINIMUM NUMBER OF PERSONNEL	**16**

Personnel needs for a fire involving several rooms in a 2,000 square foot, one-family residential occupancy. These are the proverbial "bread and butter" structural fire incidents that fire departments respond to, and are by far, the most common type of structure fire, accounting for around 70% of those types of incidents.

Marlborough's densely populated and developed urban core, and numerous multi-family dwellings and large apartment complexes, significantly complicates the fire protection issues that confront the fire department. Closely spaced, wood frame dwellings, create significant exposure problems that are not found in suburban communities. It is not uncommon for the first fire units arriving on the scene of a serious house fire to find the houses on either side, and even possibly in the front and/or rear, seriously exposed, and even starting to burn themselves. Many of the same problems, but on a larger scale, confront firefighters when arriving on the scene of a significant fire in a large apartment complex. Attempting to protect these exposures, after dealing with immediate life threat issues, and trying to quickly knock the fire down, is made much more difficult in limited staffing situations. However, the Marlborough Fire Department needs to take steps to insure that it can make the most impact on these incidents and do so as quickly as possible.

Figure 4-1: Closely spaced wood frame dwellings can complicate and increase the severity of fires in the more densely developed areas of Marlborough.

The ability to get a sufficient number of personnel, along with appropriate apparatus, to the scene of a structure fire is critical to operational success and firefighter safety. Accomplishing this within the eight minute time frame specified in NFPA 1710 is an important operational benchmark. The Marlborough Fire Department should make achieving this goal its highest priority. It is our opinion that the staffing plan we recommend in Chapter 5, *Organizational Structure, Staffing, and Scheduling,* allows the city to achieve that goal by increasing the number of personnel who will be available on duty for the all-important initial response and fire rescue and suppression operations, without the need to increase overall department staffing. However, that is only one-half of the equation. As will be discussed later in *Deployment of*

Resources, how and where these personnel and companies are located, and how quickly they can arrive on scene, play major roles also.

One of the most effective tools the fire department has to assist them with handling fires and other emergencies in commercial and industrial facilities are pre-fire plans. The purpose of a fire pre-planning program is to allow firefighters to become familiar with buildings and/or facilities within their response area prior to an emergency, alert them to on site hazards and risks, and develop a detailed fire response plan for them that includes specific tactics that will be required to mitigate fires or other emergencies. A comprehensive pre-fire plan includes as much data about the building as possible, including, but certainly not limited to, the occupancy type, floor plans, construction type, potential hazards to firefighters, special conditions in the building, recommended apparatus placement plan, water supply plan, forcible entry, and ventilation plan. Pre-fire plans should be reviewed, and updated, regularly. They should be tested and validated by tabletop exercises and on-site drills. In order to derive maximum benefit from the pre-fire plans, the department should implement a program to make pre-fire plans accessible on mobile data terminals (MDTS; notebook/laptop computers) on fire apparatus, and in the command vehicle(s), for use enroute to an incident and while on-scene.

It was reported to the MRI study team that the Marlborough Fire Department has done limited pre-planning on some of the major target hazards in the city. For instance, a detailed plan containing a comprehensive amount of important information for Marlborough Hospital is available in the TriTech CAD system in the dispatch center. This data is accessible by use of the MDTs, but the fire department does not use the ones they have to access and utilize this information on scene. Lack of a pre-fire plan was one of the contributing factors in the six alarm fire in April 2012 at the Lake Williams Condos.

Mutual Aid

Mutual aid is an essential component of almost every fire department's operations. With the exception of the largest cities, no municipal fire department can, or should, be expected to have adequate resources to respond to all types and sizes of emergencies. Mutual aid is shared between communities when their day-to-day operational fire rescue and EMS capabilities have been exceeded, and ensures that the citizens of the community are protected even when local resources are overwhelmed. Fire department mutual aid is provided without financial charge.

The Marlborough Fire Department participates in mutual aid response organizations and agreements for fire, hazardous materials, and technical rescue operations.

The department is a member of Massachusetts Fire District 14. Fire District 14 provides the following services and activities:

- Centralized communications control center in Ashland for mutual aid activities;

- Operation of a multi-channel radio system for dispatch and coordination of firefighting apparatus and emergency medical units;
- Mobile command and communications vehicle for complex operations;
- Ten alarm running card system for coordination and deployment of apparatus, personnel, and other resources;
- Regional hazardous materials response team (funded by the Massachusetts Department of Fire Services);
- Mobile air supply unit for refilling self-contained breathing apparatus at incidents;
- Response coordination of Department of Fire Services support and rehabilitation units;
- Fire safety house trailer for fire prevention and training purposes;
- Access to critical incident debriefing; and
- Group purchasing opportunities.

Another area that the study team has significant concerns about is the perception of the Marlborough Fire Department by its closest mutual aid departments and chiefs. As discussed in more detail in Chapter 16 *Perceptions of, and Relationships with, External Stakeholders*, surrounding fire chiefs have concerns about Marlborough's operations and application of incident management on emergency incidents. They reported that their personnel prefer not to work with Marlborough because of an attitude that they are better than everyone else, and too good to be assigned certain fireground tasks. In a region where giving and receiving mutual aid is a part of normal operations, any situation where there is not absolute confidence in each other's abilities, willingness to do whatever is needed to mitigate the incident, and in short, be a total team player, is problematic and needs to be addressed by the various participants. There is no margin for error on the fireground, and a less than well integrated and disciplined mutual aid system can have negative implications on the fire ground.

The study team was informed by a number of different people that we interviewed that there are areas in Marlborough, where due to the current location of the city's stations, neighboring departments are actually located closer and could arrive on the scene of an incident faster than Marlborough units. However, as automatic aid is rarely used other than at the Solomon Pond Mall and a few industrial facilities, automatic aid remains underutilized and restrained based on

organizational tradition. We were informed that for many years Marlborough and Hudson ran "line boxes" to those areas where both departments were dispatched and responded together to incidents. They also responded together automatically to major target hazards such as Marlborough Hospital and a nursing home in Hudson. Automatic aid should be revitalized and expanded to increase compliance with NFPA 1710.

Recent Major Fires

All communities experience fire incidents from time to time that are much larger than the ones they normally deal with and that significantly tax their resources, and even those of surrounding communities and perhaps even the region. These types of incidents are the ones where having an effective mutual aid system, incident management system, and command structure in place becomes even more important. The larger an incident is, the more complex it becomes. This translates into more difficulty in effectively, efficiently, and safely managing the incident unless the use of incident management has been utilized on smaller incidents in the department's normal day-to-day operations.

On June 26, 2010, an eight alarm fire occurred in mixed use commercial building in downtown Marlborough. On April 23, 2012, a six alarm fire struck the Lake Williams Condominium Complex west of downtown. While having two fires of this size in less than two years is probably coincidental, there are some common threads that exist between the two with regard to fire department operations. While a full scale after action analysis and report is well beyond the scope of this project, several of the issues that were identified as being problematic directly tie into recommendations found in this report.

The June 2010 fire occurred on a Saturday morning. There was no deputy chief on duty, so there was no initial response by a command level officer in a command vehicle. As a result, the captain of Engine 1 was forced to assume initial incident command, but without the benefit of the resources that would have been available to him with access to the command vehicle. In addition, his crew and the crew of Rescue 1 initially were operating in the building without an officer to supervise them. The first chief level officer to arrive on the scene with gear (a mutual aid chief) did not arrive for approximately 30 minutes after the initial alarm. There was another mutual aid chief there, but he did not have gear or equipment, so he was limited in what he could do. The first Marlborough chief officer, an off duty deputy chief, did not arrive for some time after that, but once he arrived he did assume command of the incident.

Prior to the arrival of the Marlborough deputy chief, the mutual aid chiefs stated that there was no command structure in place and no divisions had been established to break up the incident into manageable sections. The captain who was functioning as the incident commander, realizing that the incident was escalating and the fire was continuing to grow, decided to switch from offensive to defensive operations. He had ordered an evacuation of the building by fire

personnel, but personnel were not obeying the order. At some point, with the assistance of several of the mutual aid chiefs who were on scene assisting with operations, a collapse zone was established around the building. Less than five minutes later, the building completely collapsed, narrowly missing Engine 1, which was operating directly in front of it.

For the April 2012 fire, there was a deputy chief on duty who responded immediately. The fire chief also quickly responded after hearing the first reports. However, once again, the establishment of an effective command structure, and higher ranking officers understanding what their roles on this type of an incident are, were both problems. It was also reported to the study team that the lack of pre-planning and thus familiarity with the layout of the upper floors of these buildings presented problems for firefighters during the initial stages of firefighting operations.

Figure 4-5: Early operations at the Lake Williams Condo complex. A lack of pre-fire plans and familiarity with the layout of the building complicated firefighting efforts. Image credit John Mauro, Jr.

Figure 4-6: The fire eventually grew to 6 alarms and totally destroyed the building. Image credit John Mauro, Jr.

A third incident occurred within the last several years that had many of the same issues. This was a multiple alarm incident, in the middle of the night, in a senior citizen complex, in downtown Marlborough. While the Marlborough Fire Department did an outstanding job in many ways making a number of rescues, ensuring there was no loss of life, and quickly controlling the fire; there were still command and control problems. Responding mutual aid chiefs could not locate the incident commander, who was apparently inside the building and not managing the incident or giving orders to incoming units. This leads to freelancing and loss of control of the incident.

There are several common denominators present on all of these incidents. The most critical are a lack of leadership and a lack of effective command. Establishment of incident command on

every incident is the accepted standard in the United States today. The larger the incident, or the more complexity or potential it has, the more critical effective management and command becomes. In each of these incidents, an effective command structure was not established in the initial stages of the incident, allowing the fires to manage the fire department rather than the other way around.

In the case of the June 2010 fire, the absence of a command officer early in the incident was a major problem. Not only did this significantly impact operations by forcing the captain on Engine 1 to assume command of a major incident without providing him the support resources necessary for management, it also forced him to relinquish his duties as a company officer, creating a potential safety concern for his personnel. In addition, company level officers will frequently establish initial command on incidents. However, in most cases they will quickly pass it to a higher ranking officer upon their arrival. As a result, they often do not have the frame of reference to manage incidents for an extended period of time. This is a skill that is acquired over time.

Finally, the lack of pre-fire plans for the majority of commercial buildings in Marlborough played a significant role in these incidents. Firefighters were not familiar with the construction of the buildings and their layout, knowledge of which may have assisted them with initial operations while still in offensive operations. The fire chief informed the study team that the lack of a pre-fire plan very definitely impacted operations at Lake Williams and his decision making process.

Emergency Medical Services (EMS)

The City of Marlborough operates a two tier EMS delivery system. The Marlborough Fire Department provides first responder EMS response at the basic life support (BLS) level, utilizing their fire apparatus. All apparatus carries a basic compliment of EMS equipment including automatic external defibrillators (AID) and EpiPens. They have recently been equipped with Narcan, a drug to counteract the effects of some narcotic overdoses. Patriot Ambulance provides patient transport at the advanced life support (ALS) level, under contract with the city. This contractual relationship has been in effect, with several renewals, since 2000. The most recent three year contract was signed in June 2014. Both the fire department and Patriot respond simultaneously on every EMS incident that occurs in the city regardless of severity.

Approximately 90% of the members of the fire department are certified as Emergency Medical Technicians (EMT), for which they receive a 5% stipend. The remaining 10% of the personnel are certified as first responders, which earns them a 2% stipend. Despite the fact that the department currently responds to every EMS incident in the city, and that they make up more than 50% of all department responses, there is no requirement for personnel to be EMT certified.

Patriot provides the EMS training to the fire department as part of their relationship. This includes providing training necessary for personnel to recertify as EMTs, as well as annual training; CPR, AED use, and more recently, Narcan administration. Patriot's training coordinator provides some type of training to each fire department shift approximately every other month. They also have on-line training resources available. Patriot pays the city $45,000 a year for emergency medical dispatching (EMD) services. These funds are deposited into a public safety training account from which training money for the fire and police departments is drawn.

Patriot Ambulance staffs two dedicated ALS ambulances in Marlborough which operate from a station located at 15 Sawin Street. Both ambulances are staffed with two paramedics, and these ALS personnel respond to all incidents regardless of whether they are of a BLS or ALS nature. Generally speaking, Paramedic 6 covers the west half of Marlborough, while Paramedic 3 is responsible for the east end. There is also an EMS supervisor that is available 24/7. Patriot informed the MRI study team that the two medic units are normally sufficient for the call volume in Marlborough. However, when needed, there are also two additional Patriot medic units stationed in Hudson; one dedicated to that town, and one that serves as a roving unit. During times of high activity, if all four local units are committed, Patriot will normally try to relocate another unit from farther north into the Marlborough/Hudson area.

Patriot has provided mass casualty training to the fire department and has the resources to provide for a limited mass casualty incident (MCI). They participate with Central Medical Emergency Dispatch (CMED) in Holden for the availability of regional resources. Additional MCI units are located in Worcester and at the Mass Fire Academy. It is reported that they integrate well into the IMS system when operating on scenes with the fire department.

All of the personnel that we interviewed from both the fire department and Patriot reported an excellent working relationship with each other. They say that either will provide whatever assistance is required to help the other. The Patriot personnel stated that most of the fire department personnel are very good at performing EMS skills, and do a good job starting patient care when they arrive before the ambulance.

MARLBOROUGH EMS INCIDENTS: 2009 – 2013

YEAR	TOTAL EMS INCIDENTS	TOTAL PATIENTS TRANSPORTED	% OF INCIDENTS THAT RESULTED IN A PATIENT TRANSPORT	ALS INCIDENTS	BLS INCIDENTS	AVERAGE NUMBER OF EMS INCIDENTS PER DAY
2009*	---	3,644	---	2,791	853	---
2010	4,083	3,216	78.8%	2,848	1,159	11.2
2011	4,378	3,470	79.3%	2,878	1,250	12.0
2012	4,170	3,225	77.3%	2,458	1,533	11.4
2013	4,479	3,370	75.2%	2,762	1,608	12.3
AVERAGE	4,277.5	3,385	77.6%	2,747.4	1,280.6	11.7

Source: Patriot Ambulance
Note: Figures for all years may not add up for a variety of reasons.
*** 2009 figures not complete year due to reporting system software change.**

As illustrated in the table above, from 2009 through 2013, Patriot reported that the number of EMS incidents fluctuated from year to year, but not greatly. During this five year period, they averaged 4,277.5 incidents per year in Marlborough, an average of 11.7 per day. The per day average ranged from a low of 11.2 in 2010, to a high of 12.3 in 2012. The patient was transported to the hospital on a little more than three out of every four calls, averaging 77.6% over the five years.

Advanced life support incidents averaged 2,747.4 annually, while the BLS average was 1,280.6. This statistic is interesting, and if the focus of this report were EMS operations, would warrant addition research. This average indicates that approximately 68% of Marlborough EMS incidents are ALS in nature. This is nearly double the national average of 30% to 35% ALS incidents. This may be a function of the lack of real EMD call triaging and categorizing in Marlborough.

Patriot Ambulance does third party bill (health insurance company) the patient for services when they transport to the hospital. In Marlborough, the average rate billed is $821.00 per call, with $647.00 ultimately collected. They report an average collection rate of 78%, which is excellent and is a positive reflection on what is considered to be a good payer mix in the city. One major uncertainty for them in the future is what impact the Affordable Care Act will have on billing and revenue. The current Medicare reimbursement rate is only about 36% of the amount billed. However, when compared to other Massachusetts communities, the current rates billed and collected are relatively low. Consideration could be given in the next

negotiations for the renewal of this contract to include a provision and agreement whereby these rates would be increased, and through sharing of the increased revenues, Patriot Ambulance would provide the City of Marlborough with an additional revenue stream to support the first response capability that the fire and police departments provide.

In accordance with state EMS licensing requirements, one paramedic must transport on each ambulance in order to maintain ALS status. However, at the current time, Patriot has elected to maintain two paramedics on each of its vehicles. Patriot Ambulance transports patients primarily to Marlborough Hospital and other nearby medical facilities. However, depending upon the patient's medical problem, and the patient's condition, patients are occasionally transported as far away as Worcester and Boston.

As previously noted, on ALL medical calls, an engine company is dispatched to provide assistance to the paramedic crew with medical care, carrying equipment, lifting patients, extrication from motor vehicle crashes, technical rescue operations, and driving the ambulance to the hospital when both paramedics are committed to the care of critically ill patients. For incidents that involve (or may involve) a life threatening type of emergency, or for various types of rescue operations, this procedure makes sense, and in some cases is essential. However, for many types of less severe medical emergencies, those requiring basic life support (BLS) level intervention, care, and transportation, this procedure is not the most effective, or efficient, use of the department's limited resources. It should be noted, however, that the Patriot personnel that were interviewed for this report had mixed opinions on whether modifying this policy would be beneficial or not.

Massachusetts requires that all 911 emergency medical calls be screened through a triage system called emergency medical dispatch (EMD). This system determines severity of the call and provides the caller with instruction to aid the patient prior to the arrival of first responders. Once screened, the calls are assigned a level A (minor) to E (most severe). Industry best practice indicates that to provide the highest quality patient care, preserve resources, and prevent injuries, an escalating matrix of resource assignment should be utilized. In many communities, an engine company only responds to medical calls where the severity indicates a larger team would benefit that patient, and/or reduce first responder injuries.

Subject to the direction and approval of the medical director, an engine should only respond to serious medical calls classified as C, D and E level calls. This typically translates into a response to 25 - 35% of the most serious calls and preserves resources by a 65 -75% reduction in response. In Marlborough, this would reduce the fire department's responses by approximately 2,000 per year with corresponding reductions in wear and tear on apparatus, potential motor vehicle accidents involving responding apparatus, etc. Revising this procedure would also have a dramatic effect on the incident type response percentages that are discussed in the next section of this chapter.

Emergency Response/Incident Statistics

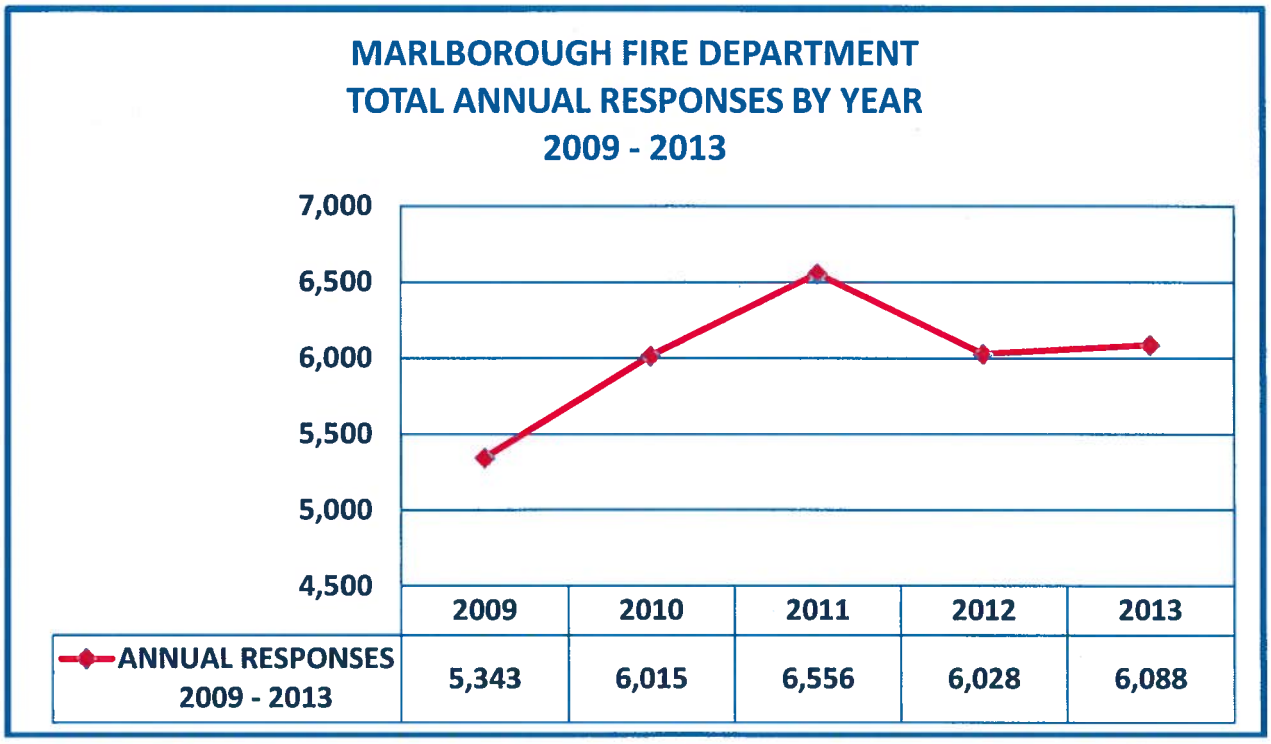
One of the best ways to get a broad overview picture of an emergency services provider is to look at, and analyze, their emergency response/incident statistics. Looking at statistical data that is compiled from incident reports that are generated for each and every emergency response and/or request for assistance will assist with determining the adequacy of current operations, as well as identify trends in responses (i.e., increasing vs. decreasing, changing types of incident requests, increasing response times, frequency of simultaneous incidents, etc.). Utilizing current trends to help predict future ones, while not an exact science can be helpful to communities and fire departments in predicting, and planning for, future operational needs. However, as with any other type of statistical analysis, the information that is analyzed is only as good and/or reliable as the data that was originally entered, and has been provided for evaluation.

The data that was analyzed for this report was provided to the MRI study team by the Marlborough Fire Department. The statistical reports were automatically compiled through report generation features of the Tri-Tech software. Each and every emergency incident that the Marlborough Fire Department responds to results in the generation of an NFIRS incident report. This analysis of data notwithstanding, the Marlborough Fire Department is required to submit a monthly report to the Massachusetts State Fire Marshal who compiles statewide fire and incident response statistics. Statewide data is then submitted to the United States Fire Administration where data and statistics are compiled and analyzed nationally. While three very broad categories are analyzed for this report, in the National Fire Incident Reporting System (NFIRS) each category has numerous sub categories that allow the type of incident handled to be classified very specifically.

The MRI study team evaluated Marlborough Fire Department incident response data for a five year period covering 2009 through 2013. While we believe that the data that we analyzed is fairly accurate as to the overall incident numbers, and general classification of incident types, we feel that there is need for significant improvement in the manner in which incident response data is entered. Concerns over the accuracy of some of the data, as well as challenges with extracting other important and relevant statistics were shared by senior members of the fire department. In addition, the Marlborough Fire Department would be well served by insuring that key members of the department are well versed and highly proficient at extracting necessary statistics from the database and compiling periodic reports, and preparing program justifications, etc. As noted in Chapter 11, *Communications and Technology*, it is recommended that Marlborough consider transitioning to a fire department based management program software/database that will allow easier extraction of relevant data resulting in better statistical analysis.

During the five year period from January 1, 2009, through December 31, 2013, the Marlborough Fire Department responded to a total of 30,030 emergency requests for

assistance, an average of 6,006 per year, or 16.5 per day. The number of incidents has fluctuated each year from a low of 5,343 in 2009 to a high of 6,556 in 2011. There was an increase of 672 incidents (12.6%) from 2009 to 2010, and 541 incidents (9%) from 2010 to 2011. An increase of this size in responses over two years (1213 total incidents, 22.7%) is very unusual for a department the size of Marlborough. However, these increases were attributed to several major storms that struck New England those years resulting in high concentrations of increased response activity for extended periods. This explanation is plausible given that in 2012 responses decreased by 528 (8.1%) before increasing just slightly by 60 incidents (1%) in 2013. The total incident volume in 2010, 2012, and 2013 was steady, with just 73 incidents difference between the three years.



As was noted in other chapters of this report, the Marlborough Fire Department, like many, if not most, fire departments responds to more emergency medical incidents than actual fires, or fire and other types of emergency incidents. The five year statistical data clearly illustrates this. From 2009 through 2010, the department responded to a total of 16,568 emergency medical incidents, 55.2% of overall department responses. The number of responses ranged from a high of 3,503 in 2011, to a low of 3,002 in 2009. The average number of annual responses for those years is 3,313.6, an average of 9.1 per day. The difference in number of responses between the slowest year (2009), and the busiest year (2011) is 501 incidents (16.7%). The busiest year (2011) had 190 more responses than the average, slightly more than 0.5 per day.

The slowest year (2009) was 311 responses below the average, slightly less than one per day or about six responses per week. Emergency medical responses ranged from 53.4% of total department responses in 2011, to 57.3% in 2013.

While these percentages are significant, they are quite a bit below the national average of 75% to 80% of responses being EMS related for departments that provide the primary EMS service to their community. Although the fire department does not provide primary transport EMS service in Marlborough, they do respond to every EMS incident, therefore the comparison is valid. The much lower than average number of EMS responses in comparison to other EMS providers shows that Marlborough is still a busy fire department with regard to responses to fires and other types of emergency incidents.

In comparing the responses in Marlborough reported by Patriot Ambulance to those reported by the Marlborough Fire Department, the MRI study team noted significant discrepancies in the numbers, with Patriot's statistics being much higher. Follow-ups with both Patriot and the fire department offered several possible reasons why. These included frequent requests by the police department to transport patients for psychological evaluations. In these instances, the fire department does not respond. Another factor cited was motor vehicle accidents with either multiple patients treated/transported and/or multiple refusals. In these cases, each patient is counted as an "incident" by Patriot. Finally, Patriot also handles a number of hospital-to-hospital transports for STEMI (heart attack) patients that if originating in Marlborough would show a response that the fire department also would not have been involved in.

For actual fire incidents, the statistical sample is much smaller; however, that would not be unexpected in a smaller community such as Marlborough. It is very important to note that per NFIRS protocols, the category for "Fire Incident" must be an actual fire situation that in many, but not all, situations caused some type of damage. Many of the incidents that are classified under the third broad category of "Other Incidents" were most likely dispatched as some type of fire incident, but ultimately were classified otherwise, for reporting purposes, based upon the situation actually found at the scene. From 2009 through 2013, the department responded to a total of 677 actual fire incidents, an average of 135.4 per year, or 2.6 per week. The number of fire incidents for the years studied was lowest in 2011 with 119 incidents, while it peaked in 2012 with 148 incidents. Actual fires accounted for between 1.8% and 2.5% (average 2.3%) of the department's total incidents during the years that analyzed.

The third broad category of incident responses is the "Other Incidents" category. This category is where many different types of emergency responses, that are not actual fires, or EMS incidents are classified. Examples of incidents that would be classified in this category, include, but are certainly not limited to:

- Automatic fire alarm and/or sprinkler system activations with no fire

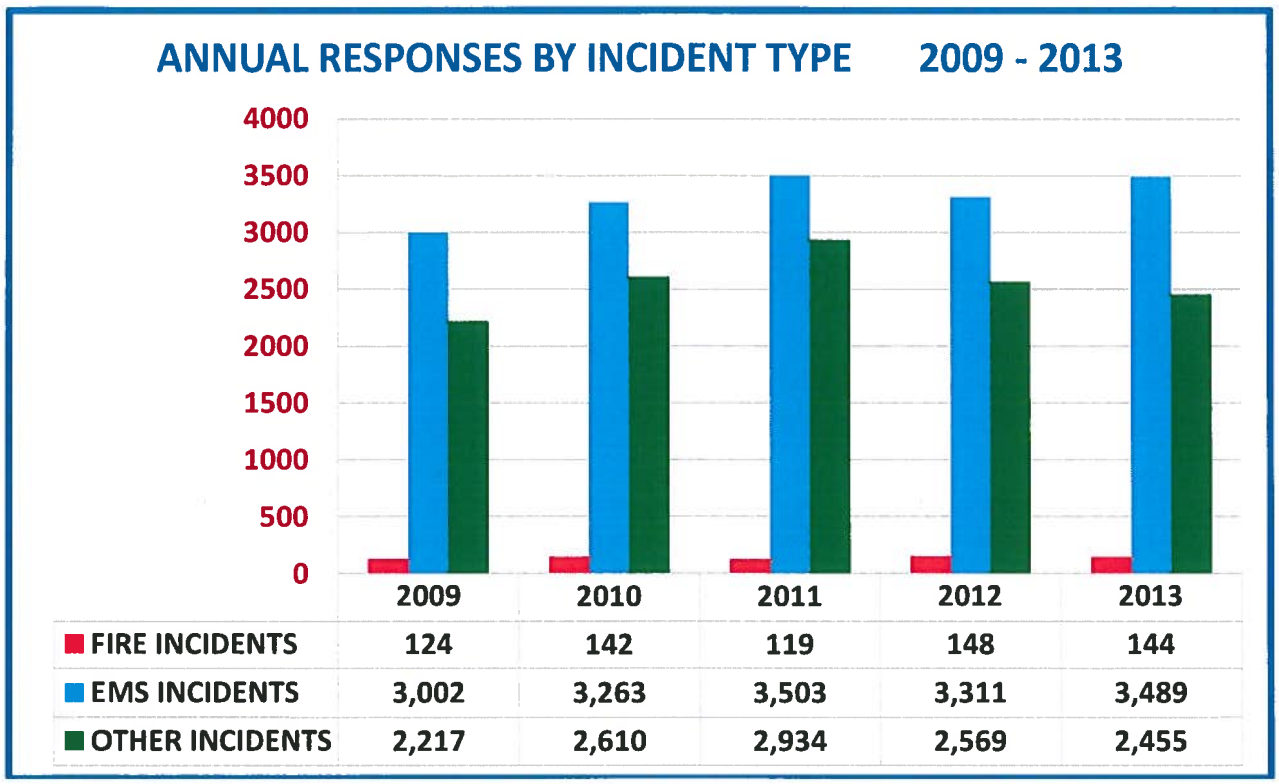
- Carbon monoxide alarms
- Wires down
- Hazardous materials/chemical/fuel spills
- Motor vehicle accidents
- Gas leaks
- Service calls and assistance to other agencies
- Mutual aid/cover assignments to other municipalities
- Various standbys

Figure 4-7: The Marlborough Fire Department responds to a significant number of motor vehicle crashes each year. A serious crash such as this one in Marlborough involving a car that ran under a tractor trailer would be broadly classified as an "Other" type of incident.

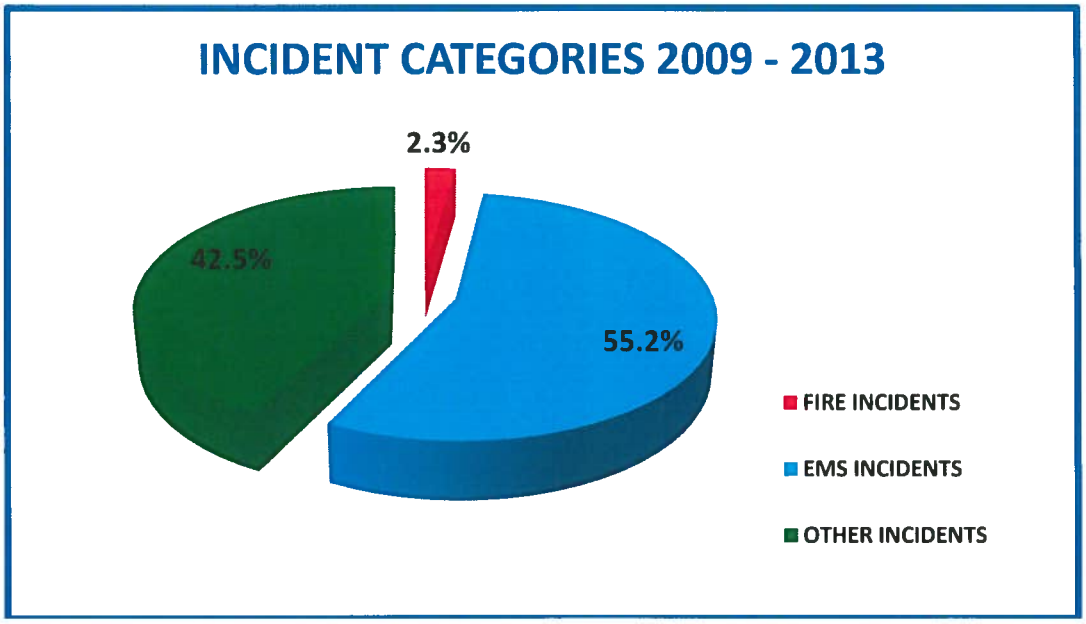
From 2009 through 2013, there were a total of 12,785 incidents broadly classified as other, an average of 2,557 per year, or 7.0 per day. The busiest year for these incidents was 2011, with a total of 2,934, while the slowest year was 2009, with 2,217. As a percentage of overall department operations, these incidents averaged 42.6% during those years. These incidents showed the same increases as has been noted in other 2010 and 2011 statistics.

YEAR	TOTAL EMERGENCY INCIDENTS	AVERAGE PER DAY	FIRE INCIDENTS	AVERAGE PER DAY	EMS INCIDENTS	AVERAGE PER DAY	OTHER INCIDENTS	AVERAGE PER DAY
2009	5,343	14.6	124	.34	3,002	8.2	2,217	6.1
2010	6,015	16.5	142	.39	3,263	8.9	2,610	7.2
2011	6,556	18.0	119	.33	3,503	9.6	2,934	8.0
2012	6,028	16.5	148	.40	3,311	9.1	2,569	7.0
2013	6,088	16.7	144	.39	3,489	9.6	2,455	6.7
AVERAGE	6,006	16.5	135.5	.37	3,313.6	9.1	2,557	7.0

Municipal Resources



	2009	2010	2011	2012	2013
FIRE INCIDENTS	124	142	119	148	144
EMS INCIDENTS	3,002	3,263	3,503	3,311	3,489
OTHER INCIDENTS	2,217	2,610	2,934	2,569	2,455



Structure fires are the incident type that many of the regulations and standards pertaining to firefighters are primarily focused on. They are generally the most hazardous type of incidents for both firefighters and civilians. Like most cities its size, Marlborough does not have a lot of

actual structure fires. However, that does not mean that they do not get dispatched to a significant number of reported structure fires that ultimately turn out to be something else, such as an unattended cooking mishap, a motor of some sort heating up and causing smoke, or a wide range of other possibilities. While for a city the size of Marlborough, 150 to 200 structure fire dispatches a year would be about average, the fire department could not provide the study team with statistics on how many times they are dispatched to this type of incident. They also could not provide information on how many times they comply with NFPA 1710 on having all units initially dispatched to a structure fire, and sixteen personnel, on the scene within eight minutes. NFPA requires a 90% compliance rate.

As illustrated in the table below, Marlborough has "struck a box", in other words called for additional assistance beyond the available on duty resources, between eight and eleven times annually over the previous four years. During that same time, the city has had a total of four extra alarm (2nd alarm or greater) fires. There were none in 2011. There were fifteen civilian fire injuries and one civilian fire fatality during this time, along with 26 firefighter injuries. These statistics indicate that while Marlborough has a high risk potential for serious fires, in reality they have very few actual ones. It is likely that in large part the relative infrequency of significant fires in Marlborough is attributable to a rapid and effective response by the fire department to mitigate minor incidents before they have the opportunity to escalate.

Figure 4-8: Marlborough firefighters operating on a fire at 214 Maple Street in December 2007.

Figure 4-9: Marlborough Firefighters operate at a 2nd alarm fire in November 2012.

MARLBOROUGH STRUCTURE FIRES
2010 - 2013

YEAR	NFRIS 111 BUILDING FIRES	NUMBER OF TIMES BOX IS STRUCK	NUMBER OF 2ND ALARM OR GREATER FIRES	FIRE LOSS	NUMBER OF INJURIES	NUMBER OF FATALITIES
2010	54	9	1 -8 ALARMS	$1,908,602	2 CIVILIAN 2 FIREFIGHTER	0
2011	48	8	0	$ 560,999	6 CIVILIAN 17 FIREFIGHTER	0
2012	53	8	2 1 – 3 ALARM 1 – 6 ALARM	$5,387,004	5 CIVILIAN 5 FIREFIGHTER	1 CIVILIAN
2013	50	11	1-2 ALARM	$1,338,925	2 CIVILIAN 2 FIREFIGHTER	0

Response time is another important measuring instrument to determine how well a fire department 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.

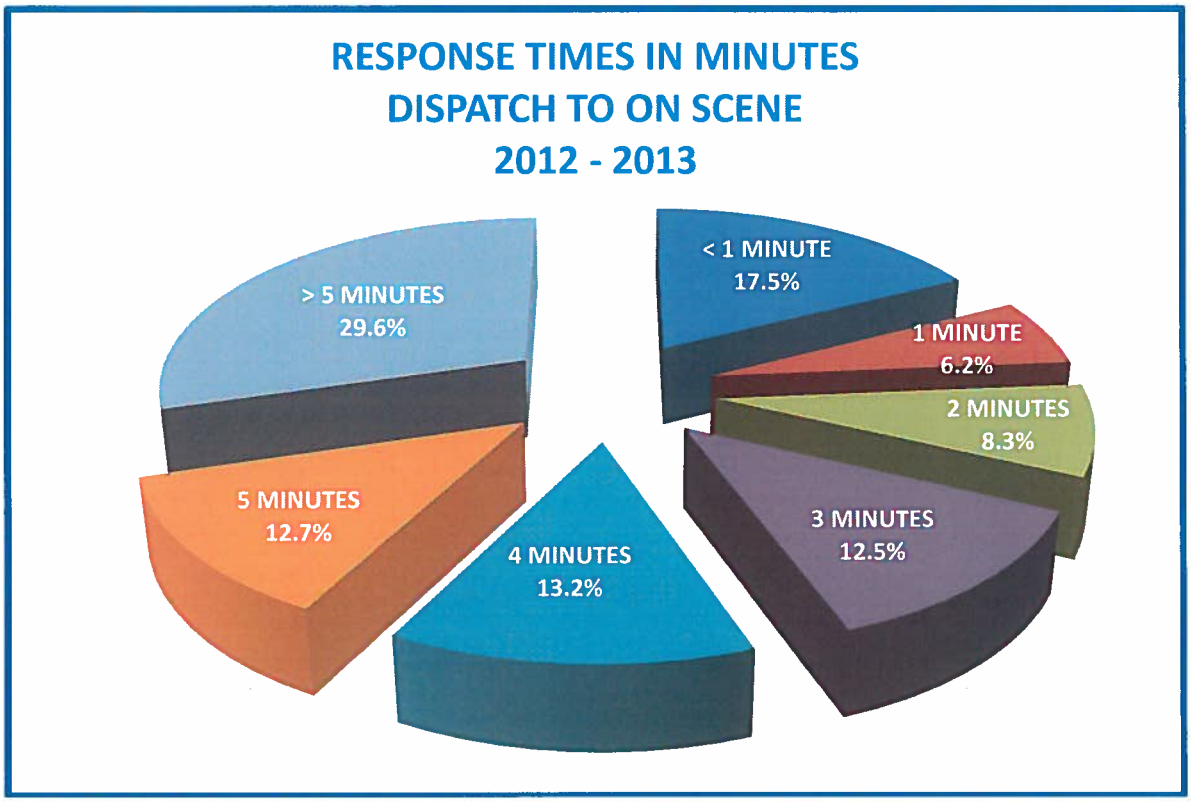
Municipal Resources

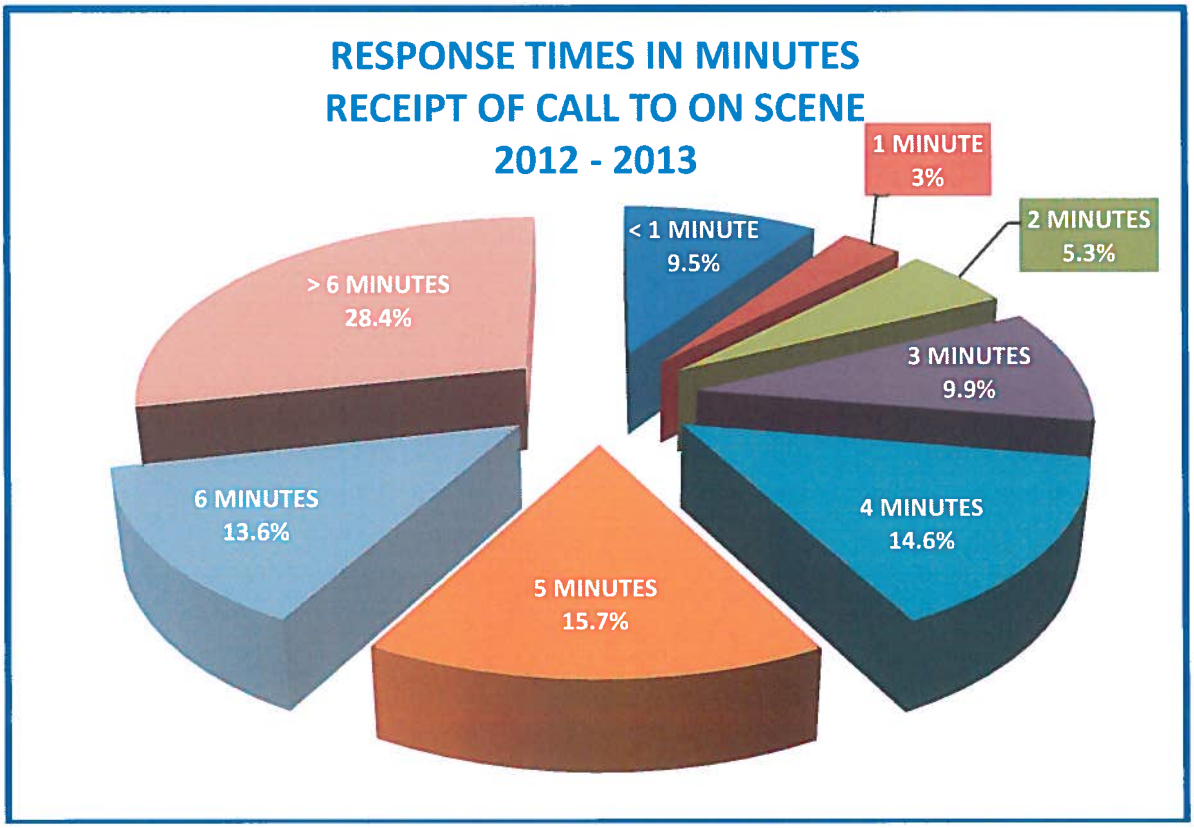
As previously noted, NFPA 1710 – *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments* (2010 Edition), is the nationally recognized consensus standard on staffing and deployment by career fire department.

> Paragraph 4.1.2.1 states that the first arriving engine company shall arrive at the scene of a fire suppression incident within four minutes or less and/or the entire full first alarm response should arrive on scene within eight minutes. For EMS incidents, a unit with first responder or higher-level trained personnel should arrive within four minutes, and an Advanced Life Support (ALS) unit should arrive on scene within eight minutes. Paragraph 4.1.2.2 requires the establishment of a 90% performance objective for these response times.
>
> **NOTE:** The four minute response time is from when the units are physically moving to the incident. One minute can be added for call processing and dispatch, and one minute can be added for turnout time, that is from when firefighters in the station are notified, until they are actually responding, providing six total minutes from the time the 9-1-1 call is answered until the first unit arrives on location.

An analysis of response time data from the two year period January 1, 2012, through December 31, 2013, indicated that the department responded to a total of 10,328 incidents during this time period. However, other statistics provided by the fire department indicate that the department responded to 12,116 incidents. The MRI team has significant concerns about the inconsistencies in the statistics that we were provided with and what also appear to be inconsistencies within the computer generated response times we have attempted to analyze. We were unable to obtain suitable explanations or clarifications for these inconsistencies. While we provide an analysis of the data we had to work with, the reader should consider the reliability of the data that was provided.

Of the response times for these two years, 70.4% have a response time of five minutes or under (including one minute turnout time). When analyzing response times from time of the receipt of the call to first unit on scene 71.6% are under six minutes (including one minute call receipt and processing time and one minute turnout time). Both of these percentages are well under the NFPA 1710 compliance target of 90%. A significant portion of this lack of ability to comply with the NFPA response time standard is probably due to extended travel distances to incidents in the western portion of the city. On the other end of the spectrum, 17.5%, so slightly under one in six, of incidents show a response time of less than one minute, which is an unusually high percentage especially when one considers that personnel have one minute after the conclusion of dispatch to turn out and begin their actual response. This leads us to question the accuracy of this data.





Municipal Resources

Another method of evaluating an emergency services provider's effectiveness is to examine average response times. It was anecdotally reported to the study team that on average the Marlborough Fire Department arrives on location in about three minutes to three minutes, thirty seconds. Patriot Ambulance's average on scene arrival time is four minutes, thirty seconds to five minutes. However, statistics that would have supported these times and could be analyzed, were not able to be produced.

Every emergency services organization periodically experiences simultaneous, or overlapping, incidents. Whether they are handled by that department themselves, or through automatic/mutual aid, provisions need to be made to insure that these incidents are handled effectively, efficiently, and in a timely manner. However, as the number of simultaneous, or overlapping, incidents increases, that community and/or department can no longer rely on their neighboring communities/departments to handle an ever increasing percentage of their incidents. This a key benchmark in the need to consider increasing the number of available resources that are in service. While the MRI study team would have liked to evaluate this statistic, the current incident database utilized by Marlborough does not have the capability to extract this information through a query or search function. Gathering the data would have needed to be done manually, an unreasonably labor intensive and time consuming task with uncertain reliability in the results.

It appears from the statistics that the study team analyzed that annual emergency incidents, handled by the Marlborough Fire Department will continue to remain relatively consistent. However, as the city continues to experience growth and development, a gradual but steady increase in workload should be anticipated. Recommendations found in this and other chapters in this report seek to provide a blue print for Marlborough to be able to more effectively and efficiently meet these challenges.

Deployment of Resources

The appropriate deployment of resources is critical to the ability of any fire department to effectively, efficiently, and safely fulfill its core public safety and fire protection mission. In determining an acceptable level of risk, elected officials in every community must ask questions about the fire and EMS resources, such as: 1) how much do we need; 2) how much can we afford; and 3) how should those resources be positioned and deployed to provide maximum benefit to the community? These are never easy decisions especially when one considers the fact that virtually any decision on emergency service deployment that involves moving and/or relocating a resource, even for the considerable benefit of the community as a whole, may have a negative effect on at least a small percentage of the population.

From the perspective of stations and apparatus, 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 for both fires and emergency medical incidents. It is not just a cliché that during critical life threatening situations, minutes and even seconds truly do count.

Heart attack and stroke victims require rapid intervention and care, and transport to a medical facility. 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.

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 and 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. 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 can face. When a flashover occurs, initial firefighting forces are generally overwhelmed and will require significantly more resources to affect fire control and extinguishment. As was discussed above, Marlborough achieves the recommended response time benchmarks for first unit on scene between 70.4% and 71.6% of the time, both well below the 90% target for an urban community.

Figure 4-11: Structure fire prior to flashover. A primary goal of the fire department is to arrive on the scene of a structure fire and commence fire extinguishment prior to flash over occurring.

Figure 4-12: Structure fire after flashover has occurred.

Another method of determining the appropriate deployment of resources is the fire company travel distance model employed by the Insurance Services Office (ISO) to assist them with determining the Public Protection Classification (PPC) rating that is utilized for determining fire insurance rates by participating insurance companies. Under the ISO deployment and coverage model, in order to obtain maximum point value for this particular component of an evaluation, the first due engine company should be within 1.5 miles travel distance of every location within their first due response area. The first due ladder company should have a travel distance of no more than 2.5 miles. Travel distance is one of several factors that can have an impact on response time and is usually the most significant.

When analyzing the locations of Marlborough's current fire stations, it is easy to see that they were constructed to protect what was then the developed area of Marlborough. As the city has continued to develop and expand outward from its center core, particularly to the west, and west of I-495, the city's fire protection system has not made the adjustments necessary to keep up with that growth and expansion. It is also important to keep in mind that early fire stations were constructed much closer together as is evidenced by the close proximity of the old central station and Station 2 to each other. Advances in technology and equipment have made it possible for stations to be located much farther apart and still provide appropriate levels of protection.

As illustrated in Figure 4-13 below, Marlborough's current fire station locations provide excellent coverage to the center of the city with significant overlapping of coverage between the three stations as they are currently deployed. There is an area in the center of the city where all three stations are within the 1.5 mile travel distance. However, most of the area of the city west of I-495 is outside of the recommended 1.5 distance from the nearest station. There are also some areas in the north side of the city, as well as the northeast and southeast corners of the city that are outside of the 1.5 mile travel distance.

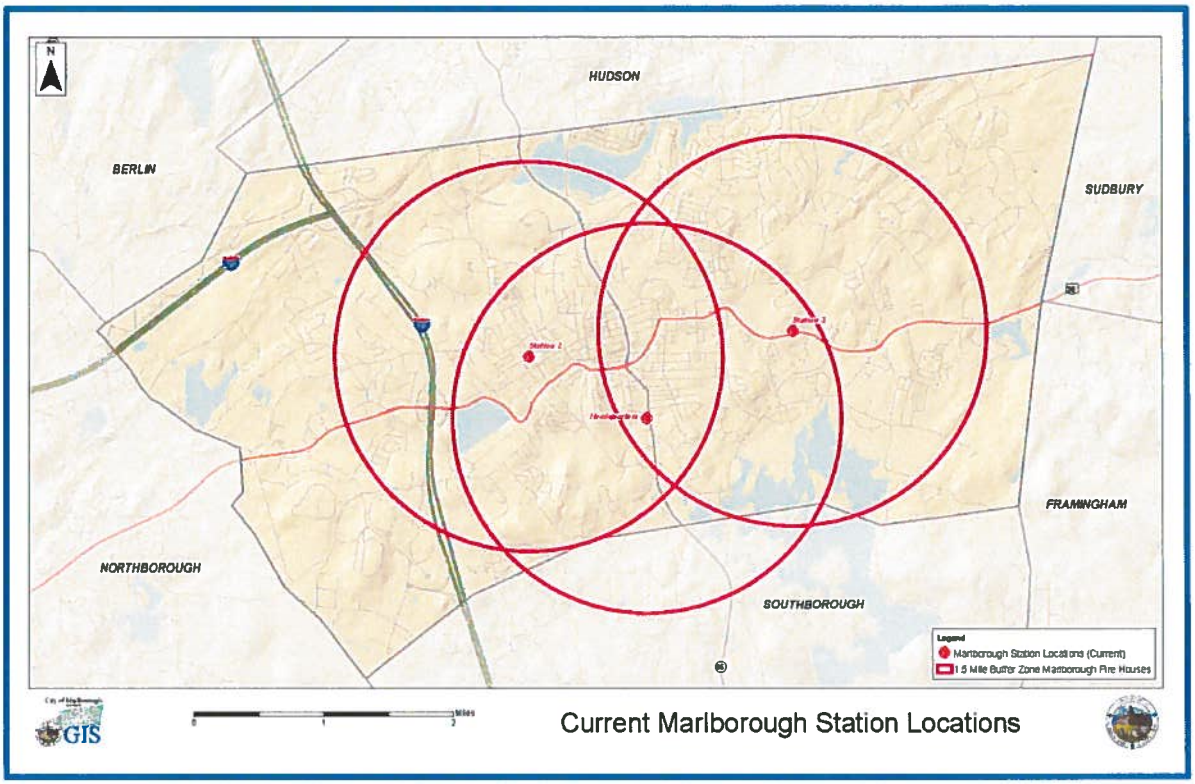


Figure 4-13: Existing Marlborough fire station locations with 1.5 mile travel distance.

Figure 4-14 shows that none of Marlborough's surrounding mutual aid departments provide any real assistance with the travel distance concerns. Although Hudson Station 2 shows potential coverage into an area in the far north of Marlborough, this station is not staffed and is used for equipment storage only, not emergency responses. Hudson Station 1, in downtown Hudson, while outside of the 1.5 mile travel distance, does appear to be closer to the Solomon Pond Mall area and has a fairly straight response route which can assist with reducing response times to that area.

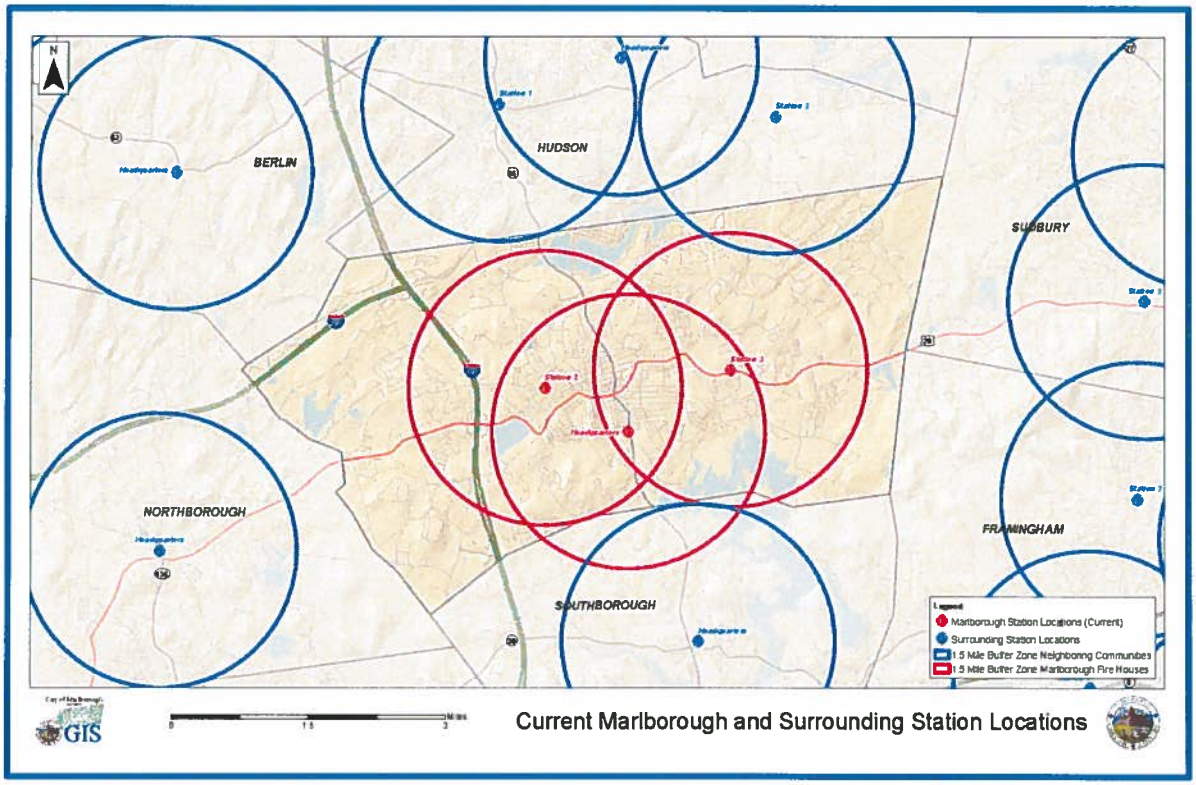


Figure 4-14: Existing Marlborough stations and fire stations in adjacent communities with 1.5 mile travel distance.

If the City of Marlborough were to relocate the existing Station 2 to a new location west of I-495 (the MRI study team used Boston Post Road and Northborough Road as a reference point), the coverage provided by that station would be significantly improved, now placing most of the city's west end within the 1.5 mile travel distance. As Figure 4-15 Indicates, while there are some areas that are now within the 1.5 mile distance that will fall outside of it with this revised deployment model, overall, the level of coverage will be significantly improved. If Patriot Ambulance were to share the same facility, EMS response times should show a significant decrease as well. Marlborough Police may also be interested in sharing the facility for use as a sub-station.

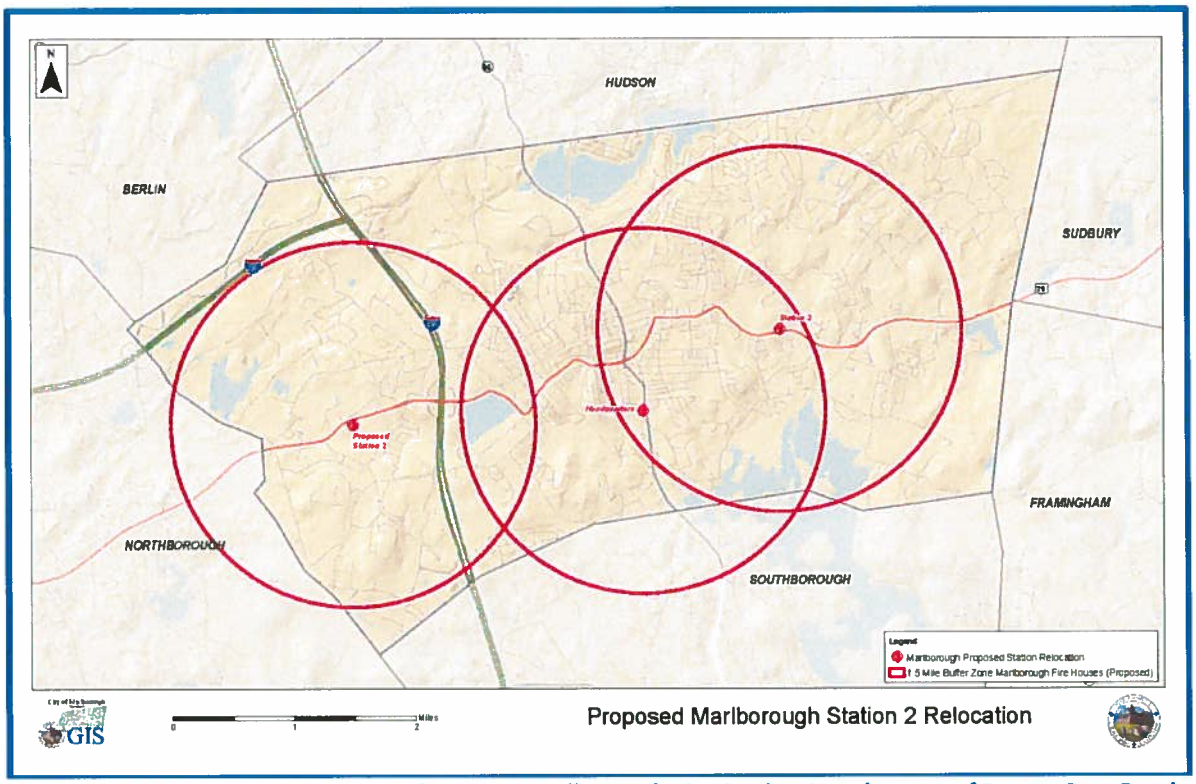


Figure 4-15: Proposed relocation of existing Marlborough Fire Station 2 to the area of Boston Post Road and Northborough Road with 1.5 mile travel distance. This location provides much improved coverage and it would be anticipated, response times, to the west end of the city.

It is important to note that performing an in depth analysis of potential fire station locations is outside the scope of this study. However, performing this type of analysis would be an important part of the process to select a new station and may determine more appropriate locations for the relocation of this facility. There are many factors that go into site selection beyond just picking the best location from a response time/coverage/travel distance perspective. Chief among these is the availability of suitable sites. In a utopian world, in addition to relocating Station 2, the central station would be moved north on Bolton Street (the location of the old central station was actually a better location than the current one) and Station 3 would be moved a few blocks east on Route 20.

Anticipating potential opposition to its relocation from those who live near the existing Station 2, the MRI study team was asked by some members of the council about the need for a fourth station. It is the opinion of the team that adding a fourth station, as opposed to relocating the existing station, would provide unnecessary, and potentially costly, overlapping of primary response areas.

The final criterion that is frequently evaluated with regard to resource deployment is incident volume specifically related to incident type, and the number and/or percentage of times there

are simultaneous and/or overlapping incidents. Every emergency service organization periodically experiences simultaneous or overlapping incidents. Whether they are handled by that department themselves, or through automatic/mutual aid, provisions need to be made to insure that these incidents are also handled effectively, efficiently, and in a timely manner. However, as the number of simultaneous, or overlapping, incidents increases, that community and/or department can no longer rely on their neighboring communities/departments to handle an ever increasing percentage of their incidents.

RECOMMENDATIONS

4.1 The department should develop formal procedures for implementing an ICS system that is compliant with the National Incident Management System (NIMS). ICS should be implemented during every response. This is truly a mission critical and incident safety requirement necessary for the effective and efficient provision of modern day emergency services. The use of ICS on the incident scene should be expanded to encompass Command, Safety, Operations, and functional groups and divisions as outlined within NIMS. ICS procedures should be aggressively enforced so that they become a routine component of any emergency response.

4.2 In order to assure that the important position of overall incident commander is filled, and that there is mission critical command continuity and consistency on the emergency scene, the Marlborough Fire Department should take whatever steps are necessary to staff the department's command vehicle on a 24/7 basis. This should be done as soon as possible.

4.3 The Marlborough Fire Department should establish a fireground/incident safety officer program. All department officers should receive safety officer training, obtain safety officer certification, and an operational procedure should be implemented that results in a guaranteed response of at least one chief officer (in addition to the on duty shift commander) for every reported structure fire, and at least one additional chief officer on every working/all hands incident.

4.4 Consideration should be given to increasing the minimum shift staffing level from thirteen to fifteen. In conjunction with the automatic response of the duty chief officer on any reported structure fire, the city will be able to achieve initial compliance with NFPA 1710. This recommendation can be achieved without the need for additional staffing provided the number of personnel permitted off at any given time is reduced. If shift staffing is above fifteen, the additional personnel can be added to the ladder and/or Engine 2 and Engine 3.

4.5 In acknowledgement of the fact that they frequently operate in a minimal staffing mode, and recognizing the potential for rapid fire spread in a densely developed urban

community, the Marlborough Fire Department should equip all of their apparatus, and develop standardized tactical operations that will enable them to quickly develop, and place in service, high volume fire flows.

4.6 ***The Marlborough Fire Department should enhance its existing limited pre-fire planning program into a comprehensive one for all structures other than one and two family dwellings. Appropriate pre-planning software should be obtained and installed in mobile data terminals (MDTs) in all apparatus and command/staff vehicles.***

4.7 ***One of the next fire chief's first priorities should be to take tangible steps to change the perception of the Marlborough Fire Department among its mutual aid partners and restore the confidence of their chiefs in Marlborough's operational and command consistency.***

4.8 ***The fire department should continue to be an active participant in the fire and EMS mutual aid system. Multi-city training evolutions (drills and exercises) should be conducted on a regular basis. Fire chiefs and command staff from neighboring communities should meet regularly to discuss strategies for broader regional sharing of resources.***

4.9 ***In consultation with the fire chiefs in adjacent communities, Marlborough should identify any areas where those departments may be closer and/or can respond quicker to emergency incidents. Automatic aid (Line boxes) initiating response by both departments should be re-implemented for those locations.***

4.10 ***The 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 1710[31], the creation of a formal review and critique process for all incidents, and a process for modifying SOPs, training priorities, and equipment as determined by the performance improvement program.***

4.11 ***Emergency medical dispatch (EMD) should be utilized as a tool to screen medical calls based on severity. Once severity has been established, a response of the appropriate resources should be initiated. In conjunction with the emergency medical dispatch (EMD) system in the city communications center, and in consultation with Patriot Ambulance and the medical director, the department should establish dispatching protocols to determine the appropriate level of response. The medical director should approve the response matrix.***

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[31] For example, NFPA 1710 establishes performance goals for turnout time and response times for fire and EMS emergency calls.

The practice of dispatching a fire engine company to all medical calls should be discontinued and should be limited to critical, potentially life threatening emergencies, such as cardiac events, respiratory distress, unconscious patients, allergic reactions, severe bleeding, head injuries, vehicle crashes, and technical rescues. An engine company should also be dispatched if an ambulance response is delayed. If additional personnel are needed for lifting non-critical patients, the EMS crew can request that an engine company respond to assist. For these events, time is generally not a factor and the engine company can often respond without emergency lights and siren.

4.12 The City of Marlborough should give serious consideration to starting the process of relocating the existing Fire Station 2 to a location west of I-495. A complete fire station location analysis should be performed to select the optimal site for this new station. Opportunities may exist for a public/private partnership regarding the location of the new station.

4.13 Utilizing appropriate plotting and modeling technology, the Marlborough Fire Department should evaluate the projected benefits along with any potential impacts, and perform a risk/benefit analysis, upon response times that may result from a relocation of the existing Fire Station 2 from its present location to a new location west of I-495. Patriot Ambulance should be included in this process, as the possibility of them co-locating a unit in a relocated station will in all probability result in significantly improved response times for their units also.

4.14 The Marlborough Fire Department should work with TriTech, the city's IT department and the dispatch center director to make it possible for the department to easily extract information from their database to track and analyze important statistics such as individual unit response times, NFPA 1710 full alarm response compliance, number of structure fires dispatched, and number of simultaneous incidents.

4.15 Working in conjunction with the city's IT department and the dispatch center director, the Marlborough Fire Department should implement a quality control monitoring procedure to insure that all response times and statistics are fully accurate and present a valid and reliable portrait of the department's response performance.

CHAPTER 5

ORGANIZATIONAL STRUCTURE, STAFFING, AND SCHEDULING

OVERVIEW

The organizational structure of any organization or entity, whether public or private, establishes and illustrates the important heirarcial relationships between various people, supervisors/ subordinates, levels, divisions, and bureaus within the organization that allow it to function properly, operate effectively and efficiently in its daily operations, or the pursuit of its mission. It also helps to clearly define the organizational chain of command from top to bottom, an especially important consideration in a quasi-military public safety organization such as the fire department where everyone from the highest rank to the lowest is subject to receiving orders, and, with the exception of the lowest rank, also issues them. Effective communications in any organization, but especially public safety agencies, are an essential and cohesive chain of command allowing everyone to know excactly who they report to, and/or who reports to them.

The organizational structure of the Marlborough Fire Department is an area of significant concern to the mayor and city council, and has been for several years. This concern has been magnified with the pending departure of another fire chief.

The issue of fire department staffing has, over the past three decades, become one of the most widely and frequently debated topics in fire service history. This debate has intensified over the past several years as tax collection revenues have declined precipitously in many communities and governmental entities seek to reduce expenses. Although Marlborough is a financially stable community compared to many in the commonwealth, the city is still sensitive to identifying cost savings where possible.

Personnel costs account for the largest percentage of the operating budgets of career fire departments. In many cases, this one line item is 90% or more of the total budget. The debate becomes intense when the discussion turns to how many firefighters are necessary to provide adequate levels of service, fulfill the department's core mission(s), and how those firefighters are deployed. This is a basic risk assessment and management decision. Ultimately, determining the acceptable level of risk they are willing to assume for the citizens they represent is a key decision that is made by the mayor and city council.

The fire service has experienced tremendous technological advances in equipment, procedures, and training, over the past fifty years. Improved personal protective equipment (PPE), the mandatory use of self-contained breathing apparatus (SCBA), large diameter hose, better and lighter hose lines and nozzles, and thermal imaging cameras are just a few of the numerous advances in equipment that have enabled firefighters to perform their duties more effectively,

efficiently, safely, and with fewer personnel. However, the fact still remains that emergency scenes present a dynamic, dangerous, frequently unpredictable, and rapidly changing environment where conditions can deteriorate very quickly and place firefighters in extreme personal danger.

The operations necessary to efficiently and safely extinguish a structure fire require a carefully coordinated and controlled plan of action. Simultaneous operations that must be carried out with a high degree of precision and timing include forcible entry, initial fire attack, search and rescue, ventilation, and the establishment of incident command. If there are not enough personnel on the incident initially to perform all of the critical tasks, some of these tasks will be delayed. This can result in an increased risk of serious injury, or death, to building occupants and firefighters, as well as increased property damage.

The National Fire Protection Association (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* (2010 Edition), is the nationally recognized consensus standard on staffing and deployment for career fire departments.[32]

Some of the key provisions of NFPA 1710 are as follows:

- Paragraphs 5.2.3.1.1 and 5.2.3.2.1 state that engine companies and truck companies respectively shall be staffed with a minimum of four on duty personnel.

- Paragraph 4.1.2.1 states that the first arriving engine company shall arrive at the scene of a fire suppression incident within four minutes or less and/or the entire full first alarm response should arrive on scene within eight minutes. For EMS incidents a unit with first responder or higher level (EMT-Basic, Intermediate, or Paramedic) trained personnel should arrive within four minutes, and an Advanced Life Support (ALS) unit should arrive on scene within eight minutes. Paragraph 4.1.2.2 requires the establishment of a 90% performance objective for these response times.

- Paragraph 5.2.4.2.2 establishes the following **minimum** personnel requirements on the full first alarm assignment which should arrive on scene within eight minutes of dispatch:

[32] It is important to note that compliance with NFPA 1710 has not been mandated in the Commonwealth of Massachusetts or by the federal government. It is considered to be a "best practice" that fire departments strive to achieve.

TASK	# Personnel
Incident Commander	1
Attack engine driver/operator	1
Water supply engine driver/operator	1
Two handlines with two personnel each	4
Support/back-up Firefighter for each handline	2
Search & rescue team	2
Ventilation team	2
Ladder company driver/operator	1
Rapid intervention team (RIT)	2
TOTAL MINIMUM NUMBER OF PERSONNEL	**16**

These numbers reflect personnel needs for a fire involving several rooms, in a 2,000 square foot, one-family residential occupancy. These are the proverbial "bread and butter" structural fire incidents that fire departments respond to and, are by far, the most common type of structure fire, accounting for around 70% of those types of incidents. These incidents tend to be more complex in a more densely developed urban area such as Marlborough due to the inherent exposure problems during fire situations created by closely spaced, primarily wood frame structures. Personnel requirements for fires involving large, more complex structures, such as commercial or industrial facilities or multi-family residential occupancies, will require a significantly greater commitment of personnel. MRI is not suggesting that Marlborough staff sixteen firefighting personnel on duty at all times (although with implementation of recommended reductions in the number of personnel permitted off at the same time they will be very close) or staff all apparatus with four personnel. NFPA 1710 does permit fire departments to use established automatic aid and mutual aid agreements to comply with the staffing and response requirements. These types of agreements are mission critical to the Marlborough Fire Department being able to handle fires in anything more than a single-family dwelling.

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. For example, while NFPA 1710 establishes requirements for the minimum number of on-scene personnel, it also requires fire departments and firefighters to comply with NFPA 1500, Standard on Firefighter Occupational Health and Safety Program (National Fire Protection Association, Quincy MA, 2013 edition)*[33].

[33] As with NFPA 1710, NFPA 1500 has not been adopted as a mandatory regulation by the Commonwealth or by the federal government. It is a nationally recognized "best practice" standard for fire department risk management.

Municipal Resources

Among other requirements, NFPA 1500 requires personnel to be medically evaluated and to be evaluated annually for their physical performance capabilities.

The NFPA *Fire Protection Handbook*, 20th edition (2008), recommends that, "Not fewer than fourteen firefighters, one chief officer, a safety officer, and a rapid intervention team should respond to low hazard occupancies (one-, two-, or three-family dwellings and scattered small businesses and industrial occupancies).

One key provision of NFPA 1500 is known as the "Two-In/Two-Out" rule. In brief, this requirement specifies that "in the initial stages of an incident where only one crew is operating in the hazardous area at a working structural fire, a minimum of four individuals shall be required, consisting of two members working as a crew in the hazardous area and two standby members present outside this hazardous area available for assistance or rescue at emergency operations where entry into the danger area is required." (NFPA 1500, §8.8.2). The rule does not apply in emergency rescue situations where a person is visible and in need of immediate rescue, or where there is credible and reasonable information that potentially viable victims are still in need of rescue. Within certain limitations that are defined in NFPA 1500, one standby member may perform other duties outside the hazardous area, such as apparatus operator, incident commander, or technician or aide, provided constant communication is maintained between the standby member and the members of the crew (NFPA 1500, §8.8.2.4).

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. In the critical safety area of respiratory protection, the OSHA Respiratory Protection Standard mandates compliance with "Two-In/Two-Out".

The National Institute for Occupational Safety and Health (NIOSH) report on the death of a Kansas Firefighter nearly twenty years ago cited a number of "preventable events" that contributed to the firefighter's death, not the least of which was an inadequate number of personnel on the initial response and the lack of additional adequate safety procedures. Among other things the report stated, "A two firefighter engine is, at minimum, 50% under-staffed and increases the work effort of the two firefighters by a factor of 3". Almost every NIOSH line-of-duty death report recommends that fire departments "provide adequate firefighter staffing to ensure safe operating conditions".

Research on the effects of various staffing levels consistently confirms that company efficiency and effectiveness decrease substantially and injuries increase when company staffing falls below four personnel. The *Multi-phase Study on Firefighter Safety and the Deployment of Resources*, completed by the National Institute of Standards and Technology (NIST) and Worcester Polytechnic Institute (WPI), evaluated the performance of fire department crews at residential fires, which is where the majority of fire injuries and fatalities occur. The study

concluded that the size of firefighter crews has a substantial effect on a fire department's ability to protect lives and property in residential fires and occupancies. Several key findings of the study include:

- Four-person firefighting crews were able to complete twenty-two essential firefighting and rescue tasks in a typical residential structure thirty percent (30%) faster than two-person crews and twenty-five percent (25%) faster than three-person crews.

- The four-person crews were able to deliver water to a similar sized fire fifteen percent (15%) faster than the two-person crews and six percent (6%) faster than three-person crews, steps that help to reduce property damage and reduce danger/risks to firefighters.

- Four-person crews were able to complete critical search and rescue operations thirty percent (30%) faster than two-person crews and five percent (5%) faster than three-person crews.

All of these factors must be taken into consideration as Marlborough reaches consensus on the acceptable community fire safety risk level, affordable levels of expenditure for fire protection, and appropriate levels of staffing.

The MRI study team evaluated the Marlborough Fire Department's overall organizational and command structure, on duty emergency response staffing levels, administrative service capabilities, and shift work schedule. Staff positions provide important administrative support duties, and manage critical support functions such as fire prevention, fire training, emergency management, vehicle maintenance, facility maintenance, personnel administration, and budget development and implementation. We also examined the department's succession planning.

OBSERVATIONS

Organizational Structure

As currently configured, the Marlborough Fire Department is headed by a fire chief who is the department's highest ranking officer and serves as the adminsitrative and operational head of the department. The current formal table of organization for the department specifies four deputy fire chiefs assigned as platoon commanders, one for each of the department's four platoons. The deputy chiefs still work a 10 hour day, 14 hour night shift schedule as opposed to the 24 hour schedule worked by captains and below. This was done in an attempt at increasing administrative productivity from the deputy chiefs. The chiefs also only work with "their own" platoon a limited amount of times during each rotation. Different chiefs are on duty the remainder of the time as their schedules dictate. In theory, this system would appear to be

beneficial. However, in reality it causes continuity of operations problems as each shift ends up working at various times under the direction of three of the four deputies. In addition, if a deputy chief is off on any type of leave, the position is left vacant and not backfilled by either another chief, or by elevating the captain to deputy chief. This situation creates a significant, and potentially dangerous, gap in command continuity that will be discussed in detail later in this chapter. At one time the department had two assistant fire chiefs, but they have not been filled since the creation of the position of deputy fire chief in the late 1980s. However, it is our belief that these positions still exist and are authorized within the Marlborough Fire Department.

The department is currently authorized a total of four captains and eight lieutenants who are assigned as supervisors on each of the four platoons. The captains are assigned as the company commander of Engine 1 at Fire Headquarters/Station 1. In addition to the firefighters assigned to Engine 1, they are also responsible for supervising the firefighters assigned to Ladder 1 and Rescue 1, neither of which have officers. Engine 2 at Station 2 and Engine 3 at Station 3 are each commanded by a lieutenant. The captain and lieutenants serve as the department's first line supervisors, providing critical direction and direct oversight to the firefighters assigned to that platoon in each station. If the captain is off duty on any type of leave, the senior lieutenant is detailed to Station 1 to serve as an acting captain. When this situation occurs, or when the lieutenant(s) are off for any reason, those positions are then filled by a firefighter serving as an acting lieutenant. There must be one sworn officer (lieutenant or higher) on duty at all times. Some, but not all of the officers have ancillary duties they have been assigned that assist with coordinating or managing various aspects of the department's operations.

There are sixty authorized firefighter positions, fifteen on each of the four platoons. These personnel perform a range of fire, rescue, and EMS duties and responsibilities. A few participate in specialized regional teams and operations and perform various additional duties for the department. With the recent hire of four personnel and the pending appointment of one additional firefighter, the department will be at its full authorized strength for the first time in several years.

Two civilian clerical positions perform administrative functions for the departmant. One serves as the full-time as the secretary/administrative assistant to the fire chief, and one serves part-time as the clerical assistant for fire prevention.

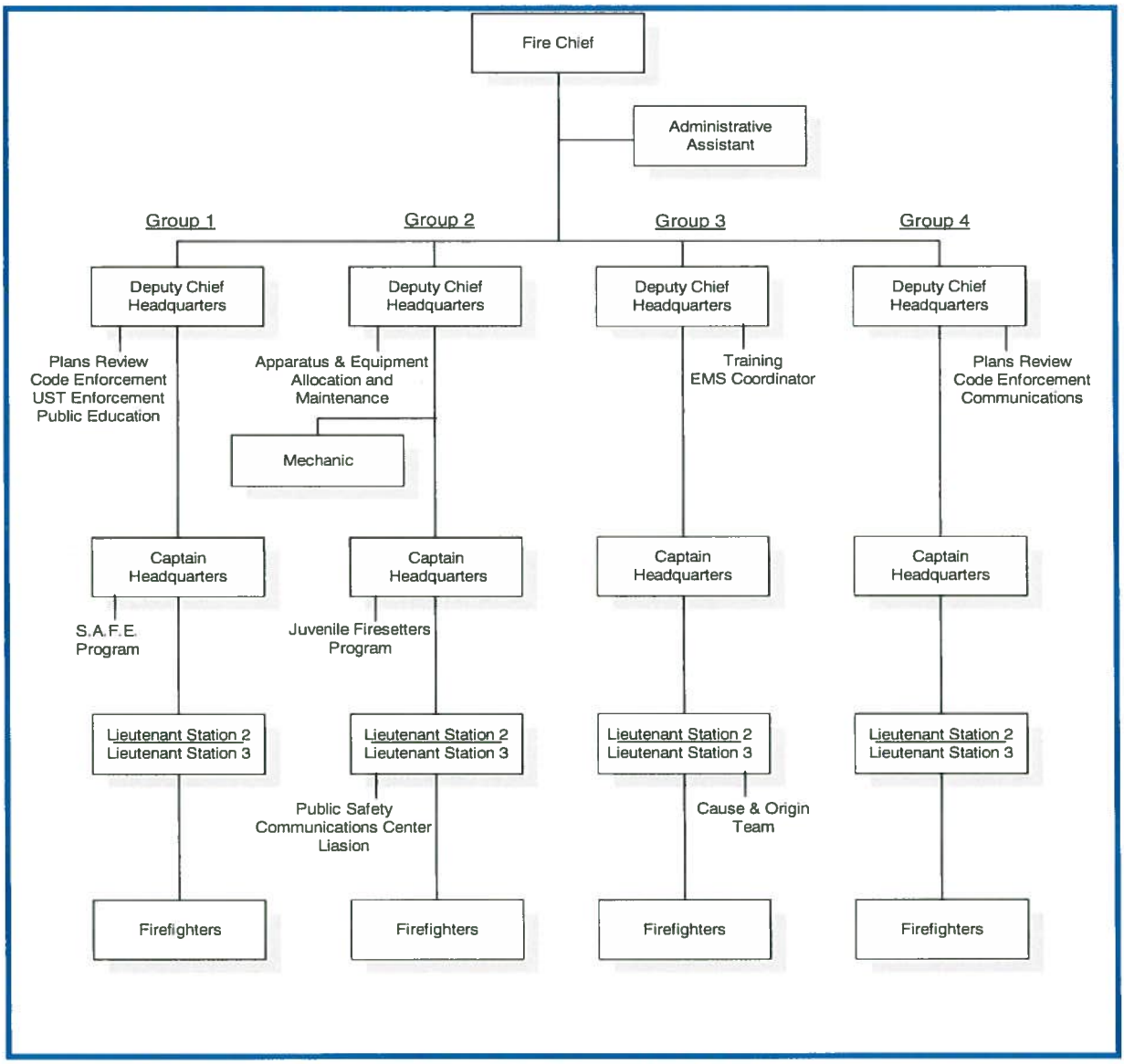
All uniformed personnel, other than the fire chief, are represented in collective bargaining by Marlborough Fire Fighters Local 1714 of the International Association of Fire Firefighters (IAFF). The current representation arrangement where rank and file firefighters, supervisors (lieutenants and captains), and mid-level management (deputy fire chiefs) are all in the same union creates problems and conflicts of interest within the department, particularly when it comes to the administration of discipline. All uniformed positions, except the fire chief, are classified in the Massachusetts civil service system. Under the civil service system, the city

must adhere to specific requirements for recruiting, hiring, promoting, disciplining, and terminating fire department employees.

The management structure of the Marlborough Fire Department is extremely limited. The fire chief is the only non-union, executive management position. This position is appointed by the mayor and approved by the city council as outlined by the city charter. The chief does not have a management and support team that can share responsibilities for confidential personnel matters, supervision, handling grievances or potential grievances, administering the collective bargaining agreement, overseeing budgetary expenditures, assisting with the development of policies and procedures, and the myriad of administrative and management tasks that are associated with running a significant sized, modern, full service emergency services provider. In the absence of the fire chief, the city is without a member of the executive management team to oversee a critical public safety agency. The critical need for the fire chief to have a strong management and support team to assist him/her was something the MRI study team heard numerous times during our interviews and analysis of the department.

The following table depicts the current organizational structure of the Marlborough Fire Department:

CURRENT TABLE OF ORGANIZATION



Source: Marlborough Fire Department
Part-time fire prevention clerical position not shown.
Total department staffing: 79, which includes 77 uniformed and 2 civilian clerical.

Shift/Work Schedule

Captains, lieutenants, and firefighters in the Marlborough Fire Department work a four platoon twenty-four hour shift schedule for an average work week of forty-two hours per week. Their schedule consists of twenty-four hours on duty followed by forty-eight hours off duty, then another twenty-four hour tour on duty, and finally ninety-six hours off duty. This type of schedule is highly typical for fire departments in the northeastern United States. This shift

schedule commenced effective as of July 1, 2012. Prior to that date, fire department personnel worked a schedule of two, ten hour day tours, followed by two, fourteen hour night tours follwed by four days off. Although the city was not in favor of switching from the previous shift schedule, they were advised that should the union take the matter to arbitration the city would in all probability lose as virtually all other fire departments in Massachusetts work twenty-four hour shifts.

The deputy chiefs still work the previous shift schedule of of two, ten hour day tours, followed by two, fourteen hour night tours, follwed by four days off. This schedule equates to the same forty-two hour work week. Per the current Memorandum of Understanding, the only other shift schedule that the deputy chiefs can be assigned to is the same twenty-four hour shift rotation as the other members.

One of the most common concerns expressed regarding the twenty-four hour work schedule is that personnel work only seven or eight days per month, or about ninety-one days per year. This assertion is true; however, even with most alternative schedules the number of hours worked by the fire department personnel would remain the same at an average of forty-two hours per week. For instance, under the ten/fourteen work schedule previously employed personnel work approximately fifteen to sixteen days per month and about one hundred eighty-two for the year. However, the number of hours per week was still forty-two. There are a number of variations to either of these schedules, but the average number of hours worked per week remains constant.

The one significant downside to the twenty-four hour schedule is that there can be a tendency for continuity and/or progress on projects to be slowed by the fact that the personnel assigned to, or working on them, are only available every third or fifth day. When the fact that personnel work weekends and holidays, when the fire chief is not normally working, is factored in, communications can be problematic as the fire chief may go a week, or longer, without seeing certain personnel who he may need to get updates from, provide direction/instruction to, etc. Even under the previous work schedule where personnel are required to work more days, there is still the potential issue that when members work day work on a weekend that they may go a week, or more, without seeing the fire chief. While there is a wide array of alternative communications mediums available today that can minimize these issues, there is still no form of communication that is as effective as face-to-face communications.

Although no scientific studies have been completed that the team is aware of, anecdotally most fire departments that adopted the twenty-four hour shift schedule report a reduction in overtime expenses as there is only one shift change per day rather than two. The shift change that normally results in higher expenses due to higher incident volume at that time of day, the afternoon change at either 5:00 PM or 6:00 PM, is the shift change that is eliminated. In addition, while not really a direct concern of the city, the twenty-four hour shift schedule reduces commuting expenses for personnel by reducing the number of times they drive back

and forth to work by 50%. The reduced trips to work also can serve to reduce fuel consumption and exhaust emissions, both of which are positives with the current emphasis of greener living.

An alternative shift schedule involves fire department personnel operating in a three platoon system where the work week averages fifty-six hours per week. While there are numerous work schedule variations to this system, the most common shift, and simplest schedule, involves personnel working twenty-four hours, followed by forty-eight hours off duty. While not totally extinct, this work schedule has become very rare in the northeast and specifically in Massachusetts. However, outside of the northeast, the three platoon system is widely used including in Los Angeles, Phoenix, San Antonio (three of our nation's ten largest cities), and many of the large county fire departments in the northern Virginia suburbs of Washington, DC. Recently Baltimore, Maryland, a large urban fire department and, more locally, Gloucester, Massachusetts, switched to three platoon work schedules from their traditional four platoon rotations.

With an average of about seventeen emergency responses per day city wide, the incident volume of the Marlborough Fire Department is not excessive so most days switching to three platoons would not result in increased fatigue for personnel by working additional hours each week. This daily call volume can be expected to be reduced even further should the city implement recommendations for modifications to their response procedures made elsewhere in this report. However, despite the potential for long-term savings resulting from needing approximately 25% less personnel to maintain the same staffing levels, short-term costs associated with such an initiative, both real and intangible, could be considerable.

Staffing

The current operational staffing level of the Marlborough Fire Department includes one fire chief, four deputy fire chiefs (nominally designated as platoon commanders), four captains, eight lieutenants (both captains and lieutenants serve as company officers), and sixty firefighters, for a total uniformed complement of seventy-seven personnel. Two clerical positions provide administrative support to the fire chief and fire prevention.

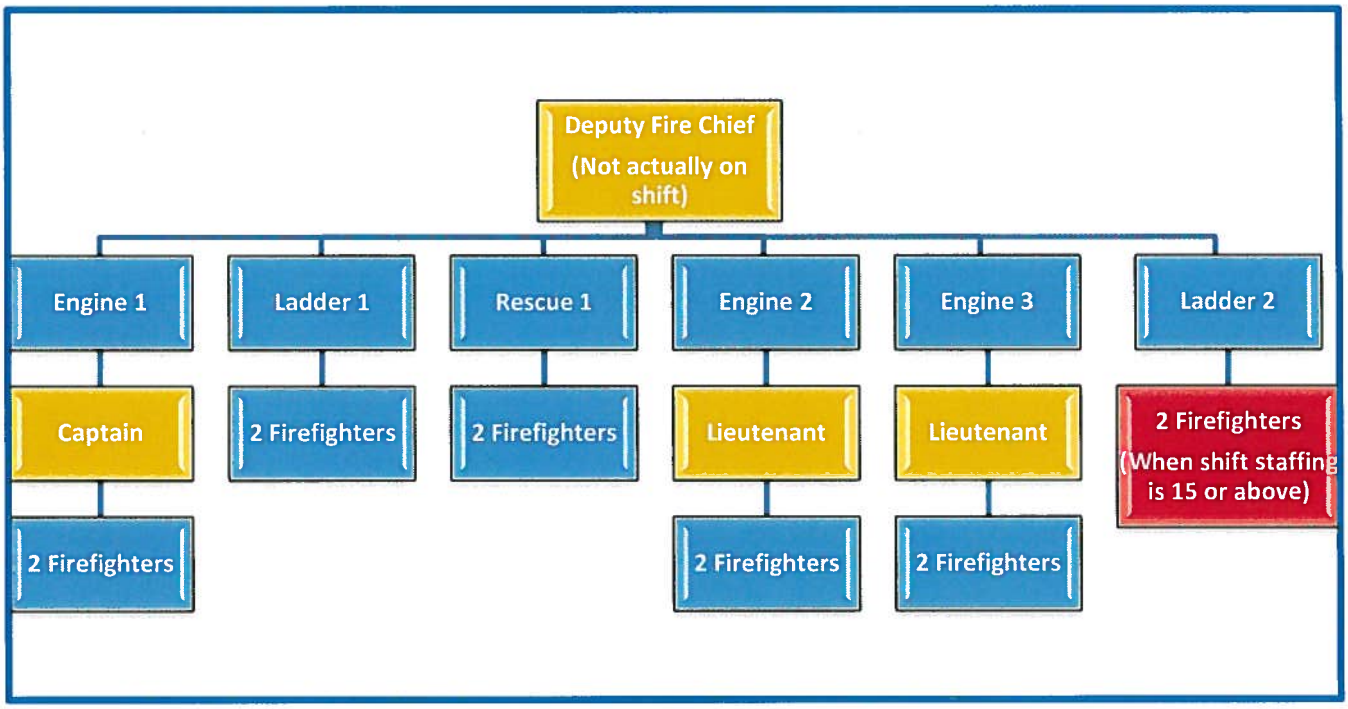
On-duty personnel are divided into four groups and work twenty-four hour shifts with an average workweek of forty-two hours. Each group is currently comprised of eighteen personnel if all members are available to work. This includes one captain, two lieutenants, and fifteen firefighters. Minimum daily shift strength is set at thirteen which includes one captain, two lieutenants, and ten firefighters. The captain's slot can be filled by a lieutenant working as an acting captain, and the two lieutenant's positions can be filled by firefighters who are also acting. At least one sworn officer must be on duty at all times.

Each group is also, in theory, assigned a deputy fire chief as the shift commander. However, as previously noted, the deputy chiefs do not work the same schedule as the rest of the shift

personnel. They are not calculated into the number of personnel who can be off on leave, or in minimum shift staffing levels. In addition, when they are off on leave their position is not filled or replaced, leaving the on duty captain (who may be a newly promoted Lieutenant serving in an acting capacity) to run the shift and all emergency operations.

The following chart depicts the current staffing levels of the Marlborough Fire Department:

CURRENT STAFFING ARRANGEMENT FOR EACH GROUP



Total shift staffing: 18 (19 with deputy chief) which includes 1 captain, 2 lieutenants and 15 firefighters.
Minimum shift staffing: 13 which includes 1 captain, 2 lieutenants, and 10 firefighters.

With three engines staffed with three members each, and a ladder and rescue each staffed with two personnel, the staffing levels for the Marlborough Fire Department, while adequate to handle the vast majority of incidents the department is called upon to mitigate, are still three firefighters short of the sixteen person compliment recommended by NFPA 1710 for the first alarm assignment for a single-family dwelling fire. However, the additional personnel necessary could be provided relatively quickly through the use of automatic aid from neighboring departments. It is important to keep in mind though that this assessment does not take into consideration the frequency of EMS or other calls that may have one or more units committed on other incidents thus reduce the immediate availability of firefighting personnel.

The MRI study team has identified several serious concerns related to the current method of deploying personnel in the Marlborough Fire Department.

Municipal Resources

First and foremost is the lack of emergency incident scene command continuity and consistency. In Marlborough, each of the captains and lieutenants directly supervises the personnel assigned to an engine. The captain also indirectly supervises the personnel assigned to both Ladder 1 and Rescue 1, both of which are staffed by two firefighters. These officers are the department's first line supervisors and provide oversight, supervision, and direction for emergencies, and for routine duties such as training, inspections, pre-planning, vehicle maintenance, station maintenance, and overall personnel performance. This is consistent with the recommendations found in NIMS and NFPA 1710. The span of control at Station 1 is nearly optimal (although not without its concerns also as discussed later) as recommended by the Incident Management System (IMS). While the span of control at Stations 2 and 3 are at the low end of the recommended scale, it is consistent with operations in most fire departments today where each company officer supervises two to three personnel depending upon established staffing levels in that community.

Company officers (captains and lieutenants) are working supervisors. They form an integral part of their company and it is often necessary for them to assume hands-on involvement in operations, particularly with companies that are minimally staffed, while simultaneously providing oversight and direction to their personnel. During structure fires and other dangerous technical operations it is imperative that these officers accompany, and operate with, their crew to monitor conditions, provide situation reports, and assess progress toward incident mitigation. During structure fires, they operate inside of the fire building.

When they are on duty, the deputy fire chief serves as the incident commander and is responsible for the command, coordination, and direction of all emergency scene operations including supervision of the captain and lieutenants. He/she is the one who looks at the entire incident "big picture" and insures that, for instance, ventilation operations are being coordinated with fire attack operations, and that accountability for all personnel is being tracked and maintained. Once the deputy chief assumes command of the incident, the captains and lieutenants are then able to focus on the completion of specific tasks that have been assigned to their respective companies, such as interior fire attack, rescue, ventilation, and/or water supply.

The emergency incident scene in general, and significantly more so when it involves a structure fire, is a dangerous, dynamic, rapidly changing environment that requires rapid size up, situational analysis and rapid decision making, and close direction and coordination in order to insure that operations are conducted effectively, efficiently, and safely. The incident commander, in Marlborough's case the deputy chief, is the person who provides this incident scene management, direction, and coordination.

However, as has been noted several times, when a deputy chief is off duty, he is not replaced. This creates a major operational void that has significant command, control, operational, and safety implications for any incident that occurs. When the deputy chief position is vacant, the

captain becomes the shift commander. However, he does not move into the command vehicle, he remains the company officer on Engine 1, which is staffed with just three personnel. The captain then becomes responsible for overall incident command until the arrival of the fire chief or one of the deputy chiefs at a major incident, which may or may not happen in a timely manner during their off-duty hours. The captain cannot be an effective company officer and an overall incident commander at the same time because of the significant difference in their tasks and responsibilities. The MRI study team recommends in the strongest possible manner that the Marlborough Fire Department's command vehicle be staffed 24/7 as soon as is practical.

Ladder 1 which responds from Station 1 is staffed with two firefighters who operate as a crew without a first line supervisor. When on duty staffing is at fifteen or more, a second ladder, also staffed with just two personnel is placed in service at Station 3. These ladder companies must depend on receiving instructions from the incident commander or one of the engine company officers. This structure severely strains the incident command system, and could result in delays in critical tactical decisions concerning size-up, search and rescue, ventilation, and apparatus placement.

Both NIMS and NFPA1710 recommend that every major piece of apparatus/equipment be commanded by an officer. Major provisions of NFPA 1710 regarding the deployment of officers include:

- Paragraph 3.1.8 defines a **"Company"** as, "A group of members: (1) under the direct supervision of an officer; (2) trained and equipped to perform assigned tasks; (3) usually organized and identified as engine companies, ladder companies, rescue companies, squad companies, or multi-functional companies; (4) operating with one piece of fire apparatus (engine, ladder truck, elevating platform, quint, rescue, squad, ambulance) except where multiple apparatus are assigned that are dispatched and arrive together, continuously operate together, and are managed by a single company officer; (5) arriving at the incident scene on fire apparatus".

- Paragraph 3.1.30.1 defines a **"Company Officer"** as, "A supervisor of a crew/company of personnel". It further states the rank structure could be either sergeant, lieutenant, or captain.

- Paragraph 5.2.3.2.2 of **"Initial Full Alarm Assignment Capability"** states, "The initial full alarm assignment shall provide for the following:

    (a) Establishment of incident command outside of the hazard area for the overall coordination and direction of the initial full assignment. A minimum of one individual shall be dedicated to this task.

The MRI study team believes that the performance of the main ladder company (Ladder 1) could be dramatically improved if its staffing is increased to three and it is directly led and supervised by a fire lieutenant. We do not believe that the second ladder should be staffed. If staffing levels are above the required minimum levels, staffing should be bolstered on the units already in service, rather than placing additional units in service.

The study team initially had mixed assessments on the viability of the two person rescue unit that operates out of Station 1. On one hand, this unit by itself provides little benefit to the department. All three engines carry hydraulic rescue tools on them, as does Ladder 1, which carries a full complement of rescue tools as well. This led us to initially consider recommending this unit be taken out of service and the two personnel redeployed to bolster staffing on other units, possibly Engines 2 and 3. However, several officers made a convincing case that this unit provides significant agility and flexibility on fire scenes from the crew being able to be quickly deployed to assist any unit with its operations to serving as the initial RIT team on significant incidents. This convinced us to recommend that this unit remain in service and continue to function as it currently does.

Another major problem that the MRI study team identified with regard to staffing in Marlborough is the number of personnel contractually permitted to be off on scheduled vacation and personal leave at the same time. The current collective bargaining agreement allows five firefighters or officers to be off on vacation and four firefighters or officers to be off on personal leave all at the same time. This equates to 50% of possible on duty shift staffing permitted off simultaneously, an inordinate number. This does not take into account personnel who may call in sick, be off injured, on bereavement leave, be attending training, serving in the armed forces, or conducting approved union business. In fact, if all personnel permitted on vacation and personal leave any given day are off, the department needs to fill four slots with personnel on overtime, without even factoring in any of the other types of leave mentioned above. Marlborough's current authorized strength provides enough personnel on the department to increase on duty minimum staffing levels and come close to achieving NFPA 1710 compliance without the need for any additional personnel. However, they need to achieve a much more reasonable number of personnel simultaneously permitted on scheduled leave.

Many communities in the United States (but not necessarily Massachusetts) that are similar sized to Marlborough are protected by combination fire departments comprised of both career and call/volunteer personnel or, in some instances, fully call/volunteer fire departments. While smaller in size, this includes most of the communities that surround the city. The study team was questioned by several city councilors if the establishment of a call contingent in the Marlborough Fire Department would be a viable option to supplement the career staffing levels. Marlborough did have a call force until the mid to late 1980s.

We do not believe this would be a feasible option at this time. There were a number of factors that led us to this conclusion, chief among them the time commitment necessary to complete initial training (up to 150 hours or more), no long, deep tradition of a call or volunteer fire company in the city that would attract and keep members, and a general steep decline in volunteerism throughout the company. Many chiefs who lead combination departments report that they invest considerable resources, both time and financial, in training people to be call firefighters only for them to use it as nothing more than a stepping stone to a career job. These factors are particularly relevant in Massachusetts where the majority of communities have career firefighters and there are a large number of opportunities for those who wish to pursue a career in the fire service.

The full-time clerical position that serves as the chief's administrative assistant should be maintained. Consideration should be given to upgrading the position/title to office/finance manager in recognition of the important duties and responsibilities she maintains with regard to budgetary management, purchasing, and payroll.

The part-time clerk position for fire prevention should be upgraded to a full-time position due to the continued heavy workload associated with fire prevention in the city.

Succession Planning

The fire department does not have a viable succession plan for preparing members of the department to take on the role of fire chief. The incumbent fire chief is retiring in several months, and no effort has been made to provide potential candidates in the current officer corps with training and experience in critical areas such as budget development and administration, capital planning, leadership, public speaking, fire protection master planning, collective bargaining agreement administration, emergency management, and community relations. The effects of this situation have been illustrated somewhat with the current chief who was a captain when he was selected to be the fire chief. While he has done a good job by all accounts, his own acknowledgement is that the learning curve has been very steep. While the city is strongly advised (and should for many reasons detailed in this report) to recruit and hire a chief and assistant chiefs from outside the department, the existing chief officers, and more importantly future potential candidates for these positions, have not been encouraged or required to attend the executive fire officer program at the National Fire Academy or the executive fire officer management training program at the Massachusetts Firefighting Academy.

The city needs to start a succession planning process, both short- and long-term, now, rather than later. They will need to very carefully examine their options for making this transition successful, and selecting the department's next leader and his/her management and support team. It is our opinion that in addition to the requisite education and experience, the successful candidate will need to have excellent leadership, management, and communications

skills to be able to articulate his/her vision for the department moving forward; repair the divides that currently exist between the city and the union, and to a lesser extent, within the department; insure that all personnel are working in unison toward common goals and to achieve that vision; to implement whatever remaining recommendations found in this report that have not been addressed; and to just in general, navigate through the choppy waters that major transition brings to any organization. A proven record of accomplishment leading change in a similar type of department will be imperative. They will also need to have an appropriate educational background such as possession of a bachelors or masters degree, completion of the National Fire Academy's Executive Fire Officer Program, and achieving designation as a chief fire officer.

RECOMMENDATIONS

5.1 ***The City of Marlborough should conduct a nationwide recruitment for their next fire chief and hire that person from outside the department. The successful candidate will need to have excellent leadership, management, and communications skills to be able to articulate his/her vision for the department moving forward; repair the divides that currently exist between the city and the union, and, to a lesser extent, within the department; insure that all personnel are working in unison toward common goals and to achieve that vision; to implement whatever remaining recommendations found in this report that have not been addressed; and, to just in general, navigate through the choppy waters that major transition brings to any organization. A proven record of accomplishment leading change in a similar type of department will be imperative. They will also need to have an appropriate educational background such as possession of a bachelors or masters degree, completion of the National Fire Academy's Executive Fire Officer Program, and achieving designation as a chief fire officer. In acknowledgement of the level of experience and skill they will need, a starting salary of between $145,000 and $160,000 should be considered.***

5.2[34] ***In order to assure that the important position of overall incident commander is filled, and that there is mission critical command continuity and consistency on the emergency scene, the Marlborough Fire Department should take whatever steps are necessary to staff the department's command vehicle on a 24/7 basis. This should be done as soon as possible.***

5.3 ***Through retirements and attrition, the City of Marlborough should eliminate the current position of deputy fire chief.***

[34] Recommendations shaded in tan have been listed earlier in the document and are duplicated because they are applicable to this chapter also and for the purpose of reference.

5.4 The City of Marlborough should fill the existing assistant fire chief positions, and, if necessary, increase the number of authorized positions to three for the Marlborough Fire Department in the FY2016 budget. These positions should be executive management positions that are exempt from the civil service system and the firefighters' collective bargaining unit. At this time, we believe they should also be recruited and hired from outside the department. The fire chief should delegate significant management responsibility and authority to the three assistant fire chiefs commensurate with their demonstrated knowledge, skills, and abilities. MRI has identified the following assignments as one possible approach, but it is not our intent to limit the flexibility of the fire chief to develop a management structure that is most appropriate for the needs of the department. From MRI's perspective, the responsibilities of the three assistant fire chiefs could be divided as follows:

- ***Assistant Chief for Operations: Second-in-command of the department ("executive officer"), responsible for the direct supervision of the fire captains, daily operational activities, personnel management, facilities, apparatus, and equipment.***

- ***Assistant Chief for Support Services: Third-in-command of the department, responsible for administration, training (fire & EMS), and safety.***

- ***Assistant Chief for Fire Prevention: Fourth-in-command of the department, responsible for all fire prevention and code enforcement activities.***

The assistant fire chiefs would assume the responsibilities of the fire chief in his/her absence. In conjunction with the fire chief, the four chief officers should rotate weekly as a "staff duty officer" who would be initially responsible for handling after hours issues including immediate response to any reported structure fire.

<u>Note:</u> This is a net reduction of one chief officer from the total current five total to four. It is possible that in three to five years, after evaluation of the organizational structure, its effectiveness, and the current workload, that one of the assistant chief positions could then be reclassified to a captain.

5.5 The current captains of the Marlborough Fire Department should be designated as the platoon commanders and respond in the command SUV. The captain should be relieved of responsibilities as a company officer so that he/she can focus his/her efforts on supervising the overall on duty group and serving as the incident commander. He/she should be expected to perform all of the duties that are specified in the Massachusetts promotional examination criteria for fire Captain:

DUTIES: Under the general supervision of a fire officer of a higher grade, carries out the following tasks:

Size-up: Evaluates the incident scene to determine initial, as well as subsequent, actions to be taken, as a fire or other emergency incident progresses; inspects scene noting such factors as type of structure, wind conditions, temperature, and water availability; determines conditions at scene by observing, smelling, or listening for smoke, flames, leaks, spills, building condition, and other factors; physically evaluates scene; based on size-up, determines tactical priorities and strategy, chooses equipment needed to accomplish strategic objectives, and directs that tactical operations be carried out to accomplish such objectives.

On-Scene Communication: Communicates, both while enroute and at an emergency scene, to ensure proper coordination of apparatus and personnel; while enroute to incidents, communicates and coordinates actions with other fire companies; upon arrival at the scene, receives information regarding the assignment of personnel and apparatus from the officer in command; contacts fire alarm office to report conditions, request additional resources, and update personal assignment/status; communicates with other fire personnel at the scene about progress, conditions, resource needs, and size-up and relays orders from superiors to subordinate members.

On-Scene Resource Allocation and Coordination: Evaluates resource needs and assigns personnel, resources, and equipment to various functions and positions at the emergency scene; assumes command of emergency scenes as appropriate; calls in specialized units (e.g., HAZMAT) as appropriate; directs the movement and location of equipment and apparatus at the scene; assigns fire personnel to perform specific tasks at the emergency scene (for example, laying supply lines, raising ladders, evacuating civilians, treating injured victims, etc.); and directs that necessary safety precautions be taken.

Performance Evaluation: Observes subordinate performance to identify strengths and weaknesses and assess training needs, and conducts informal or formal counseling sessions with subordinates to discuss performance; conducts post-incident critiques and questions subordinates on operations.

Training Delivery: Ensures that all subordinate personnel are properly trained to carry out their assigned duties by planning, developing, conducting, and evaluating training sessions and drills; informally trains fire service personnel in apparatus operations, equipment use, EMS procedures, and other routine duties.

Internal Inspections: Inspects/observes the inspection of personal gear, equipment, apparatus, and station facilities to ensure proper and safe operation, and takes steps to ensure that observed deficiencies are corrected and necessary maintenance is performed; observes or is advised of deficiencies; and performs related duties as required.

Source: Massachusetts Human Resources Division, Civil Service Promotional Examination Announcement for Fire Captain, November 9, 2011.

5.6 The captain on Engine 1 should be replaced by a lieutenant as the company commander.

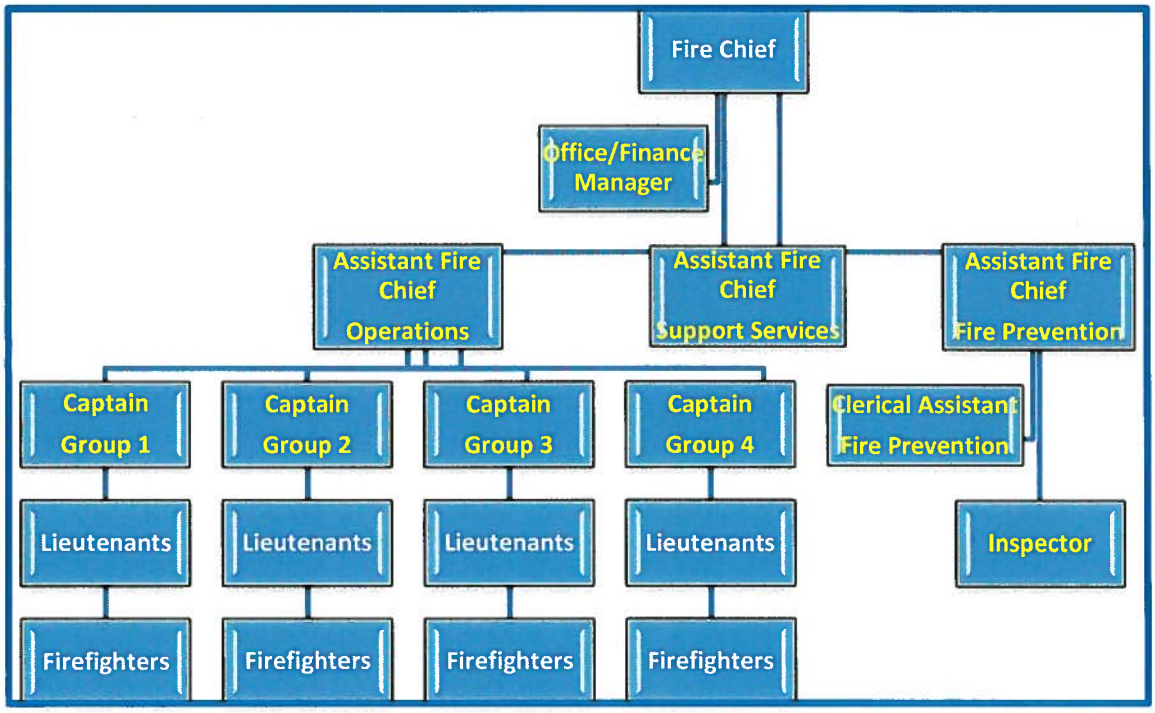
5.7 Due to the large (and increasing) number of complex and technical annual inspections and other fire prevention activities that must/should be performed, and to allow the Marlborough Fire Department to be more proactive rather than reactive, the MRI study team recommends the establishment of a civilian fire inspector position. In addition to the benefits already mentioned, creation of this position will also provide for an additional measure of continuity and expertise regarding fire prevention and code enforcement operations.

5.8 Consideration should be given to upgrading the position/title of the current administrative assistant to office/finance manager in recognition of the important duties and responsibilities she maintains with regard to budgetary management, purchasing, and payroll, in addition to a wide range of administrative duties.

5.9 The part-time clerk position for fire prevention should be upgraded to a full-time position due to the continued heavy workload associated with fire prevention in the city.

The following organization chart depicts the proposed table of organizational that includes the recommendations set forth in Recommendations 5.2 through 5.9.

PROPOSED TABLE OF ORGANIZATION



Reclassified/revised/new positions are shown in yellow.
No net increase in the total number of personnel in the department.
Total staffing: 79, including 76 uniformed and 3 civilian (2 clerical and 1 inspector).

Municipal Resources

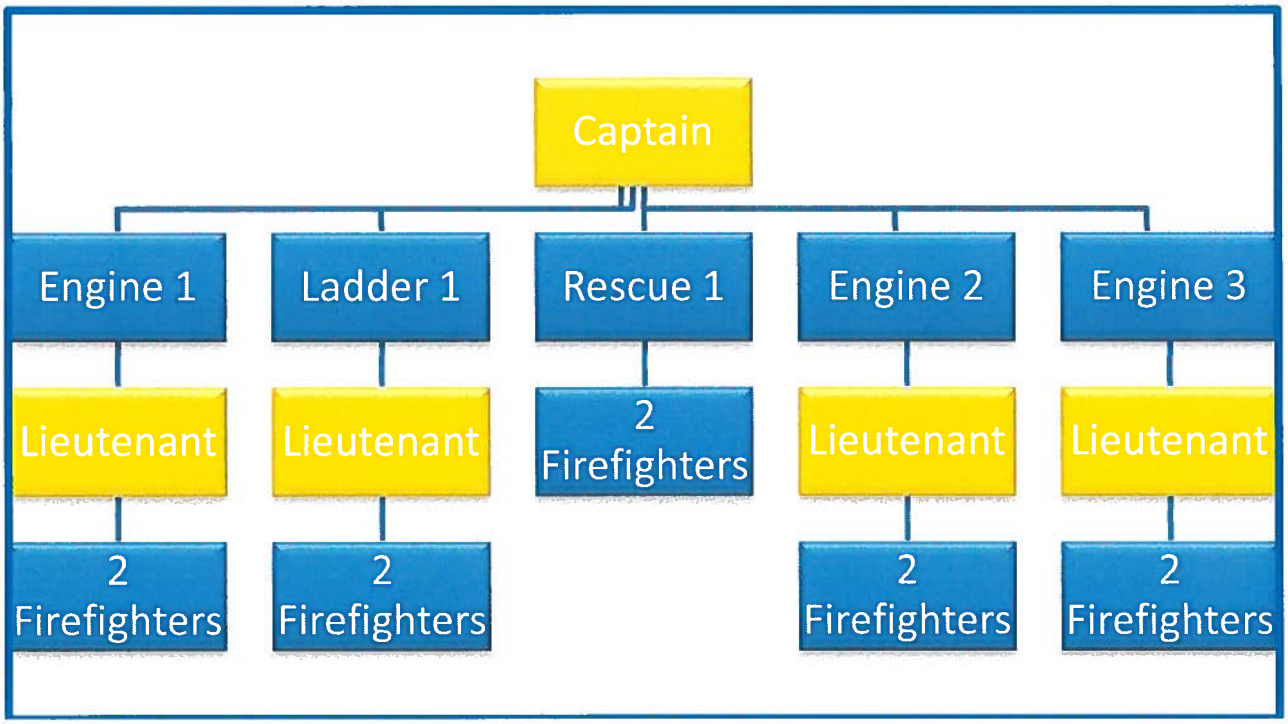
5.10 The City of Marlborough should negotiate a significant reduction in the number of personnel who are currently permitted off on vacation and personal leave at the same time. With shift staffing of eighteen a reasonable number would be three; one officer and two firefighters. This equates to 16.6% of the on duty staff permitted off.

5.11 The MRI study team recommends that an additional lieutenant's position be created on each platoon to serve as the company officer on the ladder truck. This company should be staffed by one lieutenant and two firefighters.

5.12 Consideration should be given to increasing the minimum shift staffing level from thirteen to fifteen. In conjunction with the automatic response of the duty chief officer on any reported structure fire, the city will be able to achieve initial compliance with NFPA 1710. This recommendation can be achieved without the need for additional staffing provided the number of personnel permitted off at any given time is reduced. If shift staffing is above fifteen, the additional personnel can be added to the ladder and/or Engine 2 and Engine 3.

The following staffing table depicts the proposed staffing model that includes the recommendations set forth in Recommendations 5.10 through 5.12.

RECOMMENDED STAFFING ARRANGEMENT FOR EACH GROUP



Total shift staffing: 18, the same as it is currently, which includes 1 captain, 4 lieutenants, and 13 firefighters.
Minimum shift staffing: 15, which includes 1 captain, 4 lieutenants, and 10 firefighters.

Municipal Resources

5.13 All officers in the Marlborough Fire Department should be assigned additional ancillary duties in addition to their company supervisor responsibilities in order to the assist the chief(s) with the myriad of duties necessary to manage a modern fire department.

5.14 The City of Marlborough should make every attempt to separate the department's firefighters and the supervisors (lieutenants and captains) into two separate bargaining units. This separation of workers from supervisors is very important to maintaining appropriate management, supervision, accountability, and discipline within the department.

5.15 The City of Marlborough and the current and next fire chiefs (and assistant fire chiefs) should work to implement a succession plan and career development and mentoring program in the department. This will insure that all officers can perform their superior's duties. More importantly, these processes will identify and begin to train, develop, and mentor, the future core leaders of the department.

CHAPTER 6

APPARATUS AND EQUIPMENT

OVERVIEW

The resources that the fire department uses to perform its core mission and mitigate a wide range of emergency incidents are generally divided into two major categories, apparatus, and tools/equipment. Apparatus generally includes the department's motorized vehicle fleet and includes the major emergency response apparatus such as engines (pumpers), aerial apparatus including towers and ladders, rescue vehicles, and ambulances. Specialized apparatus includes emergency units such as lighting vehicles, brush trucks, and other off road vehicles. They also often include trailers for specialized applications such as technical rescue, hazardous materials response/equipment, hazardous material decontamination, structural collapse rescue equipment, breathing air/light support units, foam units/supplies, and mass casualty incident supplies. Support vehicles that are critical to fire department operations, both routine and emergency, include command post and emergency communications units, command/staff vehicles, and maintenance trucks.

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. Marlborough's characteristics present the fire department with a wide variety of strategic and tactical challenges related to emergency response preparedness and mitigation. This includes fire suppression operations, emergency medical responses, and complex incidents requiring special operations capabilities such as technical rescue and hazardous materials emergencies.

Large commercial buildings, mid-rise structures, and a diverse mixture of target hazards present much different operational hazards and challenges than those required for operations in single family dwellings. Congestion and access limitations present additional concerns for fire department tactical operations in the downtown area, and the older sections of the city that have narrow streets. 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.

The tools and equipment that a fire department utilizes cover a wide assortment of resources necessary to effectively, efficiently, and safely respond to, and mitigate, a wide range of emergency incidents. These resources include, but are certainly not limited to, the firefighters personal protective equipment (PPE), self-contained breathing apparatus (SCBA), hose, nozzles,

adapters, master stream appliances[35], ground ladders, radios, hydraulic rescue tools and equipment, and various hand and power tools. The technology and standards for fire department equipment are constantly evolving to improve the effectiveness, efficiency, and safety of firefighters.

Today's fire departments are obligated to establish and document formal programs and procedures to ensure that equipment is replaced regularly, maintained properly, and deployed in accordance with accepted standards and department procedures. Proper training on the use and maintenance of equipment is essential to effective and safe firefighter performance and minimizes the city's risk exposure.

A white paper developed by the Fire Apparatus Manufacturer's Association (FAMA) suggests that the front line life span of active duty fire apparatus in urban setting ranges from fifteen to eighteen years, within the possibility of an additional nine to ten years in a reserve, or spare, status. The International City/County Management Association (ICMA) suggests that the life span of a fire pumper should be twenty years, and the life span of an aerial ladder should be twenty-five years.

One common recommended practice is to purchase one major piece of fire apparatus every five years. The goal of this strategy is to spread major purchases out over time in an effort to allow the city to maintain a consistent level of debt service.

OBSERVATIONS

Fire Apparatus

The current Marlborough Fire Department apparatus fleet consists of five pumpers (three frontline and two reserves) and two aerial ladders (one which is a tower ladder and one medium rescue). Marlborough is fairly close to national averages regarding the current size and configuration of its apparatus fleet when compared to communities with comparable populations. In surveying the city's fleet, the MRI study team found the apparatus to be adequately maintained with the equipment stowed in an orderly fashion.

The age of the major firefighting apparatus currently in service ranges from fifteen years for Ladder 2 (reserve ladder) to three years for the newer tower ladder, Ladder 1. The Department is scheduled to receive a new Kovatch Mobile Equipment (KME) engine in November 2014, which will replace the department's oldest apparatus, twenty-three year old Engine 5. At that point, all front line apparatus will then be ten years old or less. With the exception of the reserve engine (which is being replaced) the fleet appears to range in condition from fair to

[35] "Master streams" are large capacity nozzles that can be placed on the ground or are affixed to aerial devices.

good with the majority being in the higher end of that assessment. When considering apparatus usage, hours on the motor and pumps hours must be taken into consideration. Fire apparatus typically spend more time idling while at emergency scenes, or throttled up when operating the fire pump. A rule of thumb that can be used is that each hour on the motor is the equivalent of thirty to thirty-five miles of actual road usage.

MARLBOROUGH FIRE DEPARTMENT VEHICLE FLEET

UNIT	YEAR	MAKE/MODEL	MILEAGE	ENGINE HOURS	PUMP HOURS	AERIAL HOURS
ENGINE 1	2004	E-One Typhoon	70,614	6,969	Unknown	
ENGINE 2	2003	E-One Typhoon	118,578	11,763	Unknown	
ENGINE 3	2009	E-One Typhoon	52,560	4,854	283	
ENGINE 4	1997	E-One Hurricane	100,000+	13,299	Unknown	
ENGINE 5	1991	International/ Central States	89,871	9,087	633	
TOWER 1	2011	E-One Cyclone II	18,669	6,400		Unknown
LADDER 2	1999	E-One	64,316	1,517		Unknown
RESCUE 1	2004	Freightliner/ Saulsbury	95,380	6,132		
CAR 1	2007	Ford Explorer 4 x 4	Unknown	Unknown		
CAR 2	2011	Ford Expedition 4 x 4	Unknown	Unknown		
SUPPORT 1	2011	Ford F-350 4 x 4	Unknown	Unknown		
SUPPORT 2	2000	Ford F-350 4 x 4	Unknown	Unknown		
SUPPORT 3	2006	Ford F-350 4 x 4	Unknown	Unknown		
MOTOR SQUAD	1984	Ford Econoline	Unknown	Unknown		
AIR SUPPLY 1	2006	Ford E-350	Unknown	Unknown		
FIRE INVESTIGATION UNIT	2003	Ford E-350/AEV	Unknown	Unknown		
TOMS 31 MA HAZ. MAT. SUPPORT UNIT	1996	Freightliner/ Hackney	Unknown	Unknown		

Municipal Resources

ENGINES

Figure 6-1: Engine 1 - 2004 E-One Typhoon
1500 GPM pump capacity - 750 gallon water tank
Good condition

Figure 6-2: Engine 2 - 2003 E-One
1500 GPM pump capacity - 750 gallon water tank
Fair Condition (being placed into reserve status)

Figure 6-3: Engine 3 - 2009 E-One Typhoon
1500 GPM pump capacity - 730 gallon water tank
30 gallons Class A Foam - 30 Gallons Class B foam
Excellent condition

Figure 6-4: Engine 4 - 1997 E-One Hurricane
1500 GPM pump capacity - 730 gallon water tank -
30 gallons foam
Fair condition

Figure 6-5: Engine 5 - 1991 International/Central States 1250 GPM pump capacity
750 gallon water tank - 30 gallons foam
Poor condition (being removed from service)

Municipal Resources

LADDERS

Figure 6-6: Tower 1 - 2011 E-One Cyclone II
95 foot rear mount aerial tower
Excellent condition

Figure 6-7: Ladder 2 - 1999 E-One
110 foot rear mount ladder
Good condition

RESCUE

Figure 6-8: Rescue 1 - 2004 Freightliner/Saulsbury medium rescue
Good condition

Municipal Resources

COMMAND, SUPPORT AND SPECIALTY UNITS

Figure 6-9: Car 1 - Fire Chief - 2007 Ford Explorer 4x4
Very good condition

Figure 6-10: Car 2 - Deputy Chiefs - 2011 Ford Expedition 4x4
Excellent condition

Figure 6-11: Air Supply 1 - 2006 Ford E-350/Supreme
Mobile air supply unit

Figure 6-12: Fire Investigation Unit - 203 Ford E-350/AEV

Figure 6-13: Support 1 - 2011 Ford F-350 4x4
Excellent condition
Note: Support 1 is assigned to Station 1
Support 2 – 2000 Ford F-350 4x4 assigned to Station 2
Support 3 – 2006 Ford F-350 4x4 assigned to Station 3

Figure 6-14: TOMS 31 – 1996 Freightliner/Hackney
Massachusetts Hazardous Materials Support Unit
Deployed from Station 1

The MRI study team reviewed the Marlborough Fire Department apparatus and vehicle capital improvement and/or purchase plan. If the current plan is funded, the apparatus plan will meet the needs of the city for the next ten to fifteen years.

A possibility that the fire department might consider when considering the replacement of Ladder 2 is to purchase a quint. A quint is a fire service apparatus that serves the dual purpose of an engine and a ladder truck. This type of fire apparatus provides the ability to perform five functions: pump, water tank, fire hose, aerial device, and ground ladders.

Combining an engine/pumper and aerial ladders provides diversity of operations and can satisfy operational needs that cannot be met otherwise without staffing two separate pieces of

Municipal Resources

apparatus. Using this type of resource provides maximum operational flexibility and options for safe, effective, and efficient incident mitigation.

The Marlborough Fire Department does not currently have a heavy rescue truck, despite the challenges presented by Routes I-495, I-290, the rail/freight line, and major on-going building construction projects that are anticipated in future years. The city's industrial occupancies present the very real potential for a variety of complex technical rescue events. Complete hydraulic rescue tool systems are available on the medium rescue and Ladder 1. Lightweight combination rescue tools are included on each front line engine. The overall technical rescue capabilities of the department are limited.

The fire department is an active participant in technician level hazardous materials response operations. The city hosts a state hazardous materials incident support unit that is equipped with a large variety of hazardous materials supplies and equipment. Marlborough fire personnel who are appropriately trained can respond with this unit which can be utilized on the emergency scene.

It is the belief of the MRI assessment team that Marlborough would be well served operationally by the acquisition of a heavy rescue truck/special hazards vehicle. This vehicle could be equipped with several sets of hydraulic rescue tools, pneumatic air bags, and a wide variety of specialized technical rescue tools and equipment for industrial accidents, high angle rescues, confined space rescues, etc. In addition, it could carry basic operations level hazardous materials equipment that department personnel are trained to use including spill materials and air monitoring equipment and meters. It could be equipped with large power generation/ lighting capabilities and carry a breathing air replenishment system for refilling SCBA cylinders on the emergency scene. The rescue truck should be deployed from Station 1 and cross-staffed with Ladder 1's crew supplementing the normal rescue crew of two.

Vehicle Maintenance

Marlborough utilizes a full-time firefighter on an overtime basis, sixteen to twenty hours a week to maintain the apparatus fleet. It augments that employee with a part-time contract fire equipment mechanic. Most of the department's maintenance needs are handled in-house through this program. Fire department mechanics perform routine repairs and preventive maintenance activities. More complex tasks and specialized repairs are contracted out to specialized repair shops (i.e. drive train, fire pumps, aerial ladder systems, etc.). This practice is common for fire departments that are similar in size to Marlborough.

The MRI study team has concerns that the practice of using a member on overtime and/or a part-time mechanic for a department this size to perform significant repairs to emergency vehicles and to adequately perform preventative maintenance is not the most effective manner to maintain the fleet. In addition to the repair work that must be completed, the mechanic is

required to document the work that is done, maintain a work space, oversee a preventative maintenance program, and assist with budget preparation and other administrative duties.

The MRI team evaluated four options for apparatus and vehicle repairs:

- Option 1: Use the city's public works facility and personnel with one of their mechanics receiving certification as an Emergency Vehicle Technician (EVT) and being assigned/detailed to the fire department.

- Option 2: Contract with a private vendor with vehicles being repaired and maintained at a local maintenance facility. Possibilities under this scenario include apparatus pumps and ladders being repaired and maintained at specialized fire apparatus facilities, including the vendor where the apparatus was purchased.

- Option 3: Continue to use the part-time fire mechanic(s) as is currently being done with bigger jobs being sent out to specialized fire apparatus facilities when required.

- Option 4: Hire a full-time (firefighter) mechanic specifically for the fire department.

In reviewing these options, the MRI team considered the financial aspect of budgeting for repairs, the quality of the work, the safety aspect of the work, the timeliness of the work (out of service time), and the confidence in the quality and safety of the work by department members.

Regardless of the option selected, the mechanic should be certified as an American Service Excellence (ASE) and Emergency Vehicle Technician (EVT).

A. American Service Excellence (ASE) Technician: The independent, non-profit National Institute for Automotive Service Excellence (ASE) certifies technicians by specialties for automobile, medium/heavy truck, and truck equipment repair technicians, as well as engine machinists, alternate fuel technicians, parts specialists, and collision damage estimators. Upon successfully passing at least one exam, and after providing documentable proof of relevant work experience, the candidate is awarded an ASE certification.

B. Emergency Vehicle Technician (EVT): Emergency Vehicle Technician Certification Commission, Inc. is a non-profit corporation dedicated to improving the quality of emergency vehicle service and repair throughout the United States and Canada by means of a certification

program that provides emergency services technicians with recognition for the education, training, and experience they have obtained in the service and repair of emergency vehicles.

Another area of concern is the space considerations necessary for a repair area that would be adequate for the work that needs to be done on a daily basis. It appears that maintaining the fleet is difficult to perform in an area that has less than optimal working conditions. Currently, there is no dedicated area in any Marlborough fire station to effectively perform this type of work. Fire Station 1 doubles as the department's maintenance facility. It has one heavy duty hydraulic jack and some jack stands. There is a dedicated maintenance room that is used for storage of tools, supplies, and parts. The room is not locked, there were no flammable liquid storage cabinets, and the work area was cluttered and appeared in disarray. There was a white erasable board that is used to track the annual preventative maintenance schedule.

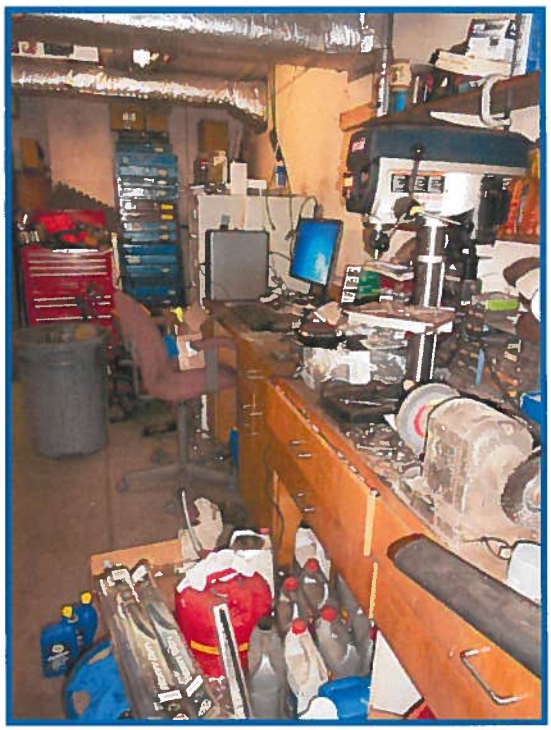


Figure 6-15: Maintenance shop area at Station 1.

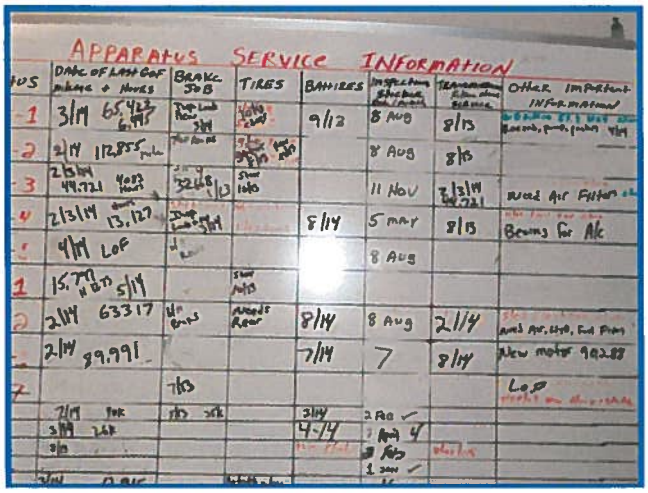


Figure 6-16: White board used by maintenance personnel to keep track of vehicle maintenance program.

The maintenance personnel are currently using the DPW's maintenance tracking program (CSA7) to track maintenance issues. It is available on a desktop. The department is awaiting installation of the program on laptops. Interviews with staff and the mechanic revealed that repair data is seldom entered into the maintenance database. This is due to limited time by the maintenance personnel and lack of IT training. The mechanic does not maintain a comprehensive log of work completed. Instead, he makes notations on the *Request for Repair*

forms that are submitted to him by the fire company officer/driver. When the repair work is completed, the form is forwarded to the deputy chief who oversees maintenance.

It was reported to the MRI study team that apparatus is inspected daily shortly after shift change. This is a relatively recent operational improvement. Each company is supposed to perform a comprehensive inventory of all tools and equipment for each piece of apparatus, including starting and operating all mechanical equipment. There is no standard operating procedure (SOP) regarding apparatus inspections.
The department uses an apparatus inspection form that must be completed on the days the checks are performed. The company officer or driver signs off that the inspections/inventories have been completed. These forms are submitted to the deputy chief for review. Duplicates are not maintained by the company; therefore, issues that are discovered by one platoon may not be communicated to the other platoons unless it is done verbally.

This daily apparatus inspection report form is also used for requests for maintenance. The forms are placed in a "mail box" for the deputy chief and reviewed by the mechanic. As with all other repair records, there is no tracking method to determine if repairs that are identified/detailed on the form are scheduled or performed. Maintenance issues that are identified and reported through the apparatus inspection and inventory forms, and reported to the mechanic, may be ignored or allowed to go unaddressed for an extended period of time. When work is completed, there is no confirmation sent back to the company for their records.

Neither the mechanic nor the deputy chief prepares a monthly and/or annual report regarding work performed. There is no system that tracks specific pieces of equipment, a recurring problem, and/or any preventative maintenance. There is no master file for each piece of apparatus/vehicle. Repair records and their costs are useful information that the department should maintain and review in order to determine future budget requests and replacement of apparatus.

The MRI study team has significant questions regarding whether the Marlborough Fire Department has a proactive and effective apparatus and equipment maintenance program. We were informed that most of the department's preventative maintenance needs are handled in-house by the part-time mechanic. Based on the fact that the white erasable board is the primary method that tracks the annual preventative maintenance schedule and records of those repairs, and the lack of use of a computer database to maintain these records, it was impossible for the team to confirm that required preventative maintenance is happening, and if so, whether or not it is timely.

Major repair work is contracted to outside vendors for such things as diesel motor repairs, suspension and spring work, brakes, transmission overhauls, and major hydraulic work on the ladders and pumps on the engines. It was confirmed that all warranty work is sent to the appropriate dealer/manufacturer repair facility.

The MRI team reviewed ground ladder, aerial ladder, pump, and hose test records. Written records for this year and previous years of testing were reviewed. Test results provide an indicator of apparatus condition and are a valuable tool in budget planning. Often, as a result of this testing, minor maintenance issues can be resolved which will delay or eliminate the need for major repairs in the future.

The MRI Team confirmed that the fire pumps on all engines are tested annually. Both aerial ladders are tested as required by NFPA and ISO. All engines and ladders passed their respective tests, although Engine 5 initally failed but was subsequently retested and passed after repairs were made. It was confirmed that any repairs required based on the tests were completed before the apparatus was returned to service. These annual tests are scheduled, coordinated, and overseen by the deputy chief assigned to vehicle maintenance. Appropriate levels of funding should continue to be included in the budget so that pump and ladder testing is conducted on an annual basis. The time interval between tests should not exceed twelve months.

The mechanics have the use of a maintenance/utility truck for performing minor maintenance/repairs on the apparatus in the other stations and/or on emergency scenes or other locations where they may be necessary. The vehicle did not have a tool box or any diagnostic tools that may be needed, or any repair parts (bulbs, fuses, etc.). It did have some very basic tools.

The city's public works department facility is seldom used for repairs or maintenance of fire department vehicles or apparatus. Very infrequently, the department does use the bay at the DPW that has a maintenance work pit.

Equipment

NFPA 1901, *Standard for Automotive Fire Apparatus* (National Fire Protection Association, Quincy MA, 2009 edition) and ISO (formerly the Insurance Services Office) provide standards for the minimum complement of equipment that should be carried on fire apparatus. It is important to recognize that each agency has different requirements for apparatus and equipment. NFPA focuses broadly on the safety and performance of the apparatus, while ISO focuses specifically on the fire suppression capabilities of the apparatus. These differences are most significant for equipment carried on pumpers and aerials. Differences between NFPA and ISO equipment for pumpers include hose, monitors, ground ladders, foam, and radios. Differences for aerial equipment include self-contained breathing apparatus (SCBA), ground ladders, and radios.

The MRI study team found the equipment located on each piece of Marlborough apparatus to be well maintained and ready for use. The Marlborough Fire Department's apparatus has a

typical selection of portable hand, power, and service tools and equipment utilized for firefighting and other emergency operations. For the most part, the equipment appears to be organized and serviceable. Based on a recent ISO survey it appears that the apparatus fully meets the minimum NFPA and ISO requirements for equipment to be carried.

The Marlborough Fire Department currently has one complete set of hydraulic extrication tools (Jaws of Life) with a full complement of tools and accessory tools that is carried on Rescue 1. A similar complete set is deployed on Ladder 1. These hydraulic rescue tools are used by emergency rescue personnel to assist in extrication of motor vehicle crash victims, as well as other rescues from small spaces. These tools include cutters, spreaders, door busters, and rams. This equipment is very important to the department's overall operations due to the heavy traffic conditions in the city and on the limited access highways. Each engine is equipped with a small combination hydraulic rescue tool (combi-tool). This equipment is a one piece rescue tool that can quickly be used for less complex extrications. The MRI team was informed that all gas powered extrication equipment is scheduled for replacement with battery operated units over the next few years. The rescue tools appear to be well maintained. There is an annual service/maintenance contract in place for these units.

Thermal imaging cameras (TICs) are valuable pieces of equipment used by firefighters during fire incidents. By rendering infrared radiation as visible light, such cameras allow firefighters to see areas of heat through smoke, darkness, or heat-permeable barriers. Thermal imaging cameras pick up body and other types of heat, and are used to more quickly locate and remove trapped fire victims. They are also often used to find hidden fire behind closed walls. Most thermal imaging cameras are handheld, but may also be helmet-mounted.

The Marlborough Fire Department has six handheld thermal imaging cameras. Each front line engine and ladder truck has one, as well as the rescue. The TICs appeared to be well maintained. It was not confirmed if there is an annual service/maintenance contract in place for these units and if they are serviced on an annual basis.

Automated external defibrillators (AED) are portable electronic devices that automatically diagnose the life-threatening cardiac arrhythmias of ventricular fibrillation and ventricular tachycardia in a patient and is able to convert (treat) them through delivery of an electrical shock. They have become a critically important life-saving tool.

All front line apparatus are equipped with AEDs, allowing certified personnel to more effectively treat certain cardiac patients. Reserve engines, utility trucks, and staff/command vehicles are not equipped with AEDs. There are no spare AEDs available. After the city's summer recreational parks close, the AED units that are used at those locations are stored at the central station. These units can be used by the fire department, if necessary.

The Marlborough Fire Department responds to hazardous material incidents and operates primarily at the operational level. Larger incidents require the response of the statewide hazardous material team. The department's apparatus carries equipment and supplies that allow them to mitigate minor incidents such as fuel leaks and includes things such as natural gas leak and carbon monoxide (CO) detection meters. All engines and ladders are equipped with multi-gas combustible gas detectors. The multi-gas meter is a small hand-held device that can detect natural gas, CO, and oxygen depleted environments that allow firefighters to detect and monitor hazardous environments. Each apparatus also carries booms, pads, and absorbent material that can be used to contain minor spills and leaks.

Personal protective equipment (PPE) includes the full ensemble that encapsulates a firefighter who will be engaging in firefighting operations. It includes a helmet, Nomex® hood, turnout coat, turnout pants, boots, SCBA, gloves, eye shield, and station uniform. The specifications and related requirements for PPE can be found in various NFPA standards. The MRI team examined a number of sets of firefighter PPE and found them to be relatively clean and ranged in condition from very good to poor condition. Much of it showed the effects of routine wear.

The department supplies only one set of turnout pants and coat for each firefighter. When this PPE is wet or becomes contaminated, there is no procedure for how the firefighter can respond and remain in service. The MRI team saw an extractor; a heavy duty commercial washing machine used for PPE, at the central station. There was no indication that this equipment was used regularly. The regular cleaning of PPE ensures that dangerous and unhealthy contaminants from fire scenes, accidents, medical calls, and hazardous materials incidents are removed from PPE in order to avoid long-term exposure to firefighters and their families. It was noted that there are no annual inspections of turn out gear or any Standard Operating Procedure/ Guideline (SOP/SOG) for inspection, repairs, or cleaning of PPE as required by NFPA Standard 1851 *Standard on Selection, Care, and Maintenance of Protective Ensemble for Structural Firefighting and Proximity Firefighting*. There are no PPE records.

The fire chief has a policy of replacement of PPE as needed for personnel. Based on a review of the fire department budget it appears that funds are available for purchasing up to six sets of turnout gear annually. The current edition of NFPA 1851, recommends that firefighter PPE be replaced at no greater than ten year intervals.

Self-contained breathing apparatus (SCBA) is a device worn by firefighters to provide breathable air in an IDLH (Immediately Dangerous to Life and Health) atmosphere such as fires and hazardous material incidents. This is an integral and highly important piece of equipment that a firefighter must use in order to safely perform their job.

The Marlborough Fire Department has a total of fifty-six, in-service, self-contained Scott 4.5 (4500 PSI) 45-minute SCBA breathing apparatus with spare cylinders/bottles. There are one hundred ten spare cylinders for all SCBA, as well a number of additional 60-minute spare

bottles that can be used during an incident. The department also has rapid intervention team (RIT) SCBA's. The rapid intervention team (RIT) equipment (a portable air supply for providing air to a downed or trapped firefighter) is carried on the rescue and the ladders. It is equipped with a one hour, 4500 PSI air cylinder, and is outfitted with emergency buddy breathing attachments.

The SCBA appear to be properly maintained and are equipped with integrated personal alert safety system (PASS) devices. They are equipped with heads-up displays (HUD) that allow the user to monitor his/her air supply through an electronic display in the wearer's face piece. Some units are equipped with voice amplification, while others are not. The rationale for this practice could not be determined.

Members of the department have not been issued their own individual SCBA masks. Many departments issue individual facemasks in order to minimize the chance of exposure/ transmission of infectious and/or communicable diseases and other illnesses (even the common cold) between members. Each member having their own personal mask also ensures that they are wearing a correctly sized, properly fitting mask, not just the mask that happened to be available. The masks used by Marlborough are standard sized unless a firefighter who has been fit tested is unable to use that size. The department maintains a supply of some small and large face masks available and personnel who require one of these non-standard sizes are issued their own personal mask.

The OSHA *Respiratory Protection Standard*, 29 CFR 1910.134, and NFPA Standard 1500, *Standard on Fire Department Occupational Safety and Health Program* mandate that annual fit testing be completed, after personnel have been medically cleared to wear SCBA. Marlborough performs these tests on an annual basis and it appears is fully compliant with this regulation.

Maintenance of this equipment is critical. The Marlborough Fire Department has two firefighters who have been assigned additional duties to maintain the SCBA. Both have been certified as Scott (the manufacturer) certified field level technicians in order to perform these functions and have completed the required continuing education.

SCBA are inspected at the time of the periodic apparatus inspections and is noted on the inspection form. A monthly inspection is performed on Saturday morning. Similar to other equipment repair documentation, the MRI team determined that the department does not have a formal SCBA repair request form in order to identify problems or request repairs. The firefighters who are responsible for the repairs and maintenance do use software to track the history of each individual SCBA, cylinder, and mask, including maintenance records.

Annual flow testing of SCBA is required by NFPA Standard 1852, *Standard on Selection, Care, and Maintenance of Open-Circuit Self-Contained Breathing Apparatus (SCBA)*. All of the SCBA are in compliance with the flow testing requirement. They are all reported to be compliant

with a current hydrostatic test that must be performed every three years. The department contracts with a certified vendor to perform these tests and inspections. Batteries in the PASS devices are changed annually at the time of the flow test.

During the MRI site visit it was determined that the department is not compliant with NFPA Standard 1901, *Standard on Automotive Fire Apparatus,* and ISO requirements that require one SCBA with cylinder and one spare cylinder for each riding position on the apparatus. For example, if a piece of apparatus has six riding positions for firefighters, that vehicle must have six SCBA with cylinders and six spare cylinders. During the visit, the fire chief assured the MRI team that they would immediately assign the appropriate number of SCBA and spare bottles on all apparatus.

APPARATUS SCBA INVENTORY

UNIT	RIDING POSITIONS	REQUIRED SCBA	ASSIGNED SCBA	REQUIRED SPARE CYLINDERS	ASSIGNED SPARE CYLINDERS
ENGINE 1	5	5	4	5	4
ENGINE 2	5	5	4	5	4
ENGINE 3	5	5	4	5	4
ENGINE 4	4	4	4	4	4
ENGINE 5	5	5	5	5	5
TOWER 1	5	5	8	5	12
LADDER 2	4	4	8	4	12
RESCUE 1	2	2	4	2	4
CAR 1	UP TO 4	0	0	0	0
Car 2	2	0	1	0	0

Only some of the department's staff and command vehicles were equipped with SCBAs. These types of vehicles are not required to carry a spare cylinder. The lack of SCBA is a safety concern for the personnel who operate them.

SCBA breathing air refilling is accomplished with a compressor/cascade system located at Station 3. This unit is being replaced through an Assistance to Firefighters Grant (AFG) that the Marlborough Fire Department recently received. The compressor at Station 3 obtains its intake air from the exterior of the station, as is proper. Air quality sampling/testing is done on a quarterly basis to insure that the air quality being produced by the compressor is at least Grade "D" as required by the OSHA Respiratory Protection Standard. The certificate for the most recent test is posted next to the compressor. Complete test results for each test, as well as previous certificates, are maintained in a central file. The records for maintaining the filling

station, including the makeup air, were available and reviewed by the MRI team. The department uses a mobile cascade system for refilling SCBA cylinders at the scene of incidents.

Communications

The Marlborough Fire Department has a portable radio available for each on duty member. It is the current best practice in the fire service that every firefighter who is wearing SCBA and/or entering an atmosphere that is immediately dangerous to life and health (IDLH) should be equipped with a portable radio. Should a firefighter become trapped, lost, disoriented, or experience any other type of emergency, he/she can summon help on the portable radio. Many departments now have a portable radio assigned to either every riding position on every piece of apparatus and/or to every on duty member.

RECOMMENDATIONS

For the purposes of this chapter, recommendations regarding the primary apparatus fleet are made in the context of current deployment of stations and apparatus.

6.1 The department should develop a program to transfer manual record keeping to a suitable electronic system/database for the documentation of inventories, maintenance, and testing programs. A comprehensive fire department management program would be the preferred choice.

6.2 The Marlborough Fire Department should review the recommendations contained in NFPA Standard 1911, Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Automotive Fire Apparatus (National Fire Protection Association, 2012 Edition) and use it as a guide to revise and update the vehicle fleet maintenance program.

6.3 The Marlborough Fire Department should revise their daily apparatus and serviceability inspection procedure to include an electronic report form. This inspection is the equivalent of a daily pre-trip inspection as outlined in commercial driver manuals and should continue to be performed each and every day immediately after shift change. The inspection should include all spare/reserve apparatus. NFPA 1911 also contains a section with suggestions for routine vehicle and component inspection and testing. The daily inspection should also include an inventory and serviceability check of the tools, equipment, and SCBA that is carried on the apparatus.

6.4 The department should establish a procedure that specifies what safety items that are found to be out of compliance on an apparatus would place it out of service. The procedure should include a process of notification to the appropriate

supervisory and management staff that the apparatus is out of service including the specific reason. This procedure would be an initial step in documenting repairs and service requirements, as well as tracking out of service times for equipment.

6.5 The department should continue its current practice of annual pump testing in accordance with NFPA and ISO standards. Pump tests should be performed at intervals no greater than twelve months apart. All tests, deficiencies, and repairs/corrective actions performed should be fully documented.

6.6 The department should continue its current practice of annual hose testing in accordance with NFPA and ISO standards. Hose tests should be performed at intervals no greater than twelve months apart. All tests, deficiencies, and repairs/corrective actions performed should be fully documented.

6.7 The department should continue its current practice of annual ground ladder and aerial apparatus testing in accordance with NFPA standards. Ladder and aerial tests should be performed at intervals no greater than twelve months apart. All tests, deficiencies, and repairs/corrective actions performed should be fully documented.

6.8 The department should develop a procedure that specifies how the above tests shall be performed and documented, including placing equipment out of service, performing repairs, and documenting the entire process.

6.9 The City of Marlborough should give consideration to hiring a full-time mechanic for the Marlborough Fire Department. This option may ultimately be more cost effective than the current system. Repairs that are currently contracted out and some of the annual tests could probably be performed in-house, resulting in potential cost savings for the city. There are several possible options for this position.

A. Utilize a civilian mechanic, possibly employed full-time by the DPW, but detailed permanently to the fire department (Option 1 above).

B. Utilize a firefighter/mechanic that is assigned permanently to maintenance and working a straight day work schedule (Option 4 above).

Regardless of which option is pursued, the mechanic should be certified as an American Service Excellence (ASE) and Emergency Vehicle Technician (EVT). The mechanic should also join the New England Apparatus Mechanics Association, an organization that provides opportunities for fire apparatus mechanics to network

and solve mutual issues dealing with technical situations involving fire apparatus and equipment.

6.10 *The department should continue to utilize the current program with the firefighter mechanic and part-time contract mechanic until they decide which option would be the best one for the city to pursue. In the interim, both of these personnel should seek to obtain the ASE and EVT technician certifications noted in recommendation 6.9, above.*

6.11 *The Assistant Chief, Operations, should coordinate with the department's maintenance personnel to establish appropriate procedures pertaining to vehicle maintenance, vehicle/equipment repair reporting and tracking, and documenting all preventative maintenance requirements. They should also be responsible for developing and managing the vehicle and equipment maintenance line items in the fire department budget.*

6.12 *The City of Marlborough and the Marlborough Fire Department should continue to evaluate and closely monitor the department's apparatus needs, both current and future. The department should develop a long-range vehicle replacement and capital plan for all fire apparatus, other vehicles, and major equipment, that projects refurbishing and/or replacement needs and time lines. Apparatus replacement needs can be projected out as long as necessary. The fire department's capital budget needs should be incorporated into the city's overall plan and prioritized appropriately.*

6.13 *While the fire chief should set direction/parameters and obviously must retain the right of final approval on all major apparatus and equipment purchases, it is recommended that members of the department be involved in a specifications development committee. The committee should encompass a cross-section of the department's personnel: firefighters, officers, and mechanics.*

6.14 *The MRI study team recommends that the city take advantage 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).*

6.15 *The MRI study team recommends that the department adopt a policy of purchasing new NFPA 1901 compliant equipment when new apparatus is purchased. This policy will ensure that equipment is the most technologically up-to-date and that it is safe*

and functional. It will also make it possible to keep reserve apparatus fully equipped for immediate use.

6.16 *When the time comes to replace the existing medium rescue truck, it is recommended that the Marlborough Fire Department consider acquiring a fully equipped heavy rescue truck, equipped with several sets of hydraulic rescue tools, pneumatic air bags, and a wide variety of specialized rescue tools and equipment for motor vehicle accidents and technical rescue and extrication incidents, including industrial accidents, high angle rescues, confined space rescues, etc. In addition, the truck could have basic operational level hazardous materials response equipment, including spill materials and air monitoring equipment and meters. It could also be equipped with a large power plant for lighting and other uses and breathing air replenishment system for refilling SCBA cylinders on the emergency scene.*

6.17 *The MRI study team recommends that all existing department vehicles be retrofitted with reflective safety striping in accordance with NFPA 1901. All future vehicles should also be appropriately striped including command, staff, and utility vehicles. The Emergency Vehicle Visibility and Conspicuity Study (Federal Emergency Management Agency, FA-323, August 2009) provides valuable information about vehicle marking (see http://www.usfa.fema.gov/downloads/pdf/publications/fa_323.pdf).*

6.18 *Consideration should be given to equipping any new apparatus with lighted traffic arrow devices mounted high enough on the vehicle to permit visibility by approaching vehicles, especially during responses on the interstate highway system.*

6.19 *The MRI study team recommends that the department inventory all equipment, review compliance with NFPA and ISO criteria, and assess the department's own operational and equipment needs. The inventory should be updated at least annually to ensure that it is current.*

6.20 *The MRI study team recommends that the department establish a formal replacement plan for equipment. The regular replacement of large cost items such as hose, ladders, and SCBA on an incremental basis will avoid major one-time increases in the operating budget. The life expectancy of these items can be estimated based on usage and manufacturer's recommendations.*

6.21 *The MRI study team recommends that the department develop an operational procedure and an inspection form, and train all officers to conduct annual turnout gear inspections as required by NFPA 1851, Standard on Selection, Care, and Maintenance of Protective Ensemble for Structural Firefighting and Proximity Firefighting.*

6.22 The MRI study team recommends that the department develop a personal protective equipment (PPE) replacement program that will allow each firefighter to have a spare set of PPE. Replacement PPE for all personnel could possibly be funded through an Assistance to Firefighters Grant (AFG) application. Until such time as this can be accomplished, the department should maintain a supply of spare turnout gear (coats, pants, gloves, hoods, helmets, etc.) for use when turnout gear is damaged, is being cleaned, or has been placed temporarily out of service for drying/thawing during winter operations.

6.23 The department should develop a policy and procedure for inspecting, repairing, maintaining, and washing PPE.

6.24 The department should insure that all apparatus are equipped with one complete SCBA with breathing air cylinder AND one spare breathing air cylinder for each riding position, including the driver. All command/staff vehicles should also continue to be equipped with a minimum of one complete SCBA with cylinder. Vehicles that are not currently equipped with SCBA should be.

6.25 The MRI study team recommends that each member of the department be issued their own individual SCBA mask. The rationale for issuing individual facemasks is to minimize the chance of transmission/exposure of infectious and/or communicable diseases and other illnesses (even the common cold) between members.

6.26 A minimum of one spare mask of each size should be placed on each apparatus for emergency use in the event of the failure of a mask during emergency operations.

6.27 The annual schedule of fit-testing for SCBA masks should be continued in accordance with the requirements of the OSHA Respiratory Protection Standard, 29 CFR 1910.134, and NFPA 1500, Standard Fire Department Occupational Safety and Health Program. The development of a Respiratory Protection Plan should include procedures for completing this mandatory testing.

6.28 The department should develop an operational procedure and appropriate forms (paper or electronic) as may be necessary, to provide for daily and after use inspection of all SCBA, and provide detailed tracking of any and all repairs made to each individual SCBA unit/component.

6.29 The Marlborough Fire Department should seek funding to obtain additional thermal imaging cameras through the AFG program. However, should this grant application not be successful, funding should be appropriated through the capital budget to allow the department to acquire three TICs for deployment on the reserve engines and also

in the shift commander's vehicle. This will also provide a spare TIC that can be used if one of the primary units is out of service for repair or maintenance.

6.30 The department should consider equipping all command, staff, and utility vehicles with automatic external defibrillators (AED).

CHAPTER 7

FIRE DEPARTMENT FACILITIES

OVERVIEW

Fire stations support the needs of the fire department and the community in which they are located. Fire stations that meet those needs now and in the future are built and maintained with quality products and systems. An attractive, well-maintained, functional, clean, and well-designed fire station can contribute to the morale, productivity, and operational effectiveness of the fire department. Most citizens have little contact with the fire service and often make judgments that are, at least partially, based upon their impression of fire station facilities. It follows then, that a good image of the department must be maintained not only by proper deportment of the individual officers and firefighters, but also by the appearance of their physical surroundings.

Fire stations are unique facilities in that they must accommodate extremely diverse functions, including living quarters, recreation, administration, training, community education, equipment and vehicle storage, equipment and vehicle maintenance, and hazardous materials storage. While it is usually only occupied by fire department personnel, the facility may also need to accommodate the members of the public who visit for station tours, public education presentations, and to discuss building projects or apply for permits. Many fire stations are occupied twenty-four hours a day, seven days a week, by on duty personnel standing by to respond to emergency incidents. It is important that existing fire stations are properly maintained, and any future stations are designed and constructed in such a manner that employees can perform their duties efficiently and effectively. As facilities ages, they may no longer meet the needs of an evolving department, thus negatively impacting department operations, efficiency, and even morale.

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

- Housing of fire apparatus, with adequate space for apparatus length and height (and the housing of all equipment, including staff, service, and support vehicles including trailers)
- On-duty crew quarters, with sufficient toilet/shower/locker room space for both men and women
- Kitchen area
- Training and meeting space
- Administrative/supervisor office(s)

- Vehicle maintenance (as necessary)
- Hose drying and storage (as necessary)
- Supply and equipment storage
- Public entrance/reception area

There is no specific template for fire station design and construction. Each station must be designed to meet the unique needs of the community it will serve. National best practices, such as guidance provided by the National Fire Protection Association (NFPA) and the Federal Emergency Management Agency (FEMA), recommend that the following features be included in fire station capabilities:

- Seismic-resistant construction (based on local risk assessment)
- Flood hazard protection (based on local risk assessment)
- Automatic fire sprinkler system and smoke detection system
- Carbon monoxide detectors
- Vehicle exhaust extraction system
- Capability to decontaminate, launder, and dry personal protective equipment and station uniforms
- Facility security
- Emergency power supply
- Exercise and training area(s)
- Compliance with the Americans with Disabilities Act (ADA)
- Compliance with current fire and building codes
- Adequate storage for supplies and equipment, including emergency medical and disaster supplies
- Adequate parking for on duty personnel, administrative staff, and visitors
- Capability for future expansion

Location and Number of Stations

The locations of fire stations in every community are typically based on a historical need at the time the station was built, as well as the city's infrastructure at that time. Today communities are taking into consideration their master planning documents, regional economic growth patterns, and potential demographic changes when determining fire station locations. Changes in a community often require a station to be replaced and/or relocated. This was the case in Marlborough in 1995, when the Central Station was moved as part of a downtown revitalization project, and to more adequately meet the needs of the Marlborough Fire Department.

In order to provide effective fire suppression service, a community must deploy its fire apparatus in such a manner that a sufficient number of apparatus, staffed with sufficient resources (firefighters), respond and arrive at reported fires within an acceptable period of time. The deployment of fire department resources is discussed in detail in Chapter 4, *Fire and EMS Operations*.

The MRI study team evaluated the number and locations of Marlborough's fire stations and has analyzed the effectiveness of the current staffing patterns and apparatus placement. We also evaluated scenarios that include the coverage provided by the existing fire stations, as well as a deployment model that envisions the relocation of Station 2. As the City of Marlborough continues to expand their commercial, industrial, and residential complexes in the western side of the city, incident volume and locations will in all likelihood evolve from the current statistics.

OBSERVATIONS

The Marlborough Fire Department currently operates from three stations. All of the stations are at least minimally adequate for the current staffing, apparatus, and equipment. The MRI team found the stations to be relatively well maintained from a housekeeping and general maintenance perspective. However, each station has some code compliance and capital improvement concerns that were identified. Routine daily maintenance and housekeeping is conducted by on duty fire personnel. This is typical of most fire departments. Major projects are budgeted and overseen by the Marlborough Facilities Department. The priorities for these projects are based on input from the fire chief, safety inspections conducted by the city's risk management insurance provider, and budgetary constraints. The MRI team is unaware of a written fire department facility capital improvement plan.

Central Station

The Central Fire Station is located at 215 Maple Street and serves as the main focal point of department operations. The station was built in 1995 to replace the old central fire station located on Main Street. Engine 1, Tower 1, and Rescue 1 all operate from this station. When on duty, the deputy fire chief also responds from this station. In addition, Engine 5, a spare apparatus, is stored here, as is FIU the department's fire investigations unit, and a Fire District 14 special operations support vehicle. Daily staffing is typically seven personnel; six firefighters and one captain on duty. When a deputy chief is working, staffing is eight. The MRI team found the facility's general condition to be well maintained and with adequate space to fulfill its mission.

One side of the facility houses the department's administrative offices including the fire chief's office, office space for administrative staff, deputy chiefs' offices (two), and the training room, which functions as the emergency operations center (EOC) and is sometimes used for meetings by the general public. The on duty captain's office is also located on this side of the building.

Visitors to the station and contractors meeting with staff use the main entrance located in the front of the building. The station consists of four double deep, drive through bays in the middle of the facility. In reality, since most of the bays are used to store more than one piece of apparatus, they are effectively drive out, back in. However, since the station is not used as a drive through type station, the front ramp area does not provide enough room to accommodate the turning radius for apparatus exiting or re-entering the station. This requires apparatus to be stopped on busy Maple Street, have backing personnel disembark from the apparatus, and then back into the station.

There is a utility room that is used by the part-time fire mechanic to do some work, store parts, tools, and equipment. This area is also used as the office space for the mechanic. The MRI team found the space inadequate for the purpose intended and not well maintained. We also found that a large white board was used to schedule and record all preventive maintenance.

The opposite side of the building houses the living quarters for the on duty personnel. This includes kitchen, dining, and day room areas, individual bunk rooms, a physical fitness room, a utility/laundry room that can be used as a decontamination area, a bathroom/shower facility, a separate female bathroom/shower facility, the EMS equipment storage room, and an office space that is used by the union.

The building is equipped throughout with automatic fire alarm (including smoke detectors) and fire suppression systems. A new ventilation system had recently been installed. The administrative side of the station has a security system requiring visitors to be "buzzed" in. Most times that the MRI team was on site for our field visits all other building doors, including the apparatus bay overhead doors, were either open or unsecured, allowing easy access to the station.

The station is equipped with a diesel-fired emergency standby generator that starts automatically upon an interruption in the power. While it was reported to the MRI team that the generator is tested and run on a periodic basis, written test/inspection records were not available for review.

The station is not equipped with a vehicle exhaust extraction system due to the fact that all Marlborough apparatus use the Ward Diesel Exhaust Filter System. These units are designed to limit the exposure of building occupants to exhaust fumes from diesel units currently assigned/stored here. The station has recently installed an additional air filtration system. No records were available for the MRI Team to review regarding the air quality.

Due to the almost constant use, most furnishings showed significant wear. The kitchen area has been updated, but due to the volume of use was again showing signs of wear.

The crew quarters are adequate, but in need of some basic maintenance and general housekeeping. Bunk rooms appeared adequate, but beds and mattresses appeared to be in need of replacement. Most furniture, including beds, tables, desks, and chairs were older, and components were noted as being worn out and/or broken and in need of replacement.

Storage areas in the station are extremely limited.

The exterior of the site is adequate for the operational needs of the department. The rear parking area had adequate space for training, and an area to train on pump operations, which could also be used for confined space training.

The fire department property is well maintained and was landscaped. There is adequate parking for employees, staff, and visitors.

Overall, this station is in good condition.

Specific concerns of the MRI study team for this station are:

- The facility is not in full compliance with the requirements and recommendations of NFPA 1500: *Standard on Fire Department Occupational Safety and Health Program* (National Fire Protection Association, Quincy, MA, 2013 edition), which provides requirements for facility safety, maintenance, and inspections.

- The facility is not in compliance with the requirements and recommendations of NFPA 1581: *Standard on Fire Department Infection Control Program* (National Fire Protection Association, Quincy, MA), which has requirements to provide minimum criteria for infection control in the fire station, in the fire apparatus, during procedures at an incident scene, and at any other location where fire department members are involved in routine or emergency operations.

- 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* (National Fire Protection Association, Quincy, MA). This standard provides safety requirements for storage and cleaning of personal protective equipment.

- The roof had multiple areas that were leaking, or had previously leaked, as evidenced by the stained ceiling tiles throughout the facility.

- Firefighter personal protective equipment was stored in open lockers on the apparatus floor.

- There is no fire protection hood system over the kitchen stove.

Figure 7-1: Fire Station 1 - 215 Maple Street
Constructed 1995 – Serves as fire department headquarters
Overall good condition

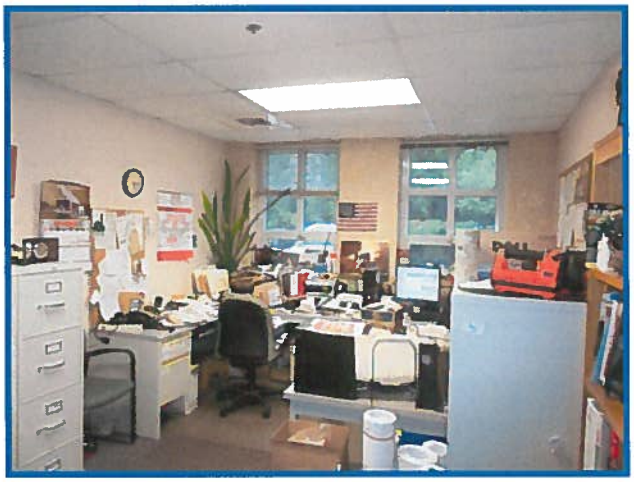


Figure 7-2: The deputy fire chiefs share 2 offices in the administrative wing of the building.

Figure 7-3: The department's training room which also serves as a community room for the public.

Figure 7-4: Firefighter PPE is stored on the apparatus floor in all 3 stations. While common practice in the fire service it is not recommended by NFPA.

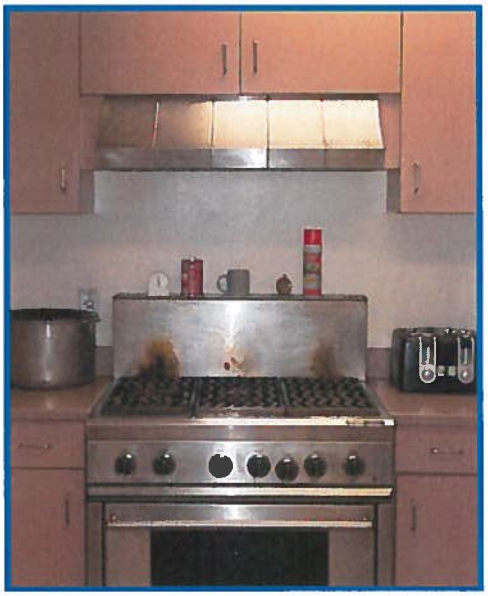


Figure 7-5: Stove in kitchen at Station 1. None of the stoves in any station are equipped with a fire suppression system for cooking or an interlock to shut down the stove automatically.

Municipal Resources

Figures 7-6 & 7-7: Ceiling tiles in several locations within Station 1 showed evidence of water/roof leaks.

Figure 7-8: Even though it is the department's newest and most spacious station, storage space is still very limited at Station 1.

Fire Station 2

Station 2, located at 98 Pleasant Street, is the department's oldest station. It is a two-story facility of ordinary construction that was built in 1891, and originally housed early horse drawn apparatus. The station is staffed with three personnel who staff Engine 2. At times, one of the department's reserve engines, Engine 4, is normally stored here.

Old and obsolete facilities are expensive to maintain due to inefficient heating, cooling,

plumbing, and electrical systems, lack of adequate space, and difficulty meeting current applicable building and life safety codes. The MRI study team found that much work had been done to this station in order to keep it operational. Even with these updates, renovations and maintenance, careful consideration should be given to the future, long-term viability of this station.

At some unknown time, this station underwent significant modifications to the apparatus bay area. Additional support structures were added in certain areas of the basement and the area below the apparatus was filled with concrete in order to support the apparatus. The basement is where the heating system located. This system appeared new and relatively efficient.

The second floor consists of a kitchen/day room area, a number of sleeping rooms, including one that doubles as the lieutenant/company commander's office, and a small bathroom. This area had recently been painted and was in relatively good physical condition.

The attic area is used for storage and as a fitness area for the personnel. The area is not heated or air conditioned. As such, the "fitness room" has limited use in summer and winter months.

The building is served by two unprotected, wooden stairwells located in the front and rear of the building. Neither set of stairs meets the code requirements for emergency egress. **THIS IS A MAJOR SAFETY ISSUE.**

The building is not equipped with automatic fire alarm and/or fire suppression systems. There are a limited number of smoke detectors located in the building, but none are located inside the sleeping rooms. This is unacceptable in a facility of this type. It could not be determined if the detectors are functional or when they were last tested/inspected.

The station is equipped with an emergency standby generator that does start automatically upon an interruption in the power. While it was reported to the MRI study team that the generator is tested and run on a periodic basis, written test/inspection records were not available for review.

The station is not equipped with a vehicle exhaust extraction system due to the fact that all Marlborough fire apparatus use the Ward Diesel Exhaust Filter Systems. These units are designed to limit the exposure of building occupants to exhaust fumes from diesel units currently assigned/stored here.

Specific concerns of the MRI study team for this station are:

- Considering its age, overall this station is not in bad condition. However, it does have some significant life safety code concerns. In addition, due to its age, location, and limitations to any type of expansion/addition, it is our opinion that

it would not be economically feasible to attempt to continue to renovate and/or upgrade this facility. In conjunction with recommendations for possible future station relocations recommended within this report, the replacement of this facility should be seriously considered by the city.

- The facility is not in full compliance with the requirements and recommendations of NFPA 1500: *Standard on Fire Department Occupational Safety and Health Program* (National Fire Protection Association, Quincy, MA, 2013 edition) which provides requirements for facility safety, maintenance, and inspections.

- The facility is not in compliance with the requirements and recommendations NFPA 1581: *Standard on Fire Department Infection Control Program* (National Fire Protection Association, Quincy, MA) which has requirements to provide minimum criteria for infection control in the fire station, in the fire apparatus, during procedures at an incident scene, and at any other location where fire department members are involved in routine or emergency operations.

- 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* (National Fire Protection Association, Quincy, MA). This standard provides safety requirements for storage and cleaning of personal protective equipment.

- The apparatus bays are very small for a modern fire station. This limits the amount of apparatus and/or equipment that can be stored in the station. In addition, hose and equipment cannot be efficiently loaded/unloaded inside during cold or inclement weather, nor can equipment be removed from the apparatus and set up for training and maintenance activities.

- The exterior of the site is totally inadequate for the operational needs of the department. The front ramp area does not provide enough room for the turning radius for apparatus exiting or re-entering the station, or for parking apparatus on the ramp. The front apron of the station is so small that if apparatus is parked in front of the station (and is not even fully out of the station) it blocks the entire sidewalk. This situation not only creates a potential traffic hazard, it creates a pedestrian safety issue because pedestrians must step out into the street to walk around the apparatus. This is common for fire stations that are located in the inner city, or in older residential neighborhoods. There is inadequate parking for personnel and visitors requiring the use of on street parking. The MRI team noted that there was potential for falling snow and ice to damage vehicles in the side parking lot.

- Crew quarters, including the sleeping area, are located on the second floor. The crew quarters are adequate. Furniture, including beds, tables, desks, and chairs, are old and components were noted as being worn out and/or broken and in need of replacement. Most of the furnishings were used furniture that was donated to the station.

- The station is not equipped with an automatic fire alarm and/or fire suppression system. It is equipped with limited smoke detection capabilities; however, there are no smoke detectors located inside the individual sleeping areas. No test records were available for when the last time the detectors were tested and/or inspected.

- Neither of the two unprotected wooden stairways to the second floor complies with code requirements for emergency egress. **THIS IS A MAJOR SAFETY ISSUE.**

- There is no fire protection system over the stove in the kitchen.

- The basement has damp areas. Though this is typical in buildings of this age and building construction, the MRI team was concerned that this environment would lead to potential mold/mildew growth and impact the facility's air quality. The fire department informed the team that some work had been done to remedy the situation, but we were unable to review any records of air quality testing. In the past, it appeared that there been roof leaks which may have contributed to this problem.

Figure 7-9: Fire Station 2 - 100 Pleasant Street
Constructed 1891
Overall fair condition – HAS SIGNIFICANT FIRE CODE CONCERNS

Figure 7-10: Apparatus bays which house Engine 2, Engine 4 (reserve engine) and Support 2.

Figure 7-11: Heating system in basement. Also steel columns and beams have been installed to provide additional support to the structure.

Figure 7-12: The station has a limited number of basic smoke detectors but is not equipped with a fire alarm or fire suppression system.

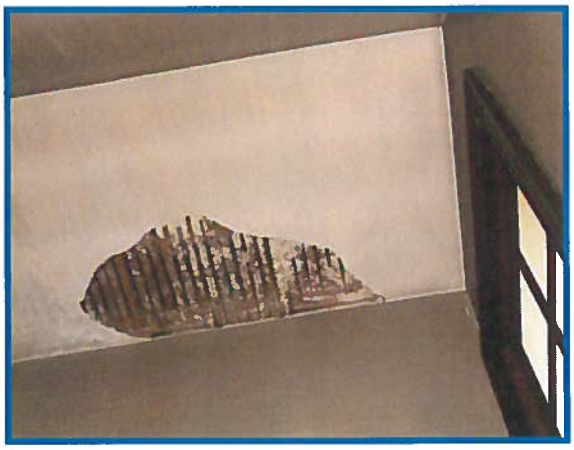


Figure 7-13: Areas in the station where plaster in walls and ceilings has been damaged and needs repair.

Fire Station 3

Fire Station 3 is located at 260 Boston Post Road. It is a single-story facility of wood frame construction that was built in 1973. Engine 3, Ladder 2, the Mobile Air Unit, and a support utility vehicle are located at this facility. The station is minimally staffed with three personnel, but can have two additional firefighters when Ladder 2 is able to be staffed.

The station, when built, was probably considered modern in style and functionality. The facility is wood frame using built-up trusses in the apparatus area, with a wood ceiling. While aesthetically pleasing, this design has led to difficulty in repairs, energy conservation, and potential building renovations.

The station is not equipped with a vehicle exhaust extraction system due to the fact that all Marlborough apparatus use the Ward Diesel Exhaust Filter System. These units are designed to limit the exposure of building occupants to exhaust fumes from diesel units currently assigned/stored here.

The station is designed to be a drive through station, but due to the amount apparatus stored at the facility, this safety feature can normally not be utilized. There was adequate parking for personnel and visitors.

During several visits to this station, there were only three members on duty. It was apparent that with any additional staffing, the facility would be crowded and not allow for any privacy for on duty personnel, particularly female firefighters.

The kitchen, dining area, and day room are small, but adequate for the small crew size. The bunkroom area had partial partitions and dividers in an attempt to provide a minimal degree of privacy. The bunks and furnishings showed signs of age and were in need of replacement. There was inadequate locker room space requiring the officers to use the female locker room for their lockers. Most furniture including tables, desks, and chairs are old, and components were noted as being worn out and/or broken, and in need of replacement.

This station is not protected with an automatic fire sprinkler system or an automatic fire alarm system. It has a local alarm with a single pull station and is minimally protected by a combination of single-station battery operated, and hardwired smoke detectors. This is unacceptable in a facility of this type. One of the smoke detectors was actually missing at the time of MRI's visits. No one knew when the system had been tested or if the hardwired smoke detectors were interconnected. It could not be determined if any of the detectors are actually functional. The carbon monoxide detector was inappropriately located.

The station has had multiple leaks in the roof that were obvious to the MRI team. In the living quarters, the ceiling tiles were stained in numerous areas. There appeared to be possible growth of mold in some ceiling areas. During the MRI site visit, the team noticed rodent droppings throughout the living quarters.

Station 3 is also used by the mechanic at times for vehicle repair. The department's air compressor for refilling self-contained breathing apparatus (SCBA) cylinders is located on the apparatus bay floor of this station. The air quality is tested on a quarterly basis as required, and a copy of the most recent air quality inspection report was confirmed.

The station is equipped with the department's only hose drying location. This method of drying hose is seldom used by most fire departments today because new hose is synthetic and can be repacked onto fire apparatus wet.

Storage space for equipment and supplies is extremely limited, and some department staff/support vehicles must be stored outside as there is no inside storage available.

Based on the observations of the MRI study team, it appears that this facility is not energy efficient. The heating system has been replaced recently, but windows and doors are not energy efficient.

The station is equipped with an emergency standby generator that is located in the rear of the station. The generator is equipped with an automatic start feature and automatic transfer switch. No test records where available indicating that the unit is inspected started and/or run on a periodic basis.

The fitness area for on duty personnel is located in a room off of the apparatus bay floor. It appeared will kept and used.

Specific concerns of the MRI study team for this station are:

- The facility is not in full compliance with the requirements and recommendations of NFPA 1500: *Standard on Fire Department Occupational Safety and Health Program* (National Fire Protection Association, Quincy, MA, 2013 edition), which provides requirements for facility safety, maintenance, and inspections.

- The facility is not in compliance with the requirements and recommendations NFPA 1581: *Standard on Fire Department Infection Control Program* (National Fire Protection Association, Quincy, MA), which has requirements to provide minimum criteria for infection control in the fire station, in the fire apparatus, during procedures at an incident scene, and at any other location where fire department members are involved in routine or emergency operations.

- The facility is not in compliance with the requirements and recommendations of NFPA 1851: *Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting* (National Fire Protection Association, Quincy, MA). This standard provides safety requirements for storage and cleaning of personal protective equipment.

- The station is not protected with an automatic fire sprinkler system or an automatic fire alarm system. It has a local alarm with a single pull station and is protected by a combination of single-station battery operated, and hardwired smoke detectors, which is unacceptable in a facility of this type. It could not be determined if any of the detectors are actually functional. One of the smoke detectors was actually missing at the time of MRI's visits. No one knew when the systems had been tested, or if the hardwired smoke detectors were interconnected. The carbon monoxide detector was inappropriately located.

- There is no fire protection hood system over kitchen stove.

- The roof had multiple areas that were leaking or had been leaking as witnessed by the stained ceiling tiles throughout the facility.

- There was a rodent situation in the living areas.

Figure 7-14: Fire Station 3 - 260 Boston Post Road
Constructed in 1973
Fair to good condition but very small crew quarters.

Figure 7-15: Missing smoke detector in station. The station is not equipped with an automatic fire alarm or fire suppression system.

Figure 7-16: Ceiling tiles show evidence of water/roof leaks.

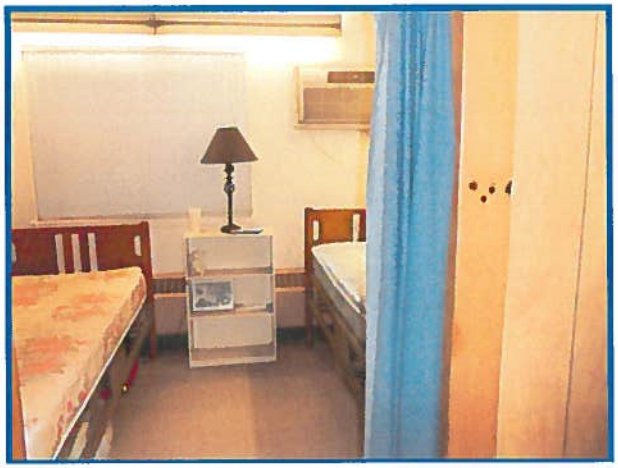


Figure 7-17: Sleeping quarters provide only very limited privacy for members, particularly female personnel.

RECOMMENDATIONS

The MRI study team recognizes that the implementation of the recommendations concerning facilities is a costly proposition. However, the city needs to maintain a safe and healthy work environment. There are some immediate needs, including leaking roofs, and life safety and fire code issues that should be addressed as soon as possible.

7.1 Prior to additional projects being proposed and completed, it is recommended that the Marlborough Fire Department, in conjunction with the city, develops a long-term capital improvement plan for the fire department that includes its facilities.

7.2 The City of Marlborough should give serious consideration to replacing the existing Fire Station 2. As recommended in Chapter 4, Fire and EMS Operations, the city should give serious consideration to relocating a new Fire Station 2 to the west of I-495 to provide improved coverage and response times. We do not believe there is a need for additional stations at this time.

7.3 Automatic fire alarm systems with heat, smoke, and carbon monoxide detection should be installed in fire Stations 2 and 3. These systems should be equipped with both audible and visible warning devices and should automatically transmit an alarm to the fire dispatch center. At a MINIMUM, new interconnected smoke detectors and single-station carbon monoxide detectors should IMMEDIATELY be installed in all fire stations that had missing or inoperable detectors.

7.4 The MRI study team recommends that for Station 3, and should the city decide not to relocate or replace the existing Station 2, that these stations should be equipped with complete, automatic fire sprinkler systems for the protection of the occupants,

Municipal Resources

buildings, and equipment. The city should explore the availability of federal grant funds for this purpose under the FEMA Assistance to Firefighters grant (AFG) program.

7.5 *Fire protection systems and exhaust hoods should be installed over all stoves in each fire station and disconnect switches should be installed and interfaced with alarm notification systems on all kitchen stoves to automatically shut them off to prevent kitchen fires during responses to alarms.*

7.6 *All roofs that are presently leaking should be repaired or replaced. This repair project should include an inspection of all areas that have had water leakage for the possibility of mold growth.*

7.7 *The two unprotected wooden stairways at Fire Station 2 should be upgraded and fully enclosed with an appropriate fire rating, as soon as possible, to provide appropriate emergency means of egress for the protection of the second floor occupants.*

7.8 *Consideration should be given to replacing the apparatus mounted Ward Diesel Exhaust Systems with an exhaust ventilation systems installed in each station. This will improve the air quality in all stations. The city should explore the availability of federal grant funds for this purpose under the FEMA Assistance to Firefighters grant (AFG) program.*

7.9 *Consideration should be given to conducting an energy audit of all fire stations to determine possible cost effective improvements related to energy conservation (such as window replacements).*

7.10 *Consideration should be given to upgrading locker rooms and sleeping quarters to provide increased privacy, including individual dorm rooms for female personnel.*

7.11 *The physical fitness area at Station 2 should be relocated out of the attic.*

7.12 *Emergency generators in all stations should be tested on a regular basis in accordance with the requirements of NFPA 110 Standard for Standard for Emergency and Standby Power Systems (National Fire Protection Association, Quincy, MA).*

7.13 *The MRI study team recommends that fire department fire prevention personnel inspect each fire station on a regular basis (at least annually) and issue fire inspection reports and notices of violations in the same manner that is done for privately owned facilities (this recommendation applies to all city owned facilities).*

CHAPTER 8

LONG RANGE PLANNING

OVERVIEW

The concept of long-range/strategic planning is often one that is neglected in the public sector. More immediate needs, the need to cut or at least stabilize taxes, reduced revenues, increased competition for scarce resources, major unanticipated expenses, skyrocketing health care costs, underfunded liabilities, and political considerations all factor into this reality. In addition, in some communities that have done things a certain way for many years, the concept may be too abstract to grasp, or not be considered something that is important. Many communities do not even have an accurate or up-to-date capital budget plan as these needs are deferred by scarcity of available budget funds.

Long range planning can be a valuable tool for any organization, particularly emergency service organizations and the communities they serve. The idea is to work through a process to develop a strategic roadmap for the organization that provides broad direction for the future. Once established, the strategic plan provides a compass on where the organization is headed.

The strategic plan guides the development of objectives, strategies, and tactics. These goals can be organizational, operational, or even financial. Useful processes and documents to aid in the development are the mission, vision, and values statements.

A good mission statement states simply why the department exists, and provides direction and boundaries to guide its future development. It should be an accurate statement of what the department actually does and should answer the following questions:

1. What we do?
2. How do we do it?
3. Why do we do it?

Assuring that the department's mission statement is accurate and up-to-date is the first step in the long range or strategic planning process.

While a mission statement identifies the purpose of the department, the vision statement will describe what one aspires to be.

The values statement will provide core behaviors to guide employee actions behavior (but they should not be confused with rules and regulations). It is impossible to over communicate the message of these documents. The Poudre Fire Authority in Colorado provides excellent examples of these documents (see Appendix B).

A key tool of the strategic planning process is what is known as a **SWO**T analysis. This analysis provides an opportunity to think about and write down **S**trengths, **W**eaknesses, **O**pportunities, and **T**hreats. It also provides an opportunity to begin discussions about the issues that are most critical to the department.

Out of the SWOT analysis, the department begins the development of goals, objectives, strategies, and tactics. Goals should be broad, general, and possibly even abstract, while objectives should be narrow, specific, and concrete. Objectives should fit the **"SMART"** criteria. That is **S**pecific, **M**easurable, **A**ttainable, **R**elevant, and Timely.

Thinking strategically involves considering all assets and resources, deciding where the department wants to go, and formulating ideas on how to get there. Once developed, the strategic plan needs to be a living document that is reviewed and evaluated on an annual basis, and updated in a continual manner so that the plan continues to match the reality.

The MRI study team has also included a number of other suggested legislative changes and potential revenue generating suggestions in this section.

OBSERVATIONS

The City of Marlborough has an excellent, comprehensive, and well detailed economic development master plan, prepared by the Marlborough Economic Development Corporation, titled "Building the New Marlborough Economy". This is their long-range or strategic plan. The City of Marlborough itself does not have a long-range strategic plan, nor does the fire department.

One of the study team's thoughts is that with the mayor and city council in Marlborough needing to face re-election every two years rather than serving for the more widely utilized four year terms may complicate long-range, strategic planning efforts. It is not uncommon for the development of the initial strategic plan to take between eighteen and twenty-four months to complete.

RECOMMENDATIONS

8.1 Working in conjunction with the city administration, the Marlborough Fire Department should establish a committee to conduct a long-range/strategic planning process and develop a plan (roadmap) to guide the department's future over the next

one to five years. Certain projections such as the construction of new stations or the replacement of apparatus can even be tentatively projected out as long as ten years.

The makeup of the committee should include internal stakeholders; labor, management, and city representatives. External stakeholders can provide considerable insight as well; business and other community leaders should be invited to be members of the committee. The committee should be provided with the support and resources they need to complete their task within a timely manner. Once developed, the plan should be formally approved/adopted by the mayor and city council. As a "living" document, the plan needs to be reviewed, and updated, on an annual (or other reasonable periodic) basis.

8.2 *The City of Marlborough and the Marlborough Fire Department should continue to explore ways to improve/reduce the city's Insurance Services Office (ISO) rating which is currently a 3. It is anticipated that the current reevaluation being conducted by ISO will result in the same rating being assigned.*

8.3 *The Center for Public Safety Excellence (CPSE) offers fire department accreditation through the Commission on Fire Accreditation International (CFAI). It is described as "A self-assessment and evaluation model that enables organizations to examine past, current, and future service levels and internal performance and compare them to industry best practices. This process leads to improved service delivery." While the Marlborough Fire Department is not ready to consider participating in this process, with the proper leadership the city and department should consider undertaking it. This process provides the necessary tools to support what is currently in place, as well as, identify and attempt to mitigate any gaps in service delivery.*

8.4 *In conjunction with the Massachusetts Municipal Association (MMA), the City of Marlborough, as well as municipalities across the commonwealth, should seek legislative changes to the statutes that will serve to equal the current heavily labor-dominated work and collective bargaining environment. The overriding motivation for changes should be the best interests of the taxpayers who fund all levels of government in the commonwealth. Suggested changes should include, but certainly not be limited to:*

1. *Eliminating past practice as a predominant factor for continuing to allow, or worse, be forced to accept various issues. In reality, this idea effectively prevents change and puts Marlborough, and every other community, at a significant disadvantage.*

2. *Revising the arbitration process to make it fair and equitable to both sides, not unreasonably tilted in favor of labor as it is now which forces*

municipalities to agree to things that are not in their (and the taxpayers) best interest for no other reason than they will lose before an arbitrator.

3. *Restoration of real and effective management rights is essential to efficient operation of every public entity. The requirement to impact bargain almost every operational issue and/or change is counterproductive to effective government and delivery of services, and should be discontinued. Municipalities, and by extension their individual departments, should have the ability to exercise its management rights on issues that do not directly affect wages, hours, and very general terms of employment.*

4. *Civil service should be reformed to provide more flexibility to management to hire, promote, fire, assign, and reassign their personnel. Having increased flexibility will not only make government more responsive to the changing needs and expectations of its customers, it will also make it more cost effective. (The city could also consider the benefits they may gain by withdrawing from the civil service system.)*

8.5 *The City of Marlborough should consider various options to potentially increase revenue to offset a portion of the fire department's operating budget and expenses. Some of these options include, but are not limited to:*

1. *Implementing a cost recovery fee for fire department response to motor vehicle accidents.*

2. *Implementing cost recovery fees for response to hazardous materials incidents (including fuel spills).*

3. *Implementing fees for registering of fire alarm and fire protection systems, and fines or penalties for repeat false fire alarms.*

4. *Implementing user fees for developers for plans review, fire protection system inspections, tests, etc.*

5. *Implementing fees for fire prevention inspections as may be permitted under Massachusetts statutes.*

6. ***Implementation of a "Public Safety" wage tax imposed on non-residents of Marlborough who work in the city and who benefit from, or use, the city's public safety services without cost.***

7. ***Entering into public/private partnership with corporations that are either headquartered or operate in the city to offset the costs of various programs and initiatives.***

8. ***Seeking any and all grant funding, both public and private, that may be available.***

8.6 ***As discussed and recommended in Chapter 4, Fire and EMS Operations, and Chapter 7, Fire Department Facilities, the City of Marlborough should give serious consideration to relocating the existing Fire Station 2 to a location west of I-495. A new, modern, green, code compliant facility is necessary for the continued growth and development of the Marlborough Fire Department. The new station must be strategically located to optimize service delivery, and well planned to meet future needs. In attempting to locate a suitable site for this station, Marlborough should attempt to locate an appropriate partner for a public/private initiative that could include leasing land for a station and possibly even assistance with construction of the facility.***

8.7 ***As recommended in Chapter 11, Communications and Technology, in conjunction with other communities in the area, particularly within Fire District 14, the City of Marlborough may want to consider the feasibility of forming a regional fire and EMS only dispatch center. This would probably improve overall incident and resource coordination throughout the region. Grant funding is available to support the startup and operations for regionally coordinated efforts such as this.***

8.8 ***In acknowledgment of the significant commercial growth that is still occurring in Marlborough, and the knowledge and experience that is required for plans review, fire protection system inspections, and acceptance tests, the city should consider retaining a fire protection engineer on staff who will provide considerable technical expertise beyond that of the fire prevention staff.***

CHAPTER 9

TRAINING AND PROFESSIONAL DEVELOPMENT

OVERVIEW

The primary function of a fire department is to respond to emergency incidents, save lives and to protect property and the environment. A department that is not well trained, prepared, and operationally ready is unable to effectively, efficiently, correctly, and safely fulfill its emergency response obligations and mission. A comprehensive, diverse, and on-going training program is absolutely critical to the fire department's level of success.

An effective fire department training program must include all of the essential elements of a fire department's specific core missions and responsibilities. The program must include an appropriate combination of technical classroom training and manipulative or hands-on, practical evolutions. Most of the training, but in particular, the hands-on training evolutions, should be developed based upon accepted best practices and up-to-date standard operating guidelines (SOGs), standard operating procedures (SOPs), and adapted to the operational environment. They should also be consistent with nationally recognized standards that could be used as a benchmark to evaluate the department's operations.

The U.S. Occupational Safety and Health Administration (OSHA) has established requirements for minimum training that must be completed on an annual basis, covering various topics including:

- A review of the respiratory protection standard, self-contained breathing apparatus (SCBA) refresher, and user competency training, SCBA fit testing (29 CFR 1910.134)
- Blood borne Pathogens Training (29 CFR 1910.1030)
- Hazardous Materials Training (29 CFR 1910.120)
- Confined Space Training (29 CFR 1910.146)
- Structural Firefighting Training (29 CFR 1910.156)

Although local government employees in Massachusetts are exempt from compliance with US OSHA regulations, it is the policy of the Massachusetts Division of Occupational Safety that public-sector employees follow the OSHA standards as a minimum in the absence of specific standards.

The National Fire Protection Association (NFPA) standards contain recommendations for training on various topics such as a requirement for a minimum of twenty-four hours of structural firefighting training annually for each fire department member.

OBSERVATIONS

The MRI study team evaluated the Marlborough Fire Department's training and professional development programs. Through staff interviews, observation, and an evaluation of the current training program, the team reached the conclusion that the department's training program is unsatisfactory and inconsistent, and is continually faced with a number of challenges that impact its overall effectiveness. Once a probationary firefighter graduates from the mandatory Firefighter I class at the Massachusetts Fire Academy, little further training or certifications are required.

The current fire chief has attempted to provide a more regimented training program, but has been only marginally successful. Despite the publication of a monthly training schedule, it is rarely adhered to. Training does not get the time, attention, and priority that it deserves. The department's officers and firefighters seem to understand the importance of a training program, yet regular training still does not occur. Beyond the limited annual and mandatory EMS training, there is no further across the board, department wide, fire, and rescue (non-EMS) training being conducted. No annual skills, proficiency evaluations, or reviews are conducted.

Figure 9-1: Marlborough Fire Department personnel review and inspect technical rescue equipment prior to engaging in training.

Municipal Resources

Figure 9-2: Personnel participate in a technical rescue (trench/collapse) training class.

Figure 9-3: Personnel training on trench collapse and rescue operations.

Though there is a desire by most members of the department to participate in organized training programs, there appeared to be no dedicated time allotted for it. Throughout the staff interview process, the lack of formal training was consistently heard as a concern from officers and firefighters. The department's informal training program appears to be a factor in the low morale reported by many of the personnel.

In many fire departments, less than efficient time management, and even past practice, can hinder attempts to provide additional training for on duty personnel. We believe that this is at

least partially true in Marlborough. Some of the same personnel who state they are not receiving enough training, also state they are too busy to train on duty, so training needs to be conducted off-duty. Within some reason, this situation would be expected as various time demands throughout the duty day increasingly compete with each other. Most training that is conducted is done on weekday, day shifts. Little, if any, training is done on nights or weekends.[36]

Despite its size, the Marlborough Fire Department does not have a senior officer dedicated full-time to the training function. As part of this report, the MRI study team has recommended a reorganization of the department that would resulting in filling of the positions of assistant fire chief. One of these non-union, non-civil service positions would serve as an administrative chief assisting the fire chief with the myriad of administrative duties, and would serve as the department's training officer. Having one of the department's highest ranking officers be responsible for the training function would serve to highlight the mission critical aspect of this important function. It would also bring consistency to training throughout the department.

The Marlborough Fire department does not have a dedicated training budget. The annual funds that are received through a contractual agreement with Patriot Ambulance and the City of Marlborough for medical dispatch services ($48,000 in fiscal year 2014) are shared resources for fire, police, and emergency management.

The department has attempted to use outside training resources, such as the Massachusetts Firefighting Academy and private certified instructors. The MRI team witnessed pump operator training being conducted by an outside training company during one of our site visits. This training was interrupted numerous times during the training session due to emergency responses.

The records that were reviewed confirmed that EMS continuing education and refresher training is performed in accordance with state regulations.

The MRI team found that for the most part, each shift captain and their subordinate officers are left to develop and deliver their own version of the selected topic, or choose their own topic. Training sessions conducted by individual officers with their crews are typically based on what that officer determines is important. This process does not develop consistent and effective training experiences for department members.

When a subject matter is required to be delivered to all personnel, the firefighters across the

[36] Traditionally, routine activities in fire stations are reduced on Saturdays and Sundays because it is the "weekend". However, due to the rotating schedule of fire department personnel, there is no such thing as a "weekend". We encourage the Marlborough Fire Department to intensify its training, fire inspection, pre-planning, and equipment and building maintenance activities during evening hours and weekends, and relegate the concept of reduced weekend duties to the history books.

four platoons are receiving four different versions of the selected topic. It is our observation that there is no standard practice for delivery of the training material across the various platoons. It is crucial that, within reason, all members receive the same information. There is a definitive need for training that is based on formal lesson plans.

MRI did find very basic training records maintained in the captain's office, but these records did not clearly define the subject matter, lesson plan, objectives for the training, or any type of evaluation. Like any other important operation, if it is not documented, it did not happen. The mandated EMS training included in the personnel training files contained more specific information regarding the training, yet there were no evaluation documents for any personnel.

Records provided by the department indicate that only one officer, the fire chief, possesses a Fire Instructor Level II certification , while three others have earned Fire Instructor I. Professional development for fire department personnel, especially officers, is also an important part of overall training. The MRI Team determined there was no formal professional development program. Of the department's officers, four are Fire Officer I certified and two possess Fire Officer II certifications. Supervisors are not required to hold fire officer certifications, and there is no system for professional development in anticipation of promotion.

There are numerous excellent opportunities for firefighters and officers to attend training and educational programs on a wide range of topics outside of Marlborough, including the National Fire Academy in Emmitsburg, Maryland, the Massachusetts Firefighting Academy, and local community colleges. Numerous free, on-line courses and training programs are also available. Beyond the practical benefits to be gained from personnel participating in outside training, encouraging, or if possible, requiring, personnel to earn and/or maintain 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.

There are a number of ways to evaluate the effectiveness of the fire department's training program. One increasingly common way is through the use of annual skills proficiency evaluations where all members of the department are required to successfully perform certain skills and/or complete standardized evolutions, either individually, or as part of a team. Post course evaluations, post incident critiques, and evaluation of incident operations and statistics can also provide important feedback regarding the training program. It is important that all training, no matter how minor or inconsequential, be documented. Failure to do so may expose the department and city to significant risk and can jeopardize the city's ISO rating.

RECOMMENDATIONS

If the recommendations contained within this report are enacted, there should be reason for

considerable optimism that the training program will be given its appropriate level prominence in the department's operations. Firefighters have a thirst for knowledge, will be more confident, and will perform in a safer manner if they are well trained. When training is increased, injuries decrease. As with all other fire department operations, there must be consistency in how the training is being conducted.

9.1 The Marlborough Fire Department should implement a comprehensive annual training plan that includes daily, in-service training on practical skills; specialized training; supervisory and leadership training; and professional development. Additional, mandatory, high intensity training on various subjects, including periodic live fire training, should be conducted on a quarterly (preferred), or semi-annual (minimum) basis, off-duty, at a formal fire academy where appropriate training facilities, structures, and props are available.

9.2 As part of the development of a new comprehensive training program, the Marlborough Fire Department should implement periodic skills proficiency evaluations for all uniformed department 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, Marlborough Fire Department's operations and procedures. As part of this training program, the Marlborough Fire Department should conduct a comprehensive and formal training needs assessment for the purpose of determining training program priorities. Part of this needs assessment should be an initial evaluation of the current basic skills proficiency of all department personnel. Based upon the results of the needs assessment, the Marlborough Fire Department should begin the development of a comprehensive training program that addresses, but is not limited to, applicable OSHA training, recommended NFPA training, every operational mission and responsibility of the department, and specialized training including personnel/officer development. The training should comply with accepted and/or recommended practices and standards, should include standardized evolutions, and should be consistent with newly developed and/or updated standard operating procedures (SOPs).

9.3 The City of Marlborough should provide the fire department with a reasonable annual training budget, including training and travel expenses for department personnel, the utilization of outside training sources, the purchase, and maintenance of, training resources and props.

9.4 As part of the assessment of the Marlborough Fire Department's organizational structure, the MRI study team recommends the filling/establishment of the positions of assistant chief to supplement the existing command staff. One assistant chief would be responsible for all fire department training and would develop, coordinate,

and supervise the department's overall training program. The assistant chief's duties could include, but not necessarily be limited to, development of lesson plans, standardized evolutions and skills proficiency evaluations; direct delivery of major and/or important training bringing consistency to the delivery across four platoons; administering annual proficiency evaluations; ensuring that required certifications are maintained; coordinating and assisting other officers with training that they are going to deliver; and ensuring that all training related records and reports are completed and maintained.

9.5 Formal training of some type, lasting a minimum of two hours, should be mandated to take place on every duty day on every platoon. Training should occur even on weekends and holidays, and can also be conducted during evening hours. Personnel can swap off response assignments for training purposes to insure, as much as possible, that all personnel get to complete the training.

9.6 Additional daily opportunities for training can be found during related activities such as daily/weekly apparatus and equipment inspections, building pre-planning activities, and short duration (10-15 minute) shift change and/or coffee break drills.

9.7 A formal operational procedure on the completion of training reports should be developed. Training reports should, at a minimum, include the date, time training commenced and concluded, time duration of the training, the instructor, the officer in charge, names of all personnel trained, and a detailed description of the training, or reference the formal lesson plan utilized. All persons trained should sign or initial either a printed hard copy of the training report, or if this is not practical, a sign in sheet should be attached. The officer in charge, and when possible the instructor, should also sign the hard copy training report. All training that is conducted, no matter how brief or inconsequential, must result in the completion of a formal training report.

9.8 The Marlborough Fire Department should develop a training file for each member that is kept in the training division and can provide a supplement to the member's main personnel file. The training file should, at a minimum, include all course completion certificates, professional certifications, skills performance evaluation sheets and reports, and an annual summary of completed training.

9.9 The Marlborough Fire Department should use a comprehensive fire department management software program/database, such as Firehouse or equivalent, for all documenting training. The training module of whatever program is selected should be utilized for completion of training reports and to assist with the development of a training database, keeping track of certifications and related lapse dates, etc.

9.10 The department should fully utilize the Internet and all of the various training resources available on line.

9.11 All officers should be formally certified at Fire Instructor Level I, and all captains and chief officers should be certified as Fire Instructor Level II. These certifications should be made a job requirement. Fire Instructor I is a 36-hour course and Fire Instructor II is a 35-hour course. Both courses are offered at the Massachusetts Firefighting Academy in Stow. The National Fire Academy also offers an in-residence course entitled "Training Program Management". This 10-day course is designed to provide training officers with the essential tools and skills to lead and manage a training function in a local fire/EMS organization.

9.12 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 Marlborough Fire Department should provide fire instructor training for any members of the department who wish to take it.

9.13 The department should require its officers to complete rank appropriate fire officer training programs at the Massachusetts State Fire Academy and obtain a certain level of fire officer certification as a job requirement. Recommendations would be Fire Officer I for lieutenant; Fire Officer II for captain; Fire Officer III for assistant fire chief; and Fire Officer IV for fire chief.

9.14 The Marlborough Fire Department should implement a formal officer training and development program. There are several excellent programs available, including those from the International Association of Fire Chiefs and the Phoenix, Arizona, Fire Department. This program can also include bringing well-known fire service experts and instructors to Marlborough to provide training for the officers and firefighters who may aspire to be officers.

9.15 The fire chief and future assistant fire chiefs should be required to complete additional chief officer training program and obtain appropriate additional certifications such as Fire Officer III and Fire Officer IV, Massachusetts Fire Chief Management Training Program, and the Massachusetts Fire Chief Credentialing Program and/or the Chief Fire Officer designation.

9.16 The Marlborough Fire Department should make a concerted effort to send as many officers as possible to the National Fire Academy. Any officers who meet the admissions criteria should be encouraged to enroll in the Academy's Executive Fire Officer Program. Again, training reports should be completed for any NFA training and copies of certificates placed in the personnel and training files.

9.17 ***The Marlborough 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 in Baltimore and the FDIC in Indianapolis. Information gained at this training can then be brought back and delivered to other members of the department. Training reports should be completed for all of this training, and copies of any certificates earned should be placed in the member's personnel and training files.***

9.18 ***A training bulletin board should be placed in each station where upcoming training opportunities can be posted for all personnel to review. Training notices can also be sent electronically to all personnel and be posted in a member's only area of the department's web site.***

9.19 ***The Marlborough Fire Department should include in their training budget upgrades to their training resources such as manuals, DVDs, and subscriptions to other available training resources, including Internet/web based programs.***

9.20 ***In the future when a new station is considered, the Marlborough Fire Department should include a modern, technologically advanced training room to give the members of the department the best educational environment to improve their knowledge and skill-sets in all fire and EMS related topics. Training aids such as a drill tower, confined space area, etc. should be integrated in the station design. This allows on duty personnel to continually train while remaining available to respond to emergencies.***

CHAPTER 10

FIRE PREVENTION, INSPECTIONS, INVESTIGATIONS, AND PUBLIC EDUCATION

OVERVIEW

The core service that a fire department provides to the public it serves begins with fire prevention. Fire prevention activities are one of the most important missions of a modern-day fire department. A comprehensive municipal fire protection system should include, at a minimum, the key functions of fire prevention, code enforcement, inspections, and public education. Preventing fires before they occur, and limiting the impact of those that do, should be priority objectives of every fire department. Educating the public about fire safety and teaching them appropriate behaviors on how to react should they be confronted with a fire is also an important life safety responsibility of the fire department.

Fire prevention activities in a municipal fire department typically include fire safety inspections; fire code enforcement; issuance and oversight of permits; review of construction plans for new buildings and the renovation of existing buildings; and public fire safety education programs. Since fire prevention should be approached in a systematic manner, and because the city has other departments that have a vested interest and/or responsibility in these efforts, various activities such as plan reviews, permits, and inspections should be coordinated with similar activities in the municipal building inspection department and the planning department.

Inspection and code enforcement procedures and policies must conform to Commonwealth of Massachusetts statutory requirements and the regulations and the policies of the Massachusetts Department of Fire Services, Office of the State Fire Marshal. The local fire chief or designee is authorized to enforce 527 CMR, Board of Fire Prevention Regulations, also known as the Massachusetts Comprehensive Fire Safety Code.

This division within a fire department must be led by a person who is not only knowledgeable in fire codes and standards; they must also have the ability to work with the public, contractors, and other government officials. The fire prevention officer must work closely with field suppression forces to ensure a smooth flow of information between the fire companies and the fire prevention division.

Fire prevention is a key responsibility of, and efforts should involve all members of, the department. For example, on duty personnel can be assigned with the responsibility for "in-service" inspections to identify and mitigate fire hazards in buildings and to familiarize firefighters with the layout of buildings, identify risks that may be encountered during firefighting operations, and to develop pre-fire plans. In many departments, these personnel are also assigned responsibility for permit inspections and public fire safety education activities. Fire companies are often in a position to recognize hazards or violations, whereas inspectors

are often in a position to identify features of a specific property that could prove important during an emergency. Effective information sharing enhances the ability of the fire department to protect the community.

The fire prevention program must be organized in a manner that most effectively supports the goals of the community and department. Establishing the goals and objectives to be accomplished should be the first priority of a fire prevention program. It is imperative that the organization establish clear, specific goals and objectives they wish to achieve. The overarching goals should be included in the core values and vision statements of the organization and must be understood by all fire department personnel.

All personnel who are performing fire prevention functions should be trained to the level of enforcement they will be responsible for performing. They should be knowledgeable about the structures and processes they will be inspecting, and they must be familiar with the legal authority and responsibilities of the fire codes that they tasked with enforcing.

Code enforcement functions of a fire prevention program may require an integrated system of dedicated fire prevention personnel, civilians, and field personnel. Some of the more common staffing models include:

- Full-time uniformed personnel dedicated to code enforcement functions within the fire prevention organization.
- Full-time civilians, properly trained and qualified, who handle all of the code enforcement functions.
- Utilizing part-time firefighters from outside the department, or firefighters from within the department working on overtime, to perform code enforcement.
- A small number of dedicated fire inspectors, uniformed or civilian, who perform the most complex inspections and also assist and/or follow-up on inspections by field suppression units.

The most effective code enforcement program is probably the last one. Tight budgets often reduce the number of uniformed fire inspectors, requiring alternative staffing to accomplish fire prevention objectives. Hiring dedicated civilian inspectors to witness fire detection and protection systems tests, and perform technically challenging inspections may provide the department with a cost effective way of enhancing their fire prevention activities.

Fire departments conduct inspections for a number of reasons. The primary purpose is to confirm that the occupancy conforms to the applicable fire and life safety codes. Some of these inspections are required by the state fire code and are based on the type of occupancy, and the use of the building, such as, but not limited to, healthcare facilities, schools, restaurants, places of assembly, and new homes. These mandated inspections may be limited to specific items in

the building and to particular time frames. Fire inspections identify violations and follow-up inspections help to ensure that violations are addressed and that the fire code is enforced.

In fire prevention, the term "enforcement" is most often associated with trained and knowledgeable inspectors performing walk-throughs of entire facilities, looking for any hazards or violations of applicable codes and issuing violations. However, educating the building or business owner/occupant to the requirements, as well as the spirit and intent of the code and general fire and life safety education is also an important function and can foster significant positive benefits for fire and life safety. Another positive aspect of fire prevention inspections when done by in service fire companies is that the time can be used to familiarize fire suppression and EMS personnel with the building, its systems, and meet the occupants during a non-emergency situation. It is also an opportunity to develop pre-fire plans for the buildings. When new construction occurs, the fire inspector should inspect the building before it will be certified as safe to occupy.

In most Massachusetts communities, a qualified fire inspector is a member of the fire department that has received specialized training to gain knowledge and skills in the fire code, building construction, and legal requirements regarding fire code and safety.

Prior to a building being constructed, the developer must have his/her plans reviewed and approved by the city. As part of that process the fire department will work with the building department to be sure that the building is built to the existing codes. The plans review process includes reviewing a construction or development plan for fire and life safety issues. The review of plans for construction gives the fire department an opportunity to review and recommend fire and life safety features.

The objective of public fire education is to provide programs that aim to reduce loss of life and property through education. Providing public fire and safety education is an opportunity for increasing public awareness and building public relations. The fire department's public image will, in part, determine how well that fire department's message is heard.

Investigation of the origin and cause of fires also frequently falls under the responsibility of a fire prevention division in a fire department.

OBSERVATIONS

Fire prevention and inspection activities in the Marlborough Fire Department are primarily performed, coordinated, and supervised, by the deputy fire chiefs who handle these responsibilities on a part-time basis in addition to their shift commander responsibilities. These fire prevention duties include plans review and coordination for major projects and developments; working in liaison with the city building department; conducting inspections of in progress construction and renovation projects; conducting other mandated inspections;

issuing permits and conducting permit-related inspections; performing change-of-ownership smoke detector/carbon monoxide detector inspections in residential occupancies; observing acceptance tests of fire protection systems (fire alarm systems, automatic fire sprinkler systems, and fire extinguishing systems); and responding to citizen inquiries and complaints. They review plans for fire sprinkler systems and fire alarm systems. In addition, they sign-off on certificates of occupancy for new and renovated buildings.

Day-to-day fire inspection duties are performed by the fire companies or the on duty deputy chief. The deputy chiefs share two offices. Because the deputy chiefs work a rotating work schedule that includes nights and weekends, there is minimal coordination between them for plan reviews or conducting inspections. They rely on a white board that is color coded for fire alarms and fire protection systems to schedule and coordinate the plans review and inspections.

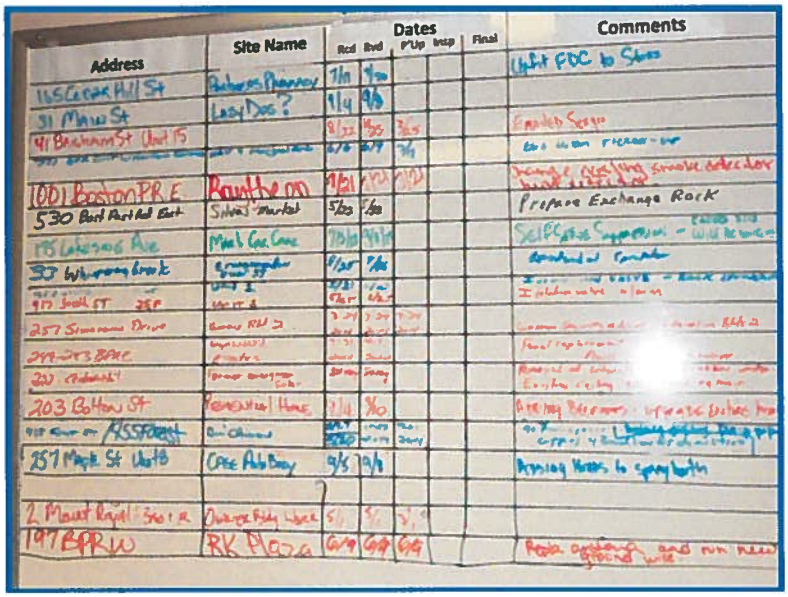


Figure 10-1: One of two (2) white boards utilized by the deputy fire chiefs as a primary method of tracking fire prevention projects.

The MRI study team determined that fire prevention uses electronic reporting and record keeping minimally. Though software and computers were available for their use, the deputy chiefs apparently do not use the available electronic methods and rely primarily on written documents, reports, and scheduling. Fire prevention does maintain a hard copy record keeping and filing system. However, one of its limitations is that, other than the aforementioned white board, there is no easy way to determine at what stage a project may be at or when an inspection should be scheduled. There did not appear to be an efficient way to track the history of a building, project, or contractor for future references. Though some records are maintained electronically for annual reporting purposes, the MRI team did not find any

electronic records for current or former projects. Any records or notes that were relayed to occupants were handwritten and maintained in files.

Field inspection reports are still completed by hand, using hard copy inspection forms. These forms, which can serve as either a final inspection report, or an order of notice, are completed at the conclusion of the inspection and delivered personally to the facility/building representative. The inspection reports are then filed in the appropriate building/occupancy file. Should a fire or other emergency occur that damages or destroys these records, there would be no way to retrieve and/or reproduce them.

All of the department's officers have completed the Department of Fire Services basic inspector on line class. The fire chief and three of the four deputy chiefs have completed a two day Fire Inspector I class. Interviews with the deputy chiefs indicated that none of them had formal training in plan review or advanced inspections. The operations personnel have received some limited training in inspection procedures from the deputy chiefs. The state has implemented a Fire Inspector I and II training and certification program. This program is designed to enhance current inspections in communities throughout Massachusetts.

Fire Prevention does not have any full-time clerical support. There was a part-time secretarial person on site during some of the MRI team's site visits, but that person did not seem well informed as to the functions and responsibilities of the fire prevention office. The department's administrative assistant works directly for the fire chief; however, she is also responsible for assisting with the fire prevention functions. She assists with customer inquiries, scheduling inspections with the deputy chiefs' office, handles the receiving, processing, and issuing of various permits, receives/responds to any inquiries from contractors, and enters fire prevention information into various files and some department databases.

In an interview with the MRI study team, the building commissioner expressed concerns that the City of Marlborough is not providing the best customer service regarding building inspections and plan review. The commissioner informed the team that there is a need for better coordination of efforts between the building department and fire department. Though he understood the state fire marshal requirements for inspections, he believes that with better coordination and scheduling, the city could do a more effective job of expediting the plan review and inspection process for new building and rehabilitation projects. He also stated that it is difficult to work around the schedules of the various deputy chiefs. The deputy chiefs that we interviewed reported that they have a good relationship with the building department.

Operations personnel (fire companies) assist with fire prevention activities and inspections. Many of these are smoke detector inspections, which are part of the MGL Chapter 148 26F requirements for the resale of one and two family dwellings. They are scheduled for them by the on duty deputy chief and/or department's administrative assistant. One of the major flaws in this system is that the companies are often late for, or even miss, scheduled inspections

because they are on an emergency incident. While this is a cost effective method of performing these inspections, there are also customer service implications that must be considered.

In FY 2013, a total of 436 smoke detector inspections were completed by the department. This number increased to 569 in FY 2014. Members of the department that were interviewed informed the study team that in addition to the problems noted above, these inspections detracted from their ability to schedule other activities with their platoons such as training. It is our opinion that better coordination of inspections could avoid some of these problems.

The majority of inspections are completed by the in service companies. The deputy chiefs conduct the larger and/or more complex inspections and review the completed reports. The department has an in-service inspection program. In service companies perform most of the mandated quarterly fire inspections in the schools, as well as, other occupancies. In FY 2014, a total of 291 quarterly inspections/re-inspections were completed in schools, hotels, medical facilities, group homes, and day care centers.

Based on the past three years' inspection reports, each platoon is performing approximately seventy-five quarterly inspections annually. These inspections may take up to three to four hours to perform and are often interrupted by the company being dispatched to an emergency incident. The operations personnel informed the study team that they are "too busy" to undertake additional inspections. In addition, they feel that doing inspections impacts their response times as they are delayed in getting to their apparatus. With some large facilities, the study team would concur that performing in-service inspections may delay response and not make sense. However, there are numerous occupancies in town that can easily be inspected by in-service companies without unreasonably delaying response. Further, by conducting these inspections, and developing pre-fire/incident plans, fire companies and personnel can familiarize themselves with the facility.

As the City of Marlborough continues to expand its economic base, and becomes a center for industrial growth and research companies, the need to expand the fire department's responsibilities for fire prevention and inspection will increase. These new facilities will create significant challenges for the fire department, both for fire suppression, and for responses to hazardous materials and technical rescue incidents. Further, these businesses will bring an expansion in residential and commercial growth that will further increase inspection responsibilities.

Inspecting these types of occupancies and operations requires a high level of training, knowledge, and expertise to ensure that the citizens, employees, building, operations, and processes are properly protected, and are being conducted in a safe manner. These types of complex, technical inspections can be very time consuming. In addition to assisting planners and developers, code enforcement can benefit business owners and entrepreneurs

All of these factors combine to contribute to the critical need for a change in the manner that the Marlborough Fire Department and the City of Marlborough provide these services. The department must employ highly trained, skilled, and experienced personnel assigned to fire prevention. The department's administration must support these efforts by providing training for personnel in code compliance and fire inspection techniques, and providing them with the necessary tools to perform their jobs.

INSPECTIONS PERFORMED ANNUALLY			
	FY 12	FY 13	FY 14
ANNUAL KITCHEN			57
ANNUAL	52	54	42
BLASTING	0	0	0
CLEAN AGENT SUPPRESSION SYSTEM	1	3	1
CODE COMPLIANT	0	0	1
FIRE ALARM	47	69	79
GAS STATION	0	0	1
HOME FIRE ALARM	16	28	41
KITCHEN SUPPRESSION	7	18	27
LP GAS	14	7	15
OIL BURNER	34	23	29
OCCUPANCY	6	5	14
OIL TANK	8	12	9
PRE-PLAN CODE REVIEW	0	29	0
PUBLIC SAFETY	16	17	13
QUARTERLY	290	306	291
SMOKE & CO DETECTORS	444	436	569
SPRINKLER SYSTEM	31	55	82
TANK REMOVAL	4	9	10
TANK TRUCK	6	42	8
UNDERGROUND TANK	3	3	3
VENTLESS GAS HEATER	1	0	0
OIL BURNER	0	0	0
TOTAL	980	1116	1292

The fire department has a fee schedule that covers a wide range of permits and inspections. The authority for the issuance of permits/licenses is pursuant to Massachusetts General Laws

Chapter 148 or 527 CMR. The authority to charge fees is derived from MGL Chapter 148. The permit/inspection fee schedule is included on the fire department's web site. Fees range from $25.00 to $50.00. Fees generate about $55,000.00 per year in revenue. The department does not charge a fee for plans review or witnessing fire protection system tests.

PERMIT TYPE	PERMIT FEE
Blasting Permits	$50.00
Covered Mall Buildings	$50.00
Cutting and Welding	$50.00
Dumpster Permit	$50.00
Explosives and Black Powder	$25.00
Fire Alarm System Installation/Repair	$50.00
Fire Suppression System (Commercial Kitchen)	$50.00
Home Fire Alarm and Carbon Monoxide Alarms (New Construction/Renovation)	$50.000
Oil Burner Equipment Installation/Alteration	$50.00
Open Air Burning Permit	$10.00
Residential Smoke and Carbon Monoxide Alarms	$50.00 (per unit)
Site Assessment Request	$50.00 (per address)
Smokeless Propellant	$25.00
Sprinkler System Installlation/Repair	$50.00
Storage Tank Permit	$50.00
Storage Tank Removal	$50.00
Tank Vehicles Parked Overnight	$50.00
Transportation of Combustible Liquids	$50.00
Unvented Gas Fired Heaters/Fireplaces	$50.00
Waste Oil Storage Tank (Aboveground)	$50.000

	FY 2012	FY 2013	FY 2014
PERMIT/INSPECTION FEE REVENUE	$49,275.00	$62,017.00	$58,900.00

Permit fees and applications are collected in the central station during normal business hours. Checks and cash are accepted, and receipts are issued for all transactions. At the present time, applications for permits and inspections can only be applied for in person. There is no current capability to apply for an inspection/permit online.

The MRI study team did not find any public fire education programs being conducted regularly throughout the year by members of the Marlborough Fire Department. In fact, members interviewed informed the study team that they would like to provide public education, but that

with emergency responses, training, and inspections, there was insufficient time to devote to these types of programs. In most departments, an officer or division head in fire prevention develops and coordinates public education activities. Through coordination with department members, the local school system, senior centers, and community groups, cities like Marlborough can provide very effective public fire education and safety programs. Preventing fires in the home is the area where the department can have the greatest impact on reducing deaths, injuries, and property damage, since 70% of all fires, injuries, and deaths occur in fires in residential occupancies. A very popular and effective program is the grant funded Student Awareness of Fire Education (SAFE) program sponsored by the Massachusetts State Fire Marshal's Office. This program is presented by firefighters who have been trained by the state. The department participates in both the SAFE program and the newly developed senior SAFE program. It did not appear to the study team that public fire education was a high priority for the department. The department's total funding for public education comes thru this grant.

The Marlborough Fire Department has four (4) members who have been trained in basic fire origin and cause investigations. Investigators from the state fire marshal's office are requested to assist with large or complex fire investigations, or when specialized investigative resources are required (such as an accelerant detection dog), which is typical for communities the size of Marlborough. The state fire marshal's office is also called in for any fire that results in a fatality.

RECOMMENDATIONS

10.1 Fire prevention should continue to be promoted as a key component of services provided by the Marlborough Fire Department and should remain a major aspect of its primary mission. Aggressive fire prevention programs are the most efficient and cost-effective way to reduce fire risks, fire loss, and fire deaths and injuries in the community. Every member of the department should be responsible for fire prevention and involvement by on duty personnel should be increased wherever possible. This can be done by continuing to use in-service companies for inspections and to promote fire safety through defined public education programs.

10.2 The Marlborough Fire Department should establish and then review their fire prevention goals and objectives annually, and ensure that the goals are modified and adjusted to reflect emerging trends or significant changes in the organization or community. Establishing the goals and objectives to be accomplished should be the first priority of a fire prevention program.

10.3 One of the Marlborough Fire Department's assistant fire chief's primary duties and responsibilities should be to oversee and coordinate all fire prevention activities in the department (these positions are discussed and recommended in Chapter 5, Organizational Structure, Staffing and Scheduling). The assistant chief should have an extensive background in all aspects of fire prevention and code enforcement.

Creation of this position will provide for continuity of operations and should result in increased coordination and cooperation regarding fire prevention and code enforcement operations with the city's building department. The assistant chief should be an active participant in the city's design review team and work with the building and planning departments collaboratively through the project reviews process. This will increase the overall effectiveness of the review process and will improve the city's relationship with stakeholders in the development community.

The assistant chief will also provide a focal point for handling the large (and increasing) number of complex and technical annual inspections and other fire prevention activities that must/should be performed. Finally, by designating a senior department manager to oversee fire prevention it will definitively demonstrate the department's commitment to this important function.

10.4 *Due to the large (and increasing) number of complex and technical annual inspections and other fire prevention activities that must/should be performed, and to allow the Marlborough Fire Department to be more proactive rather than reactive, the MRI study team recommends the city establish an additional fire inspector position. This position could be a firefighter, or civilian, with appropriate training and experience. In addition to the benefits already mentioned, creation of this position will also provide for an additional measure of continuity and expertise regarding fire prevention and code enforcement operations.*

10.5 *The City of Marlborough should consider upgrading the part-time fire prevention clerical position to full-time in order to provide adequate support to the fire prevention program. This position would be responsible for, among other things, administering a permit management system, scheduling fire inspections, updating inspection databases, filing, and other related duties.*

10.6 *All lieutenants should be required to obtain certification as a Fire Inspector I, and all captains and above should be required to be certified as Fire Inspector II. This training and certification should also be made available to any and all department personnel who wish to receive them.*

10.7 *The department should significantly expand the in-service fire safety inspection program. On-duty companies should conduct regular fire safety inspections of buildings/occupancies within their respective response districts. The purpose of these inspections is to:*

a) identify and mitigate fire hazards and fire code violations;

b) *enable firefighters to become thoroughly familiar with buildings, including the building design, layout, structural conditions, building systems, and hazards and challenges to firefighting operations;*

c) *educate property owners and occupants on good fire safety practices; and*

d) *establish a positive relationship with property owners and occupants.*

In order to enhance the in-service inspection program, it will be necessary to:

- *Provide additional training to personnel on proper inspection procedures;*
- *Develop standard operating guidelines for in-service inspections;*
- *Establish inspection schedules;*
- *Enhance the system for documenting inspections and notifying property owners of fire hazards;*
- *Ensure that an effective follow-up inspection system is in place to ensure that hazards have been mitigated;*
- *Continue the practice of on duty personnel conducting regular in-service inspections of all building construction sites in the city.*

10.8 The Marlborough Fire Department should establish a formal fire pre-planning program. The purpose of a fire pre-planning program is to develop a fire response plan for buildings in the city. A pre-fire 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, forcible entry, and ventilation plan. Pre-fire plans should be reviewed regularly and tested by tabletop exercises and on-site drills. In addition, the department should develop a plan to make pre-fire plans accessible on mobile data terminals (notebook/laptop computers) on fire apparatus for use enroute to an incident and while on-scene.

10.9 The Marlborough Fire Department should maintain detailed statistics concerning fire prevention and inspection activities and produce monthly and annual reports that include the following:

- *Number of inspections by occupancy type*

Municipal Resources

- *Number of permits by type*
- *Number of plan reviews by occupancy type*
- *Number of fire protection system acceptance tests observed/monitored by occupancy type and type of inspection*
- *Number of in-service inspections by occupancy type*
- *Number of pre-plans completed*
- *Number of public education activities*
- *Number of fire investigations*
- *Revenues*

10.10 ***The Marlborough Fire Department should purchase a fire inspection software program, or appropriate modules, for the current fire department records management system, then take immediate steps to insure that the database is utilized for all aspects of the department's management, operations, and recordkeeping, including fire prevention, inspections, permitting, and pre-fire/incident planning. To the extent practical, fire prevention permit, fee, and inspection records should be retroactively entered in the management program, including any information that is stored in any other databases.***

10.11 ***The Marlborough Fire Department should acquire mobile computers (lap tops, tablets, etc.) along with printers for use by all personnel conducting field inspections. Once the inspection is completed, the inspection report can be completed on the computer, and an inspection report and/or other appropriate documentation, certificates, etc. can be printed out and given to the facility/building representative. Once personnel return to the station, the inspection reports can be uploaded into the main database.***

10.12 ***The City of Marlborough should consider revising their fee structure for fire inspections and permits. They should also consider implementing fees for plans review and witnessing fire protection system tests. Increasing these fees and possibly implementing others could provide a significant source of revenue for the department and city, and would serve to offset some of the expenses of operating the fire department's fire prevention programs and activities.***

10.13 ***The Marlborough Fire Department should continue to update its website on a regular basis to provide its customers and other interested parties as much information as possible on fire safety, fire prevention, and the department as a whole. The department should also work actively to make on-line permitting, inspection scheduling, etc. a reality.***

10.14 The department should develop a library of fire prevention reference materials, such as the NFPA Fire Protection Handbook, NFPA National Fire Alarm Code Handbook, NFPA Automatic Fire Sprinkler Systems Handbook, NFPA Flammable and Combustible Liquids Handbook, Brannigan's Building Construction for the Fire Service, and various fire prevention and inspection training manuals of the International Fire Service Training Association (IFSTA).

10.15 The Marlborough Fire Department should continue to utilize the SAFE and Senior SAFE programs as one component of a year round public fire safety education program in the schools, and throughout the community. Additional personnel should be encouraged to obtain the Fire and Life Safety Educator certification issued by the state fire marshal's office. In addition, whenever possible, in service companies should be involved in public education programs and endeavors, even if just in a supporting role.

CHAPTER 11

COMMUNICATIONS AND TECHNOLOGY

OVERVIEW

An efficient communications system is central to the full spectrum of services delivered by a fire department. Encompassed within the communication system are internal and external (inter-agency and public) elements. To be effective and reliable, all fire department communications must be operational 24 hours per day, seven days per week. Redundancy must be built into the system so that the failure of one or more components will not compromise emergency operations. There must be interoperability between systems to ensure that the fire department can communicate with federal, state, regional, mutual aid, and other local agencies during a major incident or a catastrophic event. Fire departments are increasingly dependent upon modern technology for communications, information management, incident command, fire inspections, pre-fire planning, records management, and operational effectiveness.

The MRI study team evaluated the primary components of the communications system including radio, telephone, fire alarm, and data, together with their integrated support systems. Numerous national standards and agencies are available for referencing acceptable criteria for these critical components. In addition, the team evaluated the department's use of technology.

OBSERVATIONS

Fire Dispatch Center

The Marlborough Fire Department is dispatched through the city's centralized 9-1-1 communications center, which is located at the Marlborough Police Department. This is a modern, albeit somewhat small, center that appears to be up-to-date regarding radios and technology. There are a total of three fully equipped dispatch positions in the center. It is staffed by nine, full-time, civilian dispatchers who work for, and report to, the Marlborough Police Department. Two dispatchers are normally on duty at one time, with the police desk supervisor also available to assist when needed. If necessary, police officers can be reassigned to cover the dispatch center.

Figure 11-1: Marlborough's public safety dispatch center located at the Marlborough Police Department.

The center receives approximately 25,000 calls each year with around 6,000 of those being for the fire department. Call information is entered into the computer aided dispatch (CAD) system which then selects the appropriate unit(s) to dispatch based on pre-established boundaries and availability. The dispatchers were reported to triage emergency medical services (EMS) calls by severity (A through E) as required by state 9-1-1 regulations. However, Marlborough dispatches the same resources to each EMS incident regardless of categorization. It was reported to the team that the incident categorizations are quality reviewed by a police lieutenant on a quarterly basis, but when requested to provide data on this, the city was unable to do so.

Dispatchers are cross trained to perform both police and fire duties. Each has completed the state-mandated 9-1-1 and Emergency Medical Dispatcher (EMD) certification courses. Additional certifications for police dispatching include CJIS. All dispatchers complete sixteen hours of continuing education each year.

In addition to the Marlborough Fire Department's operational frequency, the dispatch center is equipped with the Fire District 14 mutual aid fire frequencies. They can communicate with mutual aid departments. Once a fire incident reaches a third alarm, communications for that incident are then transferred to District 14 in Ashland. All radios have been converted to "narrow-band" frequencies in accordance with FCC requirements for public safety communications. The department uses a repeater to boost the radio signal for adequate signal propagation throughout the city.

The dispatch center is protected by a UPS battery backup system, as well as the back-up generator that provides emergency power for the entire building. The fire chief expressed concern that a major event would "break" the dispatch center. His reference is in terms of manpower, not infrastructure or hardware, because there are no dedicated fire dispatchers and he feels that the police interests would dominate operations during a crisis.

There is no written policy for a catastrophic failure of the dispatch system. The city's back-up 9-1-1 answering point is the Town of Northborough. The emergency operations center (EOC) at Fire Station 1 has the capability to transmit on two fire and two police frequencies. Unofficially, this is considered the back-up plan.

It was reported that the relationship between fire department employees and dispatchers is contentious at times. The team heard reports of discourteous treatment from both sides, and about the need for use of a liaison between the agencies. The relationship is described as "strained" at times. Administrators attribute these issues to a lack of understanding about what each group does for the other.

The dispatch center director informed the study team that they are implementing better training to get all dispatchers on the "same page" and address misconceptions between them and the fire department personnel. We were also informed that there is a need to improve "getting the call out" in a timely manner. It is reported that the mandated emergency medical dispatch system is interfering with the normal dispatch process, but administration is attempting to address the issue.

Fully assessing the current dispatch data is difficult. The data provided to the MRI team contained only basic information and lacked some of the more detailed information that we normally are able to have extracted from fire department based systems. Being able to better analyze statistics such incident locations, demand by hour and/or location, incident type, category, and priority for EMS calls, etc. will allow the city, and the department, to more effectively plan for the future. Data driven analysis provides more accurate information which would enable the department to make better decisions regarding both current, and future, service delivery needs and options.

Mobile Communications

Emergency and non-emergency communications are provided by means of mobile radios in each fire department vehicle, and portable two-way radios that are assigned to each officer and all on duty personnel. All fire apparatus are equipped with newer Motorola MCS2000 mobile radios which are about two years old, while the chief's vehicle has an older XLT5000 unit. Each riding position on the apparatus is assigned a portable two-way radio. These radios were purchased at the same time as the mobiles two years ago and are Motorola XTS 1500. Motorola is discontinuing this model of portable radio effective as of November 30, 2014.

Support is reported to be discontinued in 2016. The old Motorola HT1000 portables are still kept as spares. There is a cache of twelve carried in Car 2 (deputy chief's vehicle) and each RIT pack on the ladders carries four, along with additional batteries.

Figure 11-2: Various mobile and portable radios carried on Marlborough fire apparatus to allow communications interoperability.

Marlborough's radio system operates in the 800 MHz band. They are the only department in the area that uses this band. For mutual aid operations, the department has 400 MHz and UHF high band mobile and portable radios to communicate with neighboring jurisdictions.

The Marlborough Fire Department has two mobile data terminals (MDTs). One is installed on Engine 1 and the other is in Car 2, which is operated by the deputy chief, provided one is on duty. These rugged laptop computers were acquired to enable fire officers and firefighters to access critical information about buildings. The CAD system has incident information, medical information, hazardous materials information, and other pertinent information, all accessible on the MDTs. The fire department does have site files and pre-plan information for some major facilities such as Marlborough Hospital. Unfortunately, it is reported that they are not used and, in fact, at the time of this assessment, the department was considering removing the unit in Engine 1.

Technology in the Station

The MRI study team found a mixed use of technology by the department. It is well equipped with computers which are more than adequately supported by the city's IT department. There is a comprehensive capital replacement program to address hardware needs. Software is purchased by the city for the department, and includes a specialty management program

TriTech for management and scheduling that is used by various city departments including police and dispatch. Although the TriTech program is police-centric, it is customizable. However, the fire department does not take advantage of this capability to better adapt the program to its unique needs. Munis is utilized for payroll and other financial functions.

The city has a SharePoint system and capability. SharePoint would be ideal for pass down information, inspections, and a wide variety of other applications in the fire department. It is able to lock folders and track documents. The city's intranet is capable of a Virtual Private Network (VPN) that would allow users to access their work data from home. The fire department does not take advantage of any of these capabilities at the present time. IT staffs a help desk which is available during business hours and the director is available "24-7". The city provides an email account for every member of the department.

Vehicle maintenance is tracked with use of the Department of Public Works (DPW) tracking software. It is on department desktops, and is anticipated to be installed on laptops in the near future. The TriTech software is used for other maintenance tracking such as SCBA.

The city does have a GIS system that is managed by DPW. IT also has a GIS server in city hall. While it was reported that the fire department utilizes GIS mapping on a frequent basis, the study team did not see any evidence of this.

Fire prevention uses a system of large white boards to track plans review and inspections. While it was reported that there is a database for these activities also, it appears that most of the tracking is done through these boards. The mechanic also uses a white board to track vehicle maintenance. Should either of these boards be erased it would have a significant impact on the tracking of these programs.

RECOMMENDATIONS

11.1 The MRI study team recommends that the Marlborough Fire Department perform a complete evaluation of its radio communications capabilities. All mobile and portable radios should be digital, narrow-band APCO P-25 compliant, and interoperable with other city agencies, mutual aid fire departments, and mutual aid EMS agencies. While perhaps unavoidable, the current system requires multiple sets of hardware/radios for communications interoperability.

11.2 The MRI study team recommends that the Marlborough Fire Department develop a plan to install mobile data terminals (MDTs) in all fire apparatus. In developing the MDT plan, consideration should be given to evaluating the latest technologies and software, including the use of tablets rather than laptop computers. At a minimum, the incident commander at a scene should have access to fire pre-plan data, building

permit data (building plans and current data about renovation and construction projects), real-time weather data, and hazardous materials data.

11.3 *The Marlborough Fire Department should consider the development of a capital plan to replace the soon to be discontinued portable radios with a newer, P25 compliant model, such as the APX 4000, since it is reported that Motorola will stop supporting them in 2016.*

11.4 *The Marlborough Fire Department should have a procedure that ensures that the spare portable radio batteries for the portables in the RIT packs and in the cache carried in Car 2 are kept properly charged.*

11.5 *The City of Marlborough should develop a written plan to address a catastrophic failure of the communications system and/or dispatch center. Development of this plan should include the police and fire departments, as well as emergency management.*

11.6 *In conjunction with other communities in the area, particularly within Fire District 14, the City of Marlborough may want to consider the feasibility of forming a regional fire and EMS only dispatch center. This would probably improve overall incident and resource coordination throughout the region. State 9-1-1 grant funding is available to underwrite both start-up and ongoing operational costs associated with regionally coordinated efforts such as this.*

11.7 *The Marlborough Fire Department should consider abandoning the practice of using a whiteboard as the primary method for tracking fire prevention and vehicle maintenance projects. In 2014, all tracking and coordination of projects should be done electronically. If the current software or databases that are available/being used are not adequate, the IT department should be consulted to explore other software options to determine which commercial or custom software is best suited to track and record each project.*

11.8 *The fire department should work with the police and IT departments to identify additional relevant statistical data to extract from the CAD system, providing the catalyst for more reliable and accurate data driven decisions.*

11.9 *Working in conjunction with the city's IT department, the fire department should give serious consideration to purchasing and transitioning to use of one database system to capture, store, and analyze data currently in different systems. The needs of the fire department are unique and not typically solved with generic, off the shelf products. Working with the IT department, they should explore a customizable, fire-based, software solution that addresses all fire department needs.*

CHAPTER 12

RULES AND REGULATIONS; STANDARD OPERATING PROCEDURES

OVERVIEW

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. The inclusion of written documents such as training and safety bulletins serves to make the system more effective.

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 City of Marlborough. 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 city premises or in municipal vehicles) are typically applied across-the-board to all departments and employees. While the city should provide training and familiarization concerning these policies on a regular basis (an annual review is usually adequate, with appropriate documentation), employees are obligated to be familiar with and comply with each policy.

The MRI study team evaluated the Marlborough Fire Department's current written policy and procedures system and found it limited in scope, content, and timeliness. There are significant inconsistencies in the current system, and an absence of important procedures.

OBSERVATIONS

The Marlborough Fire Department has some formal rules and regulations, but they are located throughout the policy and procedure manual rather than being contained within a stand-alone document. The department also has very few standard operating procedures/guidelines (SOPs/SOGs). The terms policy and procedure appear to be considered to be the same and are used interchangeably in the documents, including in the form header. The study team was provided with and reviewed a limited number of operational procedures/guidelines that we believe are the extent of the current system. The current procedures/guidelines consist of:

POLICY NUMBER	TITLE	YEAR ISSUED
1.02	Organization	2005
Administration		
2.01	Department Communication (internal)	2005
2.02	Line of Authority	2005
2.03	Progressive Discipline Policy	2012
2.04	Dress-Work Uniform	2013
2.05	Baby Safe Haven Act	2005
2.06	Outside Details	2013
2.07	Blasting Details	2010
2.08	Fire Watch	2007
2.10	Station Security	2012
2.11	Child Restraint System	2011
	Discipline Form	
Safety		
3.01	Wearing PPE	2012
3.02	SCBA	2012
3.03.1	Personnel Accountability System	2012
3.05	Fireground frequency	
3.06	Mayday	2012
3.07	Urgent	2012
Operational General		
4.01	Radio Communication	2005
4.02	Motor Vehicle Accident	2012
4.03	Personal Vehicles on Dept. Property	2005
4.04	Operation of Department Vehicles	2005
4.06	Vehicle Lock-Out	2005
4.08	Loan of Portable Water Pumps	2005
4.09	Hose Testing (NFPA 1963)	2012
4.10	Weekly Portable Test	2012
4.11	Image Audio Recording	2012

Operational Emergency		
5.01	Fireground Radio Communication	2005
5.02	Incident Transfer of Command	2005
5.03	Personnel accountability System	2005
5.04	2 in, 2 out	2005
5.06	Mutual Aid Deployment	2005
5.07	Mass Decontamination Unit	2005
5.08	Notification of City officials	2005
5.09	Notification of Fire Investigation Unit	2005
Emergency Medical Operations		
6.01	Epi-Pen	
Fire Prevention		
7.01	Permit Inspection Process	2014
7.10	KNOX	2014
Training		
8.01	Drills and Drill Reports	2013
General Orders		
9.02	Release of Information to Media	2005
9.03	Ordering Station Supplies	2005
9.04	Payroll Inquiries	2005
9.05	Department vehicle Investigations	2005
9.06	Reporting of On duty injuries	2013
9.08	Avon Boat	2012
9.08	Radio Call Signs	2010
9.10	Dept. Email	2010
9.11	Notification of outside agencies	2012
9.12	Personal Accountability Boards	2010
9.14	Report Error Detection	2012
9.15	Inspection Reporting	
9.16	Social Media	2012
9.18	Staffing Reduction 8-18-11	
Untitled		
10.01	Outside Cooking Fires	2005
10.02	LPG	2005

Municipal Resources

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.

Working on the assumption that these documents comprise the extent of the department's current written communications system, the system as it exists is very limited for providing the wide ranging guidance and direction necessary for operations involving a 21st century fire and EMS provider. While many procedures may actually be in place "informally" the lack of a formal and effective system of standard operating procedures/guidelines (SOPs/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.

Interestingly, 68% of the respondents to the question regarding whether the department's policies, procedures, rules and regulations, provide adequate guidance felt that they did.

While a few of the existing procedures are detailed and fairly well written, the documents that we reviewed were less than optimal. To begin with, there is not even a consistency regarding whether the system refers to the documents as policies, procedures, or general orders. In addition, there is a lack of consistency regarding how the documents are word processed. For instance, Policy 4.03 is written in Trebuchet font size 10; Policy 4.10 uses Time New Roman 10; and Policy 4.02 was prepared in Times New Roman font 12.

There are no operational procedures/guidelines in place to deal with mission critical operations such as *basic engine company and truck company operations, dwelling fires, commercial structures, mid-rise buildings, industrial incidents, rapid intervention team operations, personnel accountability, gas leaks, hazardous materials incidents, ice rescue, vehicle extrication operations, thermal imaging camera and automatic external defibrillator use, and mass-casualty incidents* 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 administrative side, MRI was not provided with policies or procedures that might cover topics such as personal grooming, meal and rest periods, shift coverage procedures when vacancies occur, incident reports, etc.

The current policies are organized under headings of Administration, Safety, Operational General, Operational Emergency, Emergency Medical Operations, Fire Prevention, Training, and General Orders. Although this system appears to categorize each policy, there is a lack of consistency between administrative directives and operational procedures/guidelines. There are also problems with redundancy in the policies/procedures. For example, policies 3.03, 5.03 and 9.12 each address Personnel Accountability. Policy 3.03 refers to the system as "Personal"

accountability while 5.03 and 9.12 identify it as a "Personnel" accountability system. Policy 9.12 is a classified as a General Order, but the information contained within the document appears to be more of a memorandum and requests to personnel to "please be sure to tag up...". This writing style is conversational and not appropriate for a General Order.

Policy 4.04 addresses emergency response of apparatus very well. However, conspicuously absent is any mention of driver qualifications, driver training processes, inspection procedures (pre-trip), and apparatus repair. Additionally, the Marlborough document does not address vehicle speed (other than backing). Speed is often cited as a factor in emergency vehicle collisions and the new policy or procedure should explicitly define what speeds are acceptable under different road and weather conditions. The NFPA standard for vehicle operators is NFPA 1002 Standard for Fire Apparatus Driver/Operator Professional Qualifications. The NFPA standard is a guide for the minimum requirements for personnel operating motorized fire apparatus. It (as well as other NFPA standards) should be consulted and referenced when developing procedures. Consultation with the city risk management personnel and insurance carrier could assist with development of a comprehensive procedure.

Training is one of the most important functions that a fire department should be performing. 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. However, the Marlborough communications system contains just a single policy/procedure 8.01 on training.

Likewise, while EMS responses make up more than 50% of the department's responses, there is a single policy/procedure 6.01 dealing with emergency medical operations.

While there are some newer polices in place, many date to 2005, nine years ago. It is unclear whether they have ever been updated, or even reviewed, in the ensuing years. While they contain the chief's name, none of the policies have actually been signed by the chief.

The MRI study team believes that the Marlborough Fire Department should establish a separate rules and regulations document that identifies and establishes expected levels of conduct and prohibited actions for all members of the department. In addition, it must be ensured that the city's personnel and other policies that are applicable to members of the fire department, such as non-discrimination, sexual harassment, purchasing, freedom of information, Internet and computer usage (including social media), and smoking (on city premises or in municipal vehicles), are fully integrated into the fire department's written communications system, and are available to all members of the department since they are unequivocally applicable to them. The relative importance and relationship to each of the various types of documents should be clearly delineated in the rules and regulations.

Department level communications should be referred to as either standard operating procedures (SOPs) or standard operating guidelines (SOGs), not both. General Orders should continue to be used for the issuance of immediate and/or specific directives.

Fire department personnel can provide a valuable technical resource in the development of SOPs or SOGs. For the most part, the development and drafting of these procedures should not be a top-down management driven process. The personnel who are going to be required to adhere to and follow the procedures should have input into their development. Input from personnel at all levels will strengthen the quality and effectiveness of SOPs or SOGs. In addition, the department training officer should play a critical role in the development and implementation of these documents. We 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 or SOGs. No fire department should be expected to write a policy or procedure document from scratch or without a template.

During our field visits, our review of pertinent documentation provided by the department, and in interviews with the department's internal stakeholders, we learned that although there are procedures and protocols that are followed, at the present time, the Marlborough Fire Department does not have either a formal respiratory protection plan or a blood borne pathogens/exposure control plan. Both of these plans are critical to the safety of employees, to the department's overall risk management program, and are required by OSHA regulations.

Discipline is another important area that lacks a formal policy/procedure/process in the Marlborough Fire Department. Discipline is most effective when the least amount of corrective force is applied in a timely and consistent manner. Interviews conducted during this study revealed that discipline is not consistently applied, and the lack of a formal policy or process perpetuates this issue. The only reference found in the policy/procedure manual is a "Notice of Disciplinary Action" form. The form is adequate to document disciplinary action taken, but there is a glaring lack of a policy or procedure.

The collective bargaining agreement with IAFF Local 1714, clearly identifies management rights to include Article II, Section M, "making, amendment, and enforcement of rules and regulations and operating and administrative procedures from time to time as the department deems necessary". However, management has failed to take advantage of this right. There also seems to be a lack of willingness by officers of all ranks to initiate discipline. Some capitulate to pressures within the union, while others just look at it as an effort in futility that will be overturned by a grievance or appeal.

The purpose of discipline is bringing about positive change with the least impact on the employee. It should not be punitive, but rather constructively address performance, conduct, or attendance problems. However, severe disciplinary action, including dismissal may be

appropriate in certain circumstances. A good discipline policy offers supervisors a guide to be fair and consistent.

A common practice in disciplinary cases is to consider the "Douglas factors". These were adopted by the U.S. Merit Systems Protection Board in its landmark decision, *Douglas vs Veterans Administration*, and established criteria that supervisors must consider in determining the appropriate penalty to impose for an act of employee misconduct. These factors include, but are not limited to:

(1) The nature and seriousness of the offense, and its relation to the employee's duties, position, and responsibilities, including whether the offense was intentional, technical, inadvertent, was committed maliciously or for gain, or was frequently repeated;

(2) the employee's job level and type of employment, including supervisory or fiduciary role, contacts with the public, and prominence of the position;

(3) the employee's past disciplinary record;

(4) the employee's past work record, including length of service, performance on the job, ability to get along with fellow workers, and dependability;

(5) the effect of the offense upon the employee's ability to perform at a satisfactory level and its effect upon supervisors' confidence in the employee's work ability to perform assigned duties;

(6) consistency of the penalty with those imposed upon other employees for the same or similar offenses;

(7) consistency of the penalty with any applicable agency table of penalties;

(8) the notoriety of the offense or its impact upon the reputation of the agency;

(9) the clarity with which the employee was on notice of any rules that were violated in committing the offense, or had been warned about the conduct in question;

(10) the potential for the employee's rehabilitation;

(11) mitigating circumstances surrounding the offense such as unusual job tensions, personality problems, mental impairment, harassment, bad faith, malice, or provocation on the part of others involved in the matter; and

(12) the adequacy and effectiveness of alternative sanctions to deter such conduct in the future by the employee or others.

RECOMMENDATIONS

12.1 The Marlborough Fire Department should form a management-labor committee to develop a comprehensive Rules and Regulations document that identifies anticipated, acceptable/permitted, and prohibited behaviors. Once promulgated these rules and regulations should be adopted by city council and then approved/signed by the mayor. The document should be distributed to and signed for by each member of the department. It will also provide important guidance to new employees.

Some suggested sections for the rules and regulations could include, but are by no means limited to:

- ***A preamble***
- ***Department vision statement and mission statement***
- ***Purpose of the rules and regulations***
- ***Organization***
- ***Membership requirements***
- ***General rules of conduct***
- ***Officer qualifications and selection (may just reference current department procedure, CBA language, and/or civil service language)***
- ***Officer duties and responsibilities***
- ***Chain of command***
- ***Uniforms and grooming***
- ***Discipline***
- ***Other areas that may be agreed upon for inclusion***

While there are varying schools of thought on whether this should be a collaborative process or not, including the employees in the development of these and other documents, such as SOPs, provides important opportunities for early buy in by those who will be expected to enforce and/or adhere to the requirements contained within. It will also assist with muting potential future complaints by personnel being disciplined that the rules are unreasonable or unfair.

Numerous excellent examples of department rules and regulations can be found through internet based research. Appendix C contains one sample that could be utilized as a starting point.

12.2 The Marlborough Fire Department should immediately develop a comprehensive Respiratory Protection Plan in accordance with 29 CFR 1910.134, and a Blood borne Pathogens/Exposure Control Plan in accordance with 29 CFR 1910.1030. Appropriate SOPs that implement various components of these plans should also be developed. Annual training as required should be provided to all personnel. Appendixes D and E contain sample, model plans that can easily be adapted for use in Marlborough.

12.3 The Marlborough Fire Department should form a committee as soon as possible to begin development of a comprehensive department Standard Operating Procedures or Guidelines (SOP/SOG) manual, starting with mission critical procedures such as, but not limited to, basic engine company and truck company operations, dwelling fires, commercial structures, mid-rise buildings, industrial incidents, rapid intervention team operations, personnel accountability, gas leaks, hazardous materials incidents, ice rescue, vehicle extrication operations, thermal imaging camera and automatic external defibrillator use, and mass-casualty incidents. The addition of numerous other procedures covering additional operational, routine administrative and training procedures should then follow.

The committee should be comprised of members of each rank and include specific representation by a senior officer of the union. The personnel who are going to be required to adhere to and follow the procedures should have input into their development. Input from personnel at all levels will strengthen the quality and effectiveness of SOPs or SOGs. Due to the urgency of this task, and its significant importance to the department's future success, the committee should be given whatever support is necessary to complete this task 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 insure 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 SOP Manual and other components of the system such as standardized forms. This procedure should also contain a provision that the entire SOP 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.

12.4 The Marlborough Fire Department should adopt a standardized SOP/SOG form that includes the following information:

- ***Title of the SOP/SOG***
- ***Number of the SOP/SOG***
- ***Category of the SOP/SOG (EMS Operations, Training, Administration, etc.)***
- ***Page number and total number of pages***
- ***Effective date***
- ***Revision date (if applicable)***
- ***Approval/signature of the fire chief***

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 SOP/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)***

12.5 Working in close consultation with the city's legal and personnel departments, the Marlborough Fire Department should ensure that all of their operational procedures meet, and are consistent with, applicable federal and state laws and regulations, and city ordinances and policy. This would include such topics as handling Freedom of Information requests, and human resources related issues such as Family Medical Leave Act, Pregnancy, Sexual Harassment, Equal Employment Opportunity (EEO), Diversity, Privacy, and Health Insurance Portability and Accountability Act (HIPAA).

12.6 The Marlborough Fire Department should institute a process for issuing General Orders, which are directives and/or special instructions that cover various facets of department operations, but can be quickly issued as needed. They may cover a particular period of time regarding a special situation or may provide a temporary procedure pending development and issue of a full operational procedure.

Also included in the system should be Training Bulletins that would be issued to serve as reference with regard to tested and approved methods of performing tasks; Safety Bulletins, that are issued to serve as references with regard to general and specific

safety and health issues; and Informational Bulletins or Memorandums that are published for the general knowledge of recipients, such as temporary street closures, hydrants out of service, community events, etc. A numbering system should be implemented to keep track of these documents for indexing and future reference purposes.

12.7 The Marlborough Fire Department should develop an effective system for ensuring that any new standard operating procedures, general orders, training bulletins, safety bulletins, and informational bulletins are distributed to all personnel and stations. Electronic communications is highly recommended as the method of choice for distributing departmental communications and documents. All department policies and procedures should be posted on the department intranet and employees should be required to review this information. All revisions should be e-mailed to each member and then posted on the intranet and in each fire station.

12.8 Since city policies and personnel regulations apply to all city employees, this material should be made available in each station (and/or on line), and policy training should be conducted on a periodic basis for all personnel.

12.9 The Marlborough Fire Department should develop and implement a procedure that provides for the documented review of policies, procedures, general orders, training and/or safety bulletins, etc. that includes a provision requiring each member of the department to sign that they received the document, have read it, and understand it.

12.10 At least one policy or SOP/SOG should be reviewed by the company officer with each crew during every shift. The shift commander should select the material to be reviewed and provide that material to his/her first line supervisors so that all crews review a consistent set of documents.

12.11 The City of Marlborough should form a committee that includes representatives of city and fire department management, the bargaining agent, and city human resources and legal departments to develop an internal disciplinary policy that is consistent with the city's preexisting progressive disciplinary process.

12.12 Appropriate training, and more importantly a strong level of support, should be provided to all supervisory and management personnel with regards to the new disciplinary policy and its processes.

CHAPTER 13

LABOR-MANAGEMENT RELATIONSHIPS AND COLLECTIVE BARGAINING

OVERVIEW

An effective labor-management relationship allows an organization's management and its employees to resolve disputes, enhances the public's perception of the fire department, moves the fire department and the community it serves forward, and creates an environment that allows innovative problem solving. Developing an atmosphere of trust and respect is beneficial for all concerned. The goal is to solve disputes in an atmosphere of cooperation without resorting to protracted and costly grievances, mediation, and arbitration. In today's environment, there's no room for ongoing conflict between organized labor and management. Such situations can impact service delivery, morale, and can impede fire department successes.

Labor relations are not confined to contract negotiations. In fact, actual negotiations make up a very limited portion of the overall labor-management relationship between an employer and a union. The union's day-to-day representation duties include acting on behalf of the membership to resolve contract interpretation issues, representing employees in disciplinary investigations, listening to member's concerns -- such as fairness issues or harassment complaints -- and acting upon them when necessary. An effective labor-management relationship allows for these issues to be brought to the attention of management, promptly discussed, and resolved at the lowest possible level. A dysfunctional or overly combative labor-management relationship inhibits constructive consideration of the issues and can lead to increased grievances, charges, and lawsuits, and can also negatively impact the collective bargaining process.

The city, the fire department administration, and the union all need to actively and reasonably participate to create an effective labor-management relationship. Both the city and the union should staff labor-management committees with individuals who are reasonable and objective, have the authority to problem-solve, can make decisions, and who are willing to set appropriate goals for action and future follow-up. The purpose of these committees is to work collaboratively on issues of mutual interest or concern and to achieve compromise and solutions. If one side is simply going through the motions, the full potential of the committee will not be realized. Successful fire departments and their members understand these processes and work hard to elevate their department to the highest standards.

OBSERVATIONS

Labor Management Relations

Fire unions have traditionally had a significant influence in their respective departments throughout the Northeast, and particularly so in Massachusetts. In most instances, this has been a productive partnership with labor and management sharing a common goal and mission to provide a safe environment for the citizens of the community and the firefighters that protect them. Unfortunately, the MRI study team did not find this to be the case during our assessment of the Marlborough Fire Department. The reasons for this are not entirely clear to the team. The employee feedback survey that we conducted as part of our assessment determined that 65% of respondents believe that the relations between labor and management are poor. This is reflective in the level of disrespect found throughout other aspects of our assessment. Interviews with members of the city administration, fire department staff, firefighters, and fire officers confirm this as fact. Stress between the city and union can be shown not only by the morale of personnel, and the loss of respect between the parties, but also the grievances recently filed.

At the present time, the only employee of the fire department that is not a member of the bargaining unit is the fire chief. The single bargaining unit in the fire department collectively represents the firefighters, the supervisors (lieutenants and captains), and mid level management (the deputy chiefs). This situation, while certainly not uncommon, is clearly problematic, presents real conflicts of interest, and is certainly not conducive to the good order and discipline of the department. Supervisors and managers should not need to deal with split allegiances in order to properly perform the jobs they have been entrusted with and are being paid to do. At no time in the recent past has there been any other non-bargaining unit position to assist the fire chief in managing the department or assist with any decision making.

In addition, as previously discussed in several other chapters there have been several instances in recent history where the Marlborough Fire Department has been without a permanent fire chief for periods of time. The permanent chiefs have also had short tenures. During these times, it appears the union and its leadership have become the de facto leaders of the department.

Our personal observations, along with interviews with a number of internal stakeholders found that the department's members often feel "stuck" between what they feel is best for the department and what the union will allow. Several officers reported that they could not get the support that they expected from either the chief or the union when dealing with personnel issues. Supervisors are often placed in awkward and often uncomfortable positions because they are members of the same bargaining unit as the employees they supervise, manage, and may be required to discipline. A recent grievance filed by the union regarding management rights to transfer and assign personnel has escalated to a state arbitrator. Another grievance

involves an officer disciplining a subordinate member. The MRI team believes that the officers and command staff are often conflicted with these situations, and in some, but not all circumstances, their allegiance appears to lean toward the union rather than the department.

The survey conducted by MRI found that a majority of department personnel who responded feel that there is not a high level of mutual respect across ranks. Nearly a quarter of those who responded to the survey have felt threatened or intimidated by coworkers or supervisors. In the vast majority (85%) of those situations when the employee did report the incident, it was not sufficiently addressed by their supervisors (at least from their perspective). Supervisors who were interviewed expressed concerns that they would not get appropriate support if they pursued the incident with their superiors (also members of the union) and fire administration. As members attempt to move the department forward, many feel that the current union stance and approach is not consistent with supporting the efforts of the department officers or the fire chief, whoever that may be.

If the City of Marlborough, its fire department, and by extension the union, are to move ahead in the future, they must find a way to work collectively to solve their differences. The department members are split relative to the perception of collaboration between the fire department and the mayor and city council. Although some see that collaboration has occurred, many feel that it is absent. Regardless of what the perception or reality of today is, the absolute reality of the future is that there needs to be a strong commitment by the city administration, fire chief, firefighters, and officers of all ranks, to build a bridge and begin to repair the badly fractured relationship that currently exists between the city and fire department administrations, and the rank and file membership. This will require a strong and unwavering commitment by all stakeholders to put the past where it belongs, in the past, and instead focus solely on the future and where the department needs to head.

One of the ways a number of communities and their fire departments have discovered to be an effective way to navigate these stormy and rough waters is to allow an outside independent organization to assist them in mediating their differences. The International Association of Fire Chiefs and the International Association of Fire Fighters jointly provide resources to fire chiefs and local unions under their Labor-Management Initiative. This program is designed to improve cooperative and collaborative relationships and help avoid critical labor-management issues, disputes, and costly arbitrations.

COLLECTIVE BARGAINING AGREEMENT

A review of the current collective bargaining agreement (CBA) between the City of Marlborough and Local 1714 of the International Association of Firefighters, which is actually a Memorandum of Understanding (MOU) extending the previous contract with revisions, and effective until June 30, 2015, found that the wage and benefit package, while somewhat higher than average, was consistent with similar communities in central Massachusetts. The majority of the

members who responded to the MRI survey believe that salary and benefits within the Marlborough Fire Department are both fair and adequate.

There are two significant areas of concern that the MRI study team identified during our analysis of the CBA, and the more recent MOU, between the city and the union. The first concern is the area of management rights. In order for the fire chief to manage the department effectively, he/she must have the authority and flexibility that allow him/her to provide the highest, most effective, efficient, and safe level of service that the city can provide with its resources. Without strong management rights the chief losses the ability to provide the best customer services that the department can offer, assign the most capable personnel to the assignments that they are best trained and suited for, and be able to provide, and deliver the services that a community expects.

The other area that the MRI team has significant concerns about was the collective paid time off benefits that have been negotiated into the contract. The total amount of time off, the number of personnel that can be off at the same time, as well as the manner that department personnel can request and receive time off can really not be described in any way other than excessive. As currently structured, 50% of the on duty platoon can be off on scheduled leave (five vacation and four personal) at any given time without even taking into account other types of potential absences such as sick, injured, training, etc. This often leaves the department staffed at only thirteen persons which still requires four personnel on overtime. Personnel also do not need to get any approval what-so-ever to take leave, provided there is a slot available. Contract provisions such as these not only place significant strain on the budget through the expenditure of overtime funds, it also forces the department to operate short staffed when the department's overall level of staffing is adequate to implement increased minimum staffing without the need for increasing total authorized levels. They also challenge the department's ability to maintain a consistent level of service. The team has addressed operational staffing in *Chapter 5, Organizational Structure, Staffing, and Scheduling*.

The Federal Fair Labor Standards Act (FLSA) allows an exception to the normal one and half times regular pay for overtime up to fifty-three total hours of work in a week for firefighters. Since Marlborough's fire department personnel work a forty-two hour work week, this provision would allow up to the first eleven hours of overtime to theoretically be paid at straight time, rather than at the normal one and a half time rate. The number of hours of straight time could theoretically be increased further by any leave hours that the person takes during the week. In addition, for hours worked, calculations related to overtime, cycles of seven days (fifty-three hours worked), fourteen days (one hundred six hours), twenty-one days (one hunred fifty-nine hours) or twenty-eight days (two hundred twelve hours) can be adopted. Generally speaking, the longer the cycle, the more favorable it is to the employer, the shorter the cycle the more favorable to the employee.

It was reported to the team that the last several labor agreements, including the current MOU, were negotiated without the need for the parties to enter into binding arbitration. However, it appears that during the past few years the relationship between the city and union has deteriorated substantially. One of the main catalysts appears to have been an incident that occurred during the last contract negotiations when the MOU that extended the CBA was finalized. This dealt with some specific issues that both parties believed that they had agreement on. The final document was prepared by the union in an attempt to expedite the necessary city council approval process. It has been alleged that one or two seemingly innocuous wording changes were made. However, in doing so the city has determined that the document that was presented to, and approved by, the city council was not what was agreed upon, and did not accurately portray the intent of both parties. This situation has destroyed any sense of mutual trust and created a major schism between the parties.

Labor-management discord is not a new concept in the fire and emergency services. The continued fiscal challenges facing many fire departments today can make it especially difficult to reach agreement on wages, hours, and working conditions, whether specified in a collective bargaining agreement or codified in another way. Given the current environment that the city is attempting to create to continue expansion of its economic development base, it is more important than ever for fire department labor and management to strive for compromise and civility. As the City of Marlborough emerges from the budgetary pressures that the economy has placed on virtually every community during the past few years, both management and labor must commit themselves to repairing these severely damaged relations to have any hope of working collaboratively to enhance the department and the levels of public safety they provide to the community.

Morale within the Marlborough Fire Department must continue to be improved. Efforts to develop a new sense of shared and common vision, maintaining open lines of communication, attempting to cooperatively address the issues identified in this report and through the on-line survey, delegating responsibility, authority, and ownership, instituting training and professional development programs, and instilling a sense of team and esprit de corps will all help to instill an increased sense of pride in the organization. Improved morale will then hopefully lead to improved relationships.

A more extensive review of regional collective bargaining agreements is recommended in preparation for a successor agreement.

RECOMMENDATIONS

13.1 The mayor, city council, fire union, and the fire chief must come to agreement on the proper role of the union when it comes to the operations of the Marlborough Fire Department. Unions have a lawful and legitimate say on issues of wages, hours, benefits, and working conditions. However, there must also be an acknowledgment of

the rights of management in dealing with administrative and operational matters that do not fall within the purview of the union negotiation process. Once a working consensus is achieved, agreement to live within its bounds must be acknowledged and maintained.

13.2 *The mayor and city council should take an active role in setting appropriate goals and a vision for the fire department. City 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 (discussed in Chapter 8, Long Range Planning) comprised of a cross-section of community stakeholders.*

13.3 *The mayor and the city council 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 city receives.*

13.4 *Morale within the Marlborough Fire Department must be improved. Efforts to develop a new sense of shared and common vision, maintaining open lines of communication, attempting to address the issues identified in this report and through the on-line survey, delegating responsibility and authority, instituting training and professional development programs, and instilling a sense of team and esprit de corps will all help to instill an increased sense of pride in the organization.*

13.5 *The city and the fire union should participate in the Labor-Management Initiative (LMI) that is co-sponsored by the International Association of Fire Chiefs (IAFC) and the International Association of Fire Fighters (IAFF). The LMI program is designed to help develop and improve cooperative and collaborative relationships, thereby avoiding critical labor-management issues, disputes, and costly arbitrations. Information on this program is included in Appendix F.*

13.6 *The City of Marlborough should make every attempt to separate the department's firefighters and the supervisors (lieutenants and captains) into two separate bargaining units. This separation of workers from supervisors is very important to maintaining appropriate management, supervision, accountability, and discipline within the department while simultaneously eliminating a very real conflict of interest.*

13.7 *In future negotiations, the city and the fire union must find a way that will allow all department stakeholders to move forward and focus their efforts on addressing the organizational, training, and safety issues confronting the Marlborough Fire Department in the coming years. Through this process of collaboration in developing a successor labor agreement it is the desire that the process will be a catalyst to*

improving morale and attitudes within the department especially with the department's impending change in leadership.

13.8 *In future negotiations, the city must negotiate to regain many of the rights of management that are critical to allowing the city and fire administrations to effectively and flexibly manage and administer the department based upon the changing and evolving needs of the city.*

13.9 *In future negotiations, the City of Marlborough should negotiate a significant reduction in the number of personnel who are currently permitted off on vacation and personal leave at the same time. With shift staffing of eighteen a reasonable number would be three, one officer and firefighters. This equates to 16.6% of the on duty staff permitted off, as opposed to the current 50%. This is critical to the city being able to maintain appropriate staffing levels. Procedures should also be implemented requiring all leave be approved, in writing, by the person's supervisor prior to being taken.*

13.10 *The city should attempt to negotiate that all overtime paid for each member, up to and inclusive of fifty-three hours in each week to maintain minimum staffing, should be paid at a straight time rate as permitted by FLSA, rather than at the usual time and one half rate.*

13.11 *All officers should be trained in conflict resolution. Providing this training will allow officers to deal with personnel matters more effectively, and at the lowest appropriate level, while also using these situations to educate and train, rather than be strictly punitive. This will hopefully reduce the number of personnel issues and potential grievances.*

CHAPTER 14

BUDGETING, FISCAL MANAGEMENT, AND GRANTS

OVERVIEW

The fire department budget is more than the dollar amount allocated for the operation of the department. The budget is the document that reflects the goals and objectives that the fire department establishes for delivery of services to the community. The budget should be used as a planning tool by the department and its members and should represent the needs of the department to properly and safely serve the public.

Budget preparation and management must be an ongoing process in every aspect of the department. Before one budget cycle is completed, the next must already be in process. The fire chief, along with the division/bureau heads, must continuously monitor the department and its ongoing needs, as well as anticipate the demands that will be placed upon it in the future.

Most departments operate with some form of a line item budget format. Each category and line within that category is given a code and title. The preparation process generally provides a summary section for each category and line item showing the actual budgeted amounts for past years, along with the actual amounts spent from each line during the most recent year. These amounts are used to assist in the preparation of the budget. In order to assure that the budget accurately reflects the needs of the department, many departments not only use prior year's history, but future needs based on department goals to establish the budget. This manner of a zero based budget helps to defend expenditures. The fire department must be able to break apart the current budget components in order to develop the new budget and defend any budget increases or service enhancements that are part of the department's long-range strategic plan.

The department must compare the current budget, and the work plan that is driven by that budget, with the upcoming budget allocation. The current and future budgets should be linked directly to the strategic plan and level of service.

Personnel costs account for the largest percentage of the operating budgets of career fire departments. The fire department must perform a community risk assessment and be able to defend it in order to establish appropriate staffing levels. In developing personnel costs to meet the needs of the established level of acceptable risk, data will support the needs by company, platoon, or task assignment. Based on the input from the fire department, the mayor and city council will determine the acceptable level of risk they are willing to assume for the citizens they represent. Conversely, they may decide upon what level of protection they can afford to fund.

Additionally, administrative staff positions need to be considered when developing budgets. Although these positions are a small portion of the personnel costs, the impact that they have on the efficiency and effectiveness of the core services of the department should not be overlooked.

The development of the budget should take into account the impact of staffing requirements for each functional area, but most importantly, operations and fire suppression. In developing operational plans, staffing levels that are required for each fire department to meet their standards of response coverage policy, for operation demands, and/or any collective bargaining agreements must be taken into account. Fire departments must consider the number and types of calls for service, as well as other aspects, such as the time of day. The trends for each type of call have a direct impact upon response times, unit availability, and functional quality of service delivery, as well as upon cost. The cost of each call for service in the department's standards of coverage objectives includes staffing, the costs for vehicles, maintenance, fuel, supplies, and equipment which must all be considered when developing the budget.

The fire department should understand the budget impacts of current and long-range apparatus replacement, major station maintenance, and major capital projects. It is important that a fire department develop a capital improvement plan that includes all future capital expenses including apparatus, vehicles, equipment, facility repairs and upgrades, and any project that meets the definition of the city's capital purchase or project guidelines.

The majority of funds for the fire department budget come from property taxes and the rates charged to property owners. Some funds also come from a wide variety of fees for services, grants, and other sources. Some long-term capital funding may be included as part of a bond issue that will be paid back over a number of years. Some departments are using leases and lease purchase programs to assist with replacing undependable or unsafe apparatus and equipment. Contracting to provide shared services, such as for dispatching, has proven to assist with generating funds in some departments.

While a comparative study can evaluate the level of effort and ability of residents' to pay, it cannot measure residents' willingness to pay over the long run. Caution should be used if looking for hard and fast answers using statistical comparisons on their face value alone. Every fire department and every city has developed creative methods for service delivery and cost labeling based on specific needs. Additionally, the information that might be obtained from various municipalities could vary to some degree as to how they report expenses such as employee benefits or vehicle maintenance.

There are a number of federal, state, and private grants available for fire departments and communities to consider for supplementing their budgets. If successful in receiving a grant award, most departments are able to acquire equipment, training, and programs that they would not be able to achieve through the normal budget process. Though the process can be

difficult and time consuming, the outcomes can be very beneficial to the fire department.

The federal government's largest grant program is the Assistance to Firefighters Grants (AFG) which provides financial assistance directly to fire departments to enhance their capabilities with respect to fire and fire-related hazards. The AFG supports fire departments that lack the tools and resources necessary to more effectively protect the life and safety of the public and their emergency response personnel with respect to fire and all other hazards. Since 2001, AFG has helped firefighters and other first responders to obtain critically needed equipment, protective gear, emergency vehicles, training, and other resources needed to protect the public and emergency personnel from fire and related hazards.

There are a number of other grants available to fire departments for various purposes. Some grants that may be available to the Marlborough Fire Department are the Fireman's Fund Heritage Grants, Factory Mutual grants for fire investigation, and Wal-Mart community grants. Other large chains, such as Home Depot and Lowes, are frequently willing to provide funding, and/or enter into partnerships for specific projects. The key to success at this level is finding grants for which the department may be eligible, and ensuring that the application is tailored to the grant program's priorities.

Throughout this report, the MRI study team has made several recommendations that could, if adopted, increase expenditures in the Marlborough Fire Department. We believe that these recommendations are essential for the effective, efficient, and safe operation of the fire department. Other recommendations are intended to reduce overall financial risk and liability, or will have the effect of smoothing expenditure rates and minimizing one-time spikes in the budget. Ideally, fire department expenditures should result in programs that are well-justified and cost-effective, and that have measurable outcomes that result in an improved level of safety and protection for the citizens of Marlborough.

OBSERVATIONS

BUDGET

The Marlborough Fire Department budget appears to meet the current needs of the department in order to maintain the existing levels of service. The MRI study team reviewed the budget documents provided to the team based on the Munis financial software program.

It is difficult to compare one communities budget exactly with another's as not all costs associated with one city's department may be directly related to the same department in another community. The MRI team met with the city's comptroller to review the budgetary process and get a prospective on Marlborough's overall financial status, as well as the fire department budget. The comptroller oversees all financial activities within the city and assists the fire department and city administration in the overall management of the budget. The

comptroller's office coordinates the budget process with the fire chief on behalf of the administration, and assists the administration in obtaining city council approval of the budget.

The development of the fire department budget begins with the fire chief through budget guidance received from the mayor and/or comptroller. In the initial stages of the budget process, the chief assess the current budget and determines what he believes the department will need to maintain the current level of services. The fire department is provided with budget worksheets that include the previous year's budget figures. The chief then enters his requests for the forthcoming year(s). This includes both operating expenses and capital requests. The city considers capital expenditures to be anything with a cost of about $50,000 and up, and all vehicles. As is noted below, almost the entire fire department budget is comprised of the personnel costs that are directly related to the collective bargaining agreement and maintaining current staffing. All other operating costs that are requested appear to be based on current costs and additional funds are requested to meet anticipated cost increases.

Once the chief has completed and submitted his budget requests, he has a budget meeting with the mayor, finance director, and auditor. City council also holds budget hearings. Capital requests are prioritized by the mayor and council. The mayor does have a discretionary capital account.

The overall fiscal management of the Marlborough Fire Department appears to be very good at the present time. The city comptroller feels that Chief Fortin is doing a good job managing the budget, while simultaneously trying to master a learning curve on the budgetary process itself. The comptroller and chief meet on a regular basis regarding the status of the budget and various related issues.

A review of the Marlborough Fire Department's budget shows that it increased from $6,517,829.00 in fiscal year 2011, to $7,236,263.00 in fiscal year 2014, an increase of $718,434.00 (11.0%). Personnel costs account for the greatest portion of the budget costs in most fire departments. In FY 2014, employee compensation accounted for $7,064,603.00, or 97.6% percent of the Marlborough fire budget. The MRI study team found this amount to be somewhat higher than most fire departments where the personnel costs normally are about 90% to 94% of budget funding.

Based on the costs of personnel, there are limited funds allocated for day-to-day operating expenses. All other operating expenses totaled $171,660.00, just 2.4% of the overall budget. The second greatest expense in the budget is vehicle repair and maintenance. In FY 2014, the Marlborough Fire Department budgeted $111,070 for these expenses. This did not include the overtime line item expenses that are specific to vehicle repairs.

The fire department budget is approximately 5.3% of the total City of Marlborough budget. A basic analysis of the Marlborough Fire Department budget determined that capital expenses,

fuel costs, heating expenses, and other employee benefits, such as pension costs, are not included in the fire department budget. All areas that are typically included in a fire department budget were funded.

The study team felt that the process for developing the budget lacked sufficient use of historical data due to the minimal use of electronic records. As future budgets are developed, the ability to use this data and coordinate it with service level expectations will enhance the Marlborough Fire Department's ability to provide sufficient funds for operations, expand services, and reorganize staff.

MARLBOROUGH FIRE DEPARTMENT BUDGET – FY 2011 – FY 2014

	FY 11 ACTUAL	FY 12 ACTUAL	FY 13 ACTUAL	FY 14
TOTAL BUDGET	$6,517,829	$6,670,699	$6,640,724	$7,236,263
PERSONNEL EXPENSES	$6,373,914	$6,509,798	$6,371,837	$7,064,603
% OF BUDGET	97.8%	97.6%	96.0%	97.6%
OPERATING EXPENSES	$143,915	$160,901	$268,887	$171,660
REVENUES	$51,331	$49,275	$62,017	$58,900
PER CAPITA COST	$169.30	$173.27	$168.49	$183.60
PER INCIDENT COST	$994.18	$1,106.62	$1,090.79	-----

It does appear that the City of Marlborough is in relatively sound financial condition, unlike many other communities in the commonwealth. This is a result of sound financial management, as well as the continued growth and development that the city is still experiencing. Revenue has continued to increase every year; however, assessments have dropped slightly. Industrial and commercial properties account for approximately 40% of the city's assessed property values. The city budget increased by approximately 3% in FY 2014, and there is still a large available capacity to bond for additional capital expenses, if necessary.

The Marlborough Fire Department does generate a small amount of revenue each year. This revenue comes almost exclusively from fire inspection and permit fees the department collects. As noted in Chapter 10, *Fire Prevention, Inspections, Investigations, and Public Education*, the department does accept both checks and cash. Although receipts are issued, any system that still allows for cash to be collected is one that should generate concern.

In this era of extremely tight budgets, where every governmental entity is looking for alternative revenue streams to offset declining tax receipts, there are a number of other

sources of potential revenue for the fire department that the City of Marlborough may want to explore. Among these are increased fire prevention business registration, inspection and permit fees; billing insurance companies for response to motor vehicle accidents; responsible party billing for hazardous materials incidents; registration fees for fire alarm systems; and the issuance of penalties for those whose systems generate repeat false alarms.

One area that the MRI study team felt that there was definitely insufficient funding (or a lack of documentation for the expenses) was for training. The revenue the city receives from Patriot Ambulance ($45,000) for EMD dispatching is shared between the police and fire departments for training expenses. The fire department budget should provide an annual, dedicated training line item that includes things such as contract training from outside sources, purchasing training materials including training props, updating the training library and audio-visual equipment, and covering tuition and travel expenses for personnel that attend various training classes including at the Massachusetts and National Fire Academies.

Based on our interviews, strong feeling exist that fire department overtime should be reduced. This is perhaps the most difficult area to forecast need, and ultimately strike a reasonable balance on funding allocated. This challenging issue is also confronted by virtually every other community that has career fire department personnel. While the allocation of vacation and personal time is established contractually, it is impossible to forecast, and difficult to control, other types of leave such as sick, injury, military, and funeral leave. As the average age and seniority of the members of the department increases, not only do personnel earn additional leave, they also become more susceptible to injuries or illnesses that require them to be off from work. Each member on some other type of leave reduces the on duty staffing further. Minimum staffing requirements of an emergency services provider, whether determined contractually, or by some other means, obligates a certain level of commitment to paying overtime to fill daily vacancies due to authorized time off. Failure to provide sufficient funding to cover at least some vacancies will ultimately result in compromising the level of service that is available that particular day.

In FY 2014, the Marlborough Fire Department had an authorized overtime budget of $250,000.00 and ended up spending $350,000.00, just 4.9% of overall personnel costs. When compared to comparable communities, Marlborough utilizes 50% of the average overtime. Much of this savings is based on the high number of personnel assigned above the minimum shift strength. Presently, Marlborough has a shift float of five personnel. Based on this fact, five members assigned to a shift can be absent before additional personnel are hired back on overtime. This practice allows a number of vacancies to occur before overtime expenses are incurred.

Marlborough's injured on duty leave (111F IOD) rate is more than three and a half (3.5) times that of the average reported by the comparable communities in Massachusetts. The fire department has also experienced 50% more than the average of non-job related injuries or

illness. Both of these situations can drive overtime costs substantially higher. Interestingly, Marlborough has experienced less than 50% of the average of long-term absences. Aggressive monitoring of sick and injury leave can reduce overtime expenses. Every injury should be investigated to determine how similar injuries can be prevented. As noted in Chapter 17, *Benchmarking and Comparative Analysis*, contracting with a medical management company that specialized in handling 111F claims could help reduce the number of leave hours by rapidly returning personnel to duty or moving claims forward toward a disability retirement.

The MRI study team reviewed the capital improvement plan for apparatus replacement. The fire department did not have a document that included all capital improvements. The development of a capital plan including potential revenue sources is an important process for the fire department to implement. Capital plans when coordinated with the city can assist in long-term planning including station improvements or station replacements. The comptroller informed the study team that the next fire chief will need to be prepared to submit a five and ten year capital plan for consideration.

The City of Marlborough does have a purchasing policy. The procurement officer works out of the auditor's office. Vendors need to be registered to do business with the city. Most purchasing is done off of the commonwealth's bid list. While this practice provides simplicity for the city with regard to purchasing products and services, due diligence should be exercised to make sure the city is receiving the best price possible. State bid/contract lists provide municipalities with a convenient system for making purchases, particularly larger ones, without the need to obtain quotes, or solicit formal bids. However, these lists frequently do not provide the lowest price or most cost effective option. Consideration should be given to still solicit quotes for significant purchases even if just for comparison purposes.

The fire department has no overall inventory of equipment. This makes it extremely difficult to know what the department has (or should have), and what its short- and long-term equipment needs may be. It also means that there is virtually no accountability for millions of dollars of equipment purchased with public funds.

The Marlborough Fire Department has applied for grants that were available to purchase equipment in the past. Like most fire departments, they have had a mixed record of success. They were recently awarded a grant that will be used to replace the current air supply station located at Station 3. They also applied for, but were unsuccessful in receiving, grant to replace the diesel exhaust system in all three Stations. They should be commended for these attempts and continue to pursue these opportunities.

COMMUNITY COMPARISONS

MRI also looked at additional pertinent data from the communities that were used for benchmarking as another method of comparison between Marlborough and those comparable

cities/towns. While exact "apples to apples" analysis is very difficult for the reasons noted earlier, this comparison provides the city with an additional snap shot of how they relate to these other communities. The seven communities that are compared here were selected by the City of Marlborough as comparables.

Factors contributing to the residents' ability to pay for municipal services include the overall valuation of the city, as well as the per capita income within the community. Municipal valuation places Marlborough in the middle of the comparable communities based on information derived from the Massachusetts Department of Revenue for FY 2012 through FY 2014. When compared to the average for the other communities, Marlborough falls just slightly below the average. Valuation is an important consideration as it impacts how much the tax rate changes based on the total municipal expenditures.

While Marlborough was near the middle in assessed valuation, it had one of the higher tax rates. Tax rates ranged from a low of $10.44 for Woburn's residential rate to $32.05 for Salem's commercial/industrial rate. Four of the other communities utilized a split (residential and commercial) tax rate system, the same as Marlborough. The other three communities assess a flat tax for all occupancies. Marlborough's residential tax rate was slightly higher than the average while its commercial/industrial rate was considerably higher. Of communities that use a split tax rate system, only Salem had a higher rate than Marlborough.

It is important to remember, however, that there are a number of factors that can impact overall assessed valuation and the tax rate. Chief among these are how up-to-date the assessed valuation is; in other words, how close to actual value of the properties is the assessed value. Communities such as Marlborough that are commercial hubs, which are still experiencing significant growth, may also have a significant number of properties that are in various stages of tax abatements. While these are a valuable tool to encourage economic growth, development, and investment, they can also have a tangible impact on providing an accurate picture of the tax rate.

COMMUNITY	2012 POPULATION	POPULATION DENSITY (SQUARE MILE)	2014 TOTAL ASSESSED VALUATION	FY 2014 TAX RATE	2014 AVERAGE SINGLE FAMILY TAX BILL
BRAINTREE	36,249	2,608	$5,200,927,730	RESIDENTIAL $11.42 COMMERCIAL $26.06	$3,960
FITCHBURG	40,411	1,456	$2,065,732,586	$26.32	$3,078
GLOUCESTER	29,191	1,124	$5,164,191,030	RESIDENTIAL $12.98 COMMERCIAL $13.86	$5,888
LEOMINSTER	40,989	1,419	$3,061,564,349	$18.89	$3,961
NATICK	33,760	2,239	$6,589,327,610	$14.18	$6,459
SALEM	42,219	5,212	$3,962,936,296	RESIDENTIAL $16.73 COMMERCIAL $32.05	$4,767
WOBURN	38,949	3,074	$5,820,155,480	RESIDENTIAL $10.44 COMMERCIAL $27.41	$3,571
AVERAGE OF 7 COMMUNITIES	37,395	2,447	$4,552,119,297	RESIDENTIAL $15.85 COMMERCIAL $22.68	$4,526.29
MARLBOROUGH	39,204	1,859	$4,368,011,133	RESIDENTIAL $16.11 COMMERCIAL $28.22	$4,655

Source: Massachusetts Department of Revenue.

Municipal Resources

Marlborough's per capita income was in the middle of the comparable communities and was only slightly lower than the seven community average.

COMMUNITY	PER CAPITA INCOME - 2011
BRAINTREE	$35,772
FITCHBURG	$16,615
GLOUCESTER	$33,101
LEOMINSTER	$24,449
NATICK	$47,566
SALEM	$25,473
WOBURN	$31,928
AVERAGE OF 7 COMMUNITIES	$30,700.57
MARLBOROUGH	$30,246

Source: Massachusetts Department of Revenue.

Of the four communities used in this comparison, an average of 6.47% of the total community budgets were allocated for fire departments in FY 2014. In Marlborough, the percentage was 5.3%.

The average per capita expenditure for fire services for the four communities was $185 for FY2014. The average cost per incident was $1,149. The per capita cost of the fire department in Marlborough, $183, is very close to the average of the four communities. Marlborough's average per incident cost was slightly higher than average at $1,178.

COMMUNITY	FY 2014 TOTAL BUDGET	FY 2014 FIRE DEPARTMENT BUDGET	FY 2014 BUDGET AS PERCENTAGE OF TOTAL BUDGET	FY 2014 PER CAPITA EXPENDITURE FOR FIRE DEPARTMENT	FY 2014 PER INCIDENT COST
FITCHBURG	$ 103,000,000	$ 5,898,340	5.7%	$ 144	$ 651
LEOMINSTER		$ 7,300,000		$ 178	$ 1,052
NATICK	$ 135,000,000	$ 7,504,158	5.6%	$ 227	$ 1,588
SALEM	$ 100,000,000	$ 8,092,253	8.1%	$ 193	$ 1,305
AVERAGE	$ 112,666,667	$ 7,198,688	6.47%	$ 185	$ 1,149
MARLBOROUGH	$ 137,086,500	$ 7,236,263	5.3%	$ 183	$ 1,178

Source: Benchmarking/Comparative analysis surveys.

Municipal Resources

RECOMMENDATIONS

14.1 ***The City of Marlborough should continue with efforts to compare municipal funding with communities of similar size and demographics. More detailed analyses might consider community differences such as the use of call/volunteer firefighters, dispatch costs not part of fire department budget, etc.***

14.2 ***The fire department should identify ways to provide the best possible use of the tax dollars provided and to keep operating expenses to a minimum. This will allow the residents and elected officials to focus on providing the necessary level of funding with confidence that the maximum effort has been exerted to conserve the resources made available for fire and emergency services.***

14.3 ***The fire department should attempt to make budget submissions complete, accurate, and easily understandable for the non-fire professional. The annual budget process is an opportunity to let the community, and its leaders, be aware of what the department is doing, and where it is heading, in the upcoming year. As such, the requested budget represents a vision projection for the next fiscal period and its contents should be heavily researched and solidly prepared.***

14.4 ***The City of Marlborough should appropriate adequately funding for the fire department's training and fire prevention needs and operations.***

14.5 ***The department should discontinue the acceptance of cash for inspection and permit fees.***

14.6 ***The fire department should continue to closely track and monitor overtime expenditures for the purposes of identifying trends, future needs, and justification for staffing levels. Leave use, by type, for each member of the department should also continue to be tracked for trends, patterns, and potential abuse.***

14.7 ***Every on-the-job injury should be thoroughly investigated for the purpose of determining cause, contributing factors, and measures that can be taken to prevent similar injuries.***

14.8 ***All fire department property should be inventoried and tagged. The inventory should be entered into the fire department's management database and linked to a specific apparatus, station, or person. Records should be maintained on the disposition of any equipment that is removed from service, and surplus, damaged, or obsolete equipment should be disposed of in accordance with city policy and state law. Consideration should be given to implementing a bar code and scanner system for inventory purposes.***

14.9 The City of Marlborough should consider adopting administrative penalties for repeat false fire alarm activations.

14.10 The city should review all fees on an annual basis for possible increases in accordance with state law.

14.11 The City of Marlborough should explore additional potential ways to generate revenue to offset the fire department's operating costs. Consideration could be given to billing insurance companies for response to motor vehicle accidents; responsible party billing for hazardous materials incidents; registration fees for fire alarm systems; and the issuance of penalties for those whose systems generate repeat false alarms.

14.12 The fire department should identify and prioritize its most critical equipment, training and/or operational needs, and continue to apply annually to the Assistance to Firefighters Grant (AFG) program.

14.13 The fire department should identify and prioritize its fire prevention and public fire education needs and apply annually to the Fire Prevention and Safety Grant (FP&SG) program.

14.14 The fire department and the city should actively search for other grant opportunities. Grants for fire protection, fire safety, fire prevention, domestic and emergency preparedness, and homeland security may be available from federal, state, corporate, and foundation sources.

14.15 The fire department should actively seek out businesses that may be interested in establishing public/private partnerships that could provide, or assist with, funding for various programs, projects, or initiatives.

14.16 The fire department should consider the establishment of an internal committee of personnel who are interested in assisting the department in grant writing efforts. These personnel should be encouraged and empowered to seek out potential grant opportunities, earmarks, and even possible donations. Close coordination must be maintained between the city and fire department administrations and those writing the grants to ensure a coordinated process.

CHAPTER 15

SENSE OF COMMON VISION AND EMPLOYEE FEEDBACK

OVERVIEW

Having a sense of common vision is important in any organization to ensure that the organization and its personnel are moving in unison toward a common goal(s). Having a common vision is not only about 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 perceptions shared by members of an organization can be extremely important in either establishing, or conversely distorting that sense of a unified common vision. Whether accurate or not, and regardless of the myriad of factors that can influence them, the individual and/or shared perceptions of members of an organization can, and often do, become their reality. If there is a perception of distrust, or lack of mutual respect, between members of the organization, and/or between management and labor, the goal of successfully achieving that sense of common vision will be difficult, if not impossible.

As part of this organizational assessment process, MRI interviewed numerous stakeholders from both inside and outside the Marlborough Fire Department. The study team spent numerous hours in the city over a number of days and assessed the attitudes and performance of the members of the Marlborough Fire Department. Data of all sorts was gathered and analyzed in order to paint a picture of what motivates and directs the members of the department. An important part of this process involved administering an anonymous survey instrument to members of the department to obtain feedback from them on a wide range of issues that impacts them daily in their jobs.

OBSERVATIONS

The home page of the Marlborough Fire Department on the City of Marlborough web site offers the following mission statement:

> *The mission of the Marlborough Fire Department is to provide for the safety of life, property, and protection of the environment by serving in a safe and professional manner through the efforts of public education, prevention, fire suppression activities, response to medical emergencies, and mitigation of hazardous conditions. With the integrity, courage, and spirit of the fire service, we will endeavor to preserve the quality of life enjoyed by our community.*

This statement, if truly accurate, should provide the very foundation for the Marlborough Fire Department and why it exists. While simple, direct, and to the point, this mission statement should be providing that broad direction that everything else that the fire department does is going to be built upon. The study team believes that overall, the Marlborough Fire Department is fulfilling its mission, and does so in a more than adequate manner. As will be discussed later in this chapter, the majority of members of the department generally concur. However, it is also our opinion that understanding its role in the community, and fulfillment of the department's mission on a daily basis, is more a product of the normal sense of duty, responsibility, and service that is the very hallmark of the fire service, and one of its proudest traditions, rather than a clear sense of common vision for the future. While some members are anxious to move forward, many others are quite content to remain "status quo" and will resist any and all change. Some are suspicious of the motivations of any efforts by the city and/or fire department management, and do not believe that the department will ever rise above its current status and operational capabilities.

MRI's study team also observed that the fire union appears to have an inordinate amount of input regarding the operations of the fire department in Marlborough (although this is not uncommon in Massachusetts). The collective bargaining agreement appears to have relinquished many management rights over the years, and contains a number of provisions which limit the flexibility and authority of the fire chief to make strategic and tactical changes that could optimize emergency service delivery in the city. There is also a very high level of distrust between the city and fire department administrations, and the rank and file fire department members and the union.

Compounding the uncertainty among members of the department is the fact that the current fire chief, Chief Fortin, will retire effective as of January 1, 2015. This will result in the sixth change in the department's leadership since the end of 2009. The members are certain that the next chief will be hired from outside of the department and the many unknowns associated with this situation are understandably creating anxiety within the ranks. However, this situation provides a significant positive opportunity for growth and development. The pending appointment of a new fire chief will provide the City of Marlborough, and by extension the Marlborough Fire Department, with important opportunities to reaffirm the vision and mission of the fire department. It will also be an opportune time to reconfigure the department's organizational structure and chain of command.

Despite any trepidation they may have, as we have observed in many fire departments, a change in leadership often results in an initial upswing in morale. Whether it can be sustained over the long-term will be dependent on a number of factors, not the least of which is a strong commitment by the chief, firefighters, and officers of all ranks, to build a bridge and begin to repair the badly fractured relationship that currently exists between the city and fire department administrations, and the rank and file membership. This will require a strong and unwavering commitment by all stakeholders to put the past where it belongs, in the past, and

instead focus solely on the future and where the department needs to head. If the city appoints a new chief from outside the department, which is likely, it will take additional time to build the trust and confidence that will be critically important for the members to accept and be ready to follow their new leader. It is our belief that the most critical skill that the new chief will need to possess will be to have the ability to set and then guide the department toward a shared and common, long-term vision for the future. Much of the Marlborough Fire Department's future success will depend upon how well the vision for the future is articulated by the new chief, and how much buy in there is from those who have a vested interest in that success.

The animosity, distrust, and suspicion that exist between management and labor must be overcome in order for the department to move forward. The next chief should be expected to build a strong leadership team and the union leadership should be expected to take the lead in letting go of past issues and conflicts. Both sides will need to take a "leap of faith" in order to foster a positive, progressive, and harmonious working environment. The citizens of Marlborough should expect and receive nothing less.

In any successful fire department/emergency service organization there must be open and effective lines of intra-department communications between the chief's office, the captains and lieutenants, and down to the firefighters. Each of these groups, both individually and collectively, has a major stake in the operation of, and ultimately, the department's level of success. In addition, no one person has all the answers, knows everything, or in the modern era can do it all without assistance. Subordinate personnel need to be empowered, provided with an appropriate "ownership" stake, and have duties and authority delegated to them. Recognizing that "they can very easily fail on their own, but need a lot of assistance from their 'team' to be effective and successful" has led most successful leaders today to adopt an inclusive style of management and decision making. A major component of being an effective leader is to not be afraid to identify, address, and/or correct problems and issues within the department, particularly those that may have existed for an extended period of time.

The team also observed a feeling within the department that the department is underfunded (interpretation: understaffed) and that most of the problems of the agency will be resolved if the city provides increases in the budget and thus staffing. Some members, fortunately including a number of the department's younger officers, did recognize that many of the improvements that can and should be made are not dependent upon an increase in the budget. Some members expressed frustration that the department was being unfairly castigated on a regular basis by the current city administration for "sticking up for themselves". However, with all of this said, the MRI study team was encouraged by the complete cooperation and openness that was provided to us by Chief Fortin, the deputy chiefs, captains, lieutenants, firefighters, and the union leadership during the completion of this study.

Several officers expressed to the team that there has never been any efforts to mentor or develop the members of the department, particularly the officers. They also stated that many of the department's officers are really unsure what their jobs entail, or what the city and fire department leadership's expectations are for them. As noted in Chapter 9, *Training and Professional Development*, the team believes that the department has suffered from a lack of involvement in external professional development and training opportunities. As a result, the members have not had the opportunity to learn about and institute creative programs and solutions that may have been implemented by fire departments faced with fiscal and operational challenges similar to those in Marlborough. Regrettably, this also has resulted in numerous missed opportunities to provide development for the department's officers.

During the period August 5, 2014, to August 31, 2014, MRI developed and conducted an on-line survey to obtain perspectives from the members of the Marlborough Fire Department. The administration of this survey was supported by both Chief Fortin and Mayor Vigeant. The MRI team e-mailed all Marlborough Fire Department personnel in an effort to provide blanket notification and instruction relative to how each member could participate in this survey. Participation was both anonymous and voluntary.

Forty-five (58% of the seventy-six current personnel other than the chief) stakeholders that represented a wide array of Marlborough Fire Department Personnel completed the survey. Of those, thirty-four (75.6%) completed the survey in its entirety; eleven (24.4%) did so partially. Of those who completed the survey, fifteen (33.3%) were officers (lieutenant/captain/deputy chief), twenty-five (55.6%) were firefighter/EMTs, and five (11.1%) were firefighters.

Based on the extent of the response, this survey provides a comprehensive perspective on the organization from the rank and file members and officers. As the MRI study team has concluded and discussed throughout this report, this survey paints a picture of an organization in considerable turmoil. Based on the results of the survey, it is our impression that partisan groups and factions, with divided loyalties, have formed within the organization and are contributing to a growing concern about dysfunctionality.

Without violating the confidentiality of the process, the results of the on-line survey have been shared with the city administration. It is our hope that the next fire chief will also have the opportunity to review this material as he/she begins his/her own personal evaluation of the fire department's strengths, vulnerabilities, and needs.

The survey revealed the following:

- Respondents included thirty firefighters and fifteen fire officers.

- 57% of the respondents agreed that facilities provided for the Marlborough Fire Department are adequate.

- 22% of respondents believe that the organization is well managed, while 77% believe it is not.

- The majority of department personnel that responded to the survey feel that there is not a high level of mutual respect across ranks.

- Approximately 66% of respondents believe that they receive support and encouragement necessary to be successful.

- The majority of respondents do not believe that there is either a common vision or that the department operates with a set of common goals.

- Many respondents feel that expectations within the organization are unclear.

- 63% of respondents believe that internal discipline is not fairly and consistently administered.

- 21% of respondents believe that training is not adequate, while the majority are neutral or believe training is adequate.

- Most respondents agree that training opportunities are distributed equitably and fairly.

- 75% of respondents received personal and professional satisfaction from the job that they do within the Marlborough Fire Department.

- The majority of respondents concur that they receive timely and quality feedback from their supervisors.

- The majority of respondents believe personnel are treated fairly and equitably relative to the opportunity to obtain job assignments and specialty positions.

- 95% of respondents have not witnessed acts of discrimination.

- 80% of respondents believe the apparatus within the Marlborough Fire Department has been well maintained.

- 68% of respondents believe policies, procedures, rules and regulations provide clear guidance to employees.

- 63% of respondents believe promotions are made fairly.

- 24% of respondents have felt threatened or intimidated by coworkers or supervisors. However, 85% of those situations have gone unreported. Although the remaining 15% of situations referenced above were reported, respondents felt that 75% of these situations were not addressed by supervisors.

- 58% of respondents believe that salary and benefits within the Marlborough Fire Department are both fair and adequate.

- It is apparent that the department is divided over the organization's efforts to keep pace with technology. Although a slight majority of respondents agreed that technology is up-to-date, several were neutral.

- 52% of respondents believe that the administration of the Marlborough Fire Department provides fair and equal treatment to all employees.

- 75% believe that the City of Marlborough and the Marlborough Fire Department are good employers.

- Over 65% of respondents believe that labor management relations are poor. This is reflective of the high level of turmoil found throughout the study and within other parts of this survey.

- 82% of personnel that responded to the survey have never filed a grievance. If grievances were filed; 17% of those grievances were resolved at the first step with the fire chief; 50% of those grievances were resolved at step two with the City of Marlborough; and 33% of those grievances have been resolved through arbitration.

- The department is divided as some feel that fire service administration welcomes suggestions and input while others feel that the proverbial door is closed to new ideas.

- Over 80% of respondents are proud to be members of the Marlborough Fire Department.

- 68% of respondents believe that residents of Marlborough value the service that the respondents provide.

- The majority of respondents agree that supervisors provide quality guidance and support.

- If offered another comparable job with the same pay and benefits, the majority of respondents would stay with the Marlborough Fire Department.

- The department is split relative to the appropriate use of the Incident Command System (ICS). Although many believe that ICS is used effectively, there is an equal number that feel that the use of ICS could be improved.

- The majority of respondents agree that safety procedures that have been developed and implemented are adequate for the organization.

- The department is split relative to respondent's perception of collaboration between the fire department, and the mayor and city council. Although some see that collaboration has occurred, many feel it is absent.

- The department is split relative to their perception of the ability of the officers to work together on the incident scene. Although some feel the officers work together, a significant number believe that they do not work as a team on the fire ground.

- 70% of respondents believe that firefighters work well together during incident response.

- Most respondents believe that the Marlborough Fire Department provides the City of Marlborough with an acceptable level of fire protection.

- The strongest response received during the survey indicated that 95% of members of the Marlborough Fire Department responding to the survey believe that the Emergency Medical Services (EMS) system provides an acceptable level of service to the community.

- 71% of respondents believe the department has weaknesses that should be addressed.

- Respondents were asked to rate the Marlborough Fire Department in several areas. These ratings include the quality of training, personal protective equipment, apparatus, support from the City of Marlborough, dispatch operations, and morale. Ratings were on a scale of 1- 5 with five being the best:

Area of Rating	Highest Overall response
Training	3
Personal Protective Equipment (PPE)	4
Fire Apparatus Quality	4
Support from the City	2
Dispatch Operations	3
Department Morale	2

RECOMMENDATIONS

15.1 ***The new 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 all four work groups. Although this is a time consuming process, it serves as a foundation to bridge divided loyalties and set a common direction for the organization.***

15.2 ***The mayor and city council should take an active role in setting appropriate goals and a vision for the fire department. City 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.***

15.3 ***The mayor and city council 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 city receives.***

15.4 ***One of the new fire chief's first, most important, and ongoing, priorities should be to attempt to rebuild the critical bridge between the city and fire department administrations, and the rest of the department. An inclusive, team-based approach will be essential to moving the department forward.***

15.5 ***The mayor, city council, fire chief, and the fire union must come to agreement on the proper role of the union when it comes to the operation of the Marlborough Fire Department. Unions have a lawful and legitimate say on issues of wages, hours, benefits, and within reason, working conditions. However, there must also be an acknowledgment of the rights of management in dealing with administrative and operational matters that do not fall within the purview of the union negotiation***

Municipal Resources

process. Once a working consensus is achieved, agreement to live within its bounds must be acknowledged and maintained.

15.6 *The MRI study team recommends that the city and the fire union should participate in the Labor-Management Initiative (LMI) that is co-sponsored by the International Association of Fire Chiefs (IAFC) and the International Association of Fire Fighters (IAFF). The LMI program is designed to help develop and improve cooperative and collaborative relationships, thereby avoiding critical labor-management issues, disputes, and costly arbitrations.*

15.7 *The city and the fire department should publicly recognize the achievements of the department in reaching the various established goals as they are accomplished.*

15.8 *Critical job expectations should be placed in writing to ensure that all employees have a common understanding of the expectations developed.*

15.9 *The Marlborough Fire Department should set a zero tolerance policy for threatening behavior and/or intimidation. Once reported, this behavior should be fully investigated and appropriate action taken.*

15.10 *The fire chief should develop a formal process that will enable employees to provide input into the department's operations. Once submitted, employees must understand that not every idea will be utilized. When input is received, the employee should receive feedback relative to his/her idea. The fire chief should communicate examples of ideas that have been utilized/implemented as examples of success.*

15.11 *Morale within the Marlborough Fire Department must be improved. Efforts to develop a new sense of shared and common vision, maintaining open lines of communication, attempting to address the issues identified in this report and through the on-line survey, delegating responsibility and authority, instituting training and professional development programs, and instilling a sense of team and esprit de corps will all help to instill an increased sense of pride in the organization.*

15.12 *An updated manual of department policies and procedures is one of the keys to achieving a shared vision for department operations. This process should be a team effort that involves input and participation from a wide cross-section of the department's internal stakeholders. Once completed, all personnel must be trained on the contents of the manual, and held accountable to accomplish department goals by established means. Lieutenants must supervise, captains must administer and manage, and the fire chief and his assistant fire chiefs must provide necessary vision, direction, and leadership.*

15.13 ICS should be implemented during every response. This is truly a mission critical and incident safety requirement necessary for the effective and efficient provision of modern day emergency services. The use of ICS on the incident scene should be expanded to encompass Command, Safety, Operations, and functional groups and divisions as outlined within the National Incident Management System (NIMS).

Municipal Resources

CHAPTER 16

PERCEPTIONS OF, AND RELATIONSHIPS WITH, EXTERNAL STAKEHOLDERS

OVERVIEW

An important factor in any fire department analysis that MRI conducts, is determining how the department that we are studying is perceived and viewed within the community, and to some extent the region, that it serves. It is also important for us to try to determine what the community's expectations are with regards to the types and levels of service that the department provides to its customers, primarily the taxpaying citizens of the community. Every city and fire department has a number of different stakeholders, whose opinions, perceptions, and input, are important for us to know as we try to develop recommendations that are most applicable to that community's specific circumstances.

The relationship between the fire chief, and to a lesser extent the fire department as a whole, and elected officials is critical to the effective delivery of public safety services and to the ultimate success of the mission of the organization. It is vitally important that the fire chief, and again to a lesser extent the entire department, have an honest and positive relationship and open, productive communications with the mayor and city council, particularly in cities that are not operating under a city manager form of government, as is the case in the City of Marlborough.

During our analysis of the Marlborough Fire Department, we interviewed the mayor who is the city's chief executive officer, nine of the eleven city council members who are the legislative body, the mayor's aide, the personnel director, the police chief, and representatives of Patriot Ambulance. We also met with and interviewed the fire chiefs of surrounding communities.

The results of these interviews were pretty unique when compared to other fire department studies that we have conducted. While there was generally a positive opinion of the department from a technical and emergency incident mitigation perspective (although even here the mutual aid fire chiefs had concerns) there was also a commonality of opinion that the members of the Marlborough Fire Department are frequently unreasonable in their expectations, portray a sense of entitlement in all of their dealings with the city, and demand something in return for any change that is implemented, no matter how small or positive it may be. In addition, there is a perception that a number (but certainly not all) of the department's officers are deficient in leadership, management, and/or supervisory skills, and that a number of them are more loyal to the union than they are to the department, the chief, the city, and most of all the taxpayers of Marlborough.

In addition to the perspectives presented in this chapter by some of the department's most important external stakeholders, the MRI study team developed much of the same sense through our interviews and interactions with various members of the department, and through the administration of the employee survey discussed in Chapter 15, *Sense of Common Vision and Employee Feedback*. While certainly not coming from all members (and a number of members expressed their own concerns about these issues and relationships), the attitude was pervasive enough to cause concern regarding the future health of the Marlborough Fire Department.

MRI has no intention of unduly castigating the union or its relationship with the city. The unions that represent firefighters all across the country serve a legitimate and important purpose in the representation of their memberships and advocating for them in a wide range of situations. All of the members of the study team are, or have been, members of the firefighter's union(s) during their careers. However, when the union seems to have lost sight of the real reason they exist; reasonably representing the interests of the public safety personnel whose sole purpose is to protect the citizens (taxpayers) of the community they serve; there is a need to step back and reevaluate. They also need to understand and accept that the union leadership does not serve as a de facto "co-chief" for the department. Furthermore, the city and chief should not be expected (or required) to negotiate or bargain for each and every change they try to implement.

Fair and effective negotiations require good faith, a high level of mutual trust and respect, and above all, a commitment to mutually working towards achieving reasonable compromises that are for the common good. An "all or nothing, no compromise" negotiating strategy, or one that portraits an attitude of entitlement through unreasonable demands will eventually erode critical support within the community and from the taxpayers. The unambiguous reality is that the taxpayers, thru their elected representatives, determine what the acceptable level of risk they are willing to assume is, and/or conversely, what level of protection they can afford. Understanding that basic premise has become even more critical in the "new reality" that all government entities face here in the second decade of the 21st century. Those who fail to recognize this, and more importantly adapt, will over time become irrelevant before finally facing extinction.

While these opinions are subjective and just that, opinions, and thus cannot be evaluated qualitatively they are illustrative of one of the major challenges that is confronting the City of Marlborough, the internal culture of its fire department. While definitely an intangible issue that is difficult to accurately assess, changing the culture within the department, which could arguably be classified as being close to toxic, will present one of the biggest obstacles to progress that the city and the next chief will need to overcome. It will be imperative that the city identify the core group of officers who are seeking change, and are loyal to the city, the department, its leadership, and most of all the mission of the department and the taxpayers they serve. Through mentoring and career development programs, these officers can develop

their leadership, management, and supervisory skills to form the nucleus of the department's future, hopefully progressive, leadership.

Obtaining feedback on the quality of the services that are being provided to the department's most important external stakeholders, its customers...the taxpayers of the community...is important to the long-term success of any organization, whether public or private. When there is no mechanism in place to evaluate customer satisfaction, there is no way to measure service levels being provided against customer expectations and/or satisfaction. While there are many ways to identify strengths and weaknesses in emergency operations, obtaining feedback from those who requested the services of the fire department is one method that can assist with what should be an ongoing and continuous evaluation process. It is also extremely important that the fire department appropriately handle the occasional, but inevitable, complaint about the service that was provided. Citizen complaints should be documented, investigated, and brought to a logical conclusion with the complainant informed of the outcome, provided they identified themselves. Conversely, formal letters or other acknowledgements by customers that personnel did a good job should be addressed in a positive manner within the department and to the person making the compliment.

OBSERVATIONS

Mayor and City Council

The current mayor has held his position for about two and one-half years after having served for many years as a member of the city council. He is a strong supporter of the chief and still feels that he was the best choice for the position when he was selected. The mayor stressed to the MRI study team that he is looking for a totally objective and comprehensive assessment of the fire department. However, he was also clear that if he had his way, he would like to privatize or contract out for fire services the same as the city does for EMS. He has major issues with the overall attitude of the members of the fire department and their blatant sense of entitlement. He is also very concerned about the department's reputation with other fire departments in the area and their chiefs.

It is the mayor's belief that the union wants to run the fire department and control every aspect of its operations. When he first became mayor, he tried to work with the union on a number of issues, but feels he was double-crossed on a major issue where an agreement had been reached. This situation has in essence destroyed any possibility of trust, or even productive dialogue, between the two sides moving forward.

The members of city council that were interviewed pretty much all agree that the fire department does a very good job of protecting the city and its citizens. They believe that its personnel are well trained and prepared to handle whatever emergencies confront them. They reported to the MRI study team that they always hear good things from their constituents who

have required the department's services. None of them could remember ever receiving a significant complaint about the department or its services.

All of the councilors were also unanimous in their support and respect for the current chief. He keeps them informed and has been very good at honoring their requests for information and answering their questions. He has also invited them to attend training both in the city and at the fire academy in Stow. They feel that he has done a good job and are sorry that he has decided to retire. Several stated that they wish he would reconsider and possibly rescind his resignation. They also are very concerned about the fact that another chief is leaving (a few said "driven out") and the potential implications, both short- and long-term, that will have for the department.

As a whole, the council members are very concerned about the attitudes and morale within the fire department. While they feel that the union's input is very important, they also believe that the union is trying to totally control the department and everything about it, and intimidates any members who dare to speak up. They feel that the city has been more than fair with the union and its members, yet they constantly demand and expect more. There is a perception that the union's attitude of entitlement has blinded them to any sense of reasonableness or good faith negotiation. There is also belief that the twenty-four hour shift schedule, which the city feels was forced upon them, has turned the firefighter's job at the fire department into basically a part-time job. They do, however, believe that the department has a good core group of personnel who are frustrated with the way things are and are looking for change. This gives them hope for the future of the department. Several councilors also pointed out that things work much better in the police department where there are two separate unions.

Virtually all of the councilors agreed that the fire department needs to be reorganized. They are keenly aware of the fact that in order for the next chief (as well as subsequent ones) to be successful, that he/she must be provided with a strong, non-union, support network, or team, to assist them with the myriad of challenges and obstacles they will confront.

Several members of the council mentioned the long discussed issue of the need for another fire station in the west end of the city. While there is wide spread agreement on the need for a station in this area, there are varying opinions on whether it should be an additional (fourth) station, or if an existing station should be relocated. Those who tend to favor a fourth station feel that the council, acting on behalf of the taxpayers, would support the necessary funding. Other councilors would support an additional station, but only if it could be staffed with existing resources. Still others would lean toward only supporting relocation. In all cases, they hope that this study will assist them by providing a recommendation that brings some clarity to the issue. It was also suggested that perhaps some kind of partnership could be developed with commercial or industrial neighbors on the location for a new station.

A couple of members of the council also touched on the subject of a call firefighting force and questioned why Marlborough no longer has one. These councilors feel that the fire department responds unnecessarily on too many calls and that if the call volume were reduced, it might make a partial call force viable. Several members have concerns about the department's productivity between incidents. They feel there are more things the firefighters can be doing.

Patriot Ambulance

The chief executive officer, chief operating officer, and one of the EMS supervisors from Patriot Ambulance were interviewed by the study team. They all concurred that their organization and the Marlborough Fire Department (Marlborough Police also) integrate and operate very well together on the numerous emergencies that they jointly respond to. The supervisor reported that at the street level, relationships with the firefighters were very positive. They know what to look for on medical incidents, are capable of determining what assistance is needed, and will get very actively hands-on with regards to actual patient care. None of these personnel could ever recall there being a case of animosity between their personnel and fire department members, nor could they recall ever receiving a complaint about the fire department or its personnel.

Police Chief

The police chief reported that his department works very well with the fire department in the provision of public safety and emergency services, and there are no substantial issues between them. From time to time, a minor problem will arise, but they are never substantial and always quickly resolved. It is his belief that the current chief has done a good job during his tenure and has tried to make changes within the department.

However, from a broader perspective, he feels that the fire department is a difficult organization to deal with due to its set up. There is a lack of assistance provided to the chief from within the department, no consistent command staff, and the shift schedule makes following-up on things challenging. In addition, the fire department union president is a very tough individual to deal with, which has complicated the relationship between most members of the department and recent mayors and chiefs. It is his belief that although they have had the support of the mayor, recent fire chiefs have been thwarted for the most part in their efforts to effect change within the department by a stubborn membership and an uncooperative union. The long-term and ongoing lack of any type of management support and assistance for the chief has also contributed to the issues that currently surround the fire department.

The chief feels that having everyone in the fire department, up to and including the deputy chiefs, in the same union is definitely a problem that causes a lot of complications. He pointed

out that while not perfect, the fact that he has two separate unions, one for rank and file police officers, the other for command officers (sergeants, lieutenants, captains), has definitely improved order and discipline within his department. They have also regained some limited management rights in the contract, with the latter such as requiring attendance at staff meetings with no compensation and mandates for the completion of management training.

The chief feels that there is a very definite need for the officers of the fire department to put considerably more effort into managing of the department, and the personnel under their command, than is currently being done. While most officers are very good at the technical aspects of their job, they are deficient in management and supervisory skills. He pointed out that while newly promoted police sergeants get enrolled in "Sergeant's School" which helps them to learn about and adapt to their new roles and responsibilities, new fire department lieutenants do not receive comparable training.

The police department has conducted several "1A" investigations, mostly personnel issues involving fire department members over the past several years. A few of these investigations determined that the conduct or actions of those involved bordered on being criminal. Of particular concern to the MRI study team, but clearly illustrating the chief's perspective regarding the weakness of leadership, management, and supervision within the fire department, is that in some of these instances supervisors were aware of the situation, but failed to act. While certainly not the whole reason, he feels that the department's policies and procedures are deficient and out-of-date, thus there is a lack of adequate direction for the supervisors.

The chief believes that with the right person as the fire chief, and with an adequate support team to assist him, the department can be turned around. Key to this will also be to mentor the department's supervisors, provide them with proper training, and clearly delineate their duties, responsibilities, and the expectations of them. However, it is going to be a long process to address the many challenges they will face.

Personnel Director

The personnel director who is the city's point person on all human resources related matters was able to present a wide ranging perspective of the fire department. He reported that overall the city has done well in negotiations with its unions. In the past five years only one contract, police command, has gone to arbitration. He feels that the fire department has, by far, the most generous, strongest contract in their favor of all of the city's bargaining units. Notable issues with the contract that need to addressed include the number of personnel permitted off at any given time, the number of vacation and personal days need to be adjusted to reflect the twenty-four hour shift schedule as opposed to the old ten/fourteen schedule, and problems with abuse of sick time.

Although the personnel department does not see all grievances, only those that reach step 3 which is the mayor, the fire department files more grievances than any other union. At times, their arguments seem disjointed and inconsistent. He reported that about six grievances per year from the fire department reach stage 3. If the issue cannot be resolved at step 3, it generally goes directly to arbitration as the city feels there is no benefit to attempting mediation with the no compromise position of the current union leadership.

The director is concerned that a lot of things that happen in the fire department that personnel should be made aware of, such as the issuance of formal, written discipline, are never forwarded up to personnel to be filed. This creates challenges in the future when trying to establish history, time lines, or patterns.

The city has recently started addressing issues such as management and supervisory training. The city does provide periodic recertification training on sexual harassment and ethics. The fire department has received this training twice in about the previous 24 months. He informed the study team that personnel guidelines are found in the city code which takes precedent when other documents are silent on the issue, or it is not specifically addressed by contract.

As with a number of the other people who we interviewed, the director feels that although the input of the union is important, the fire department's culture is badly damaged and breeds an attitude of true and shameless entitlement.

Mutual Aid Fire Chiefs

The MRI study team interviewed the fire chiefs from Northborough, Southborough, and Hudson, who are Marlborough's primary mutual aid partners. Unlike Marlborough, all of these departments are combination fire departments which rely on a mix of full-time career personnel, as well as a contingent of part-time/volunteer call members. The chiefs feel that this organizational makeup translates into an attitude of superiority from some of the Marlborough firefighters that they are the "big boys" in the area and are better than everyone else, so on fires they don't need to perform routine tasks such as picking up hose. They stated that for as long as they can remember there have always been issues with attitudes and labor problems in Marlborough. Because of this, they perceive that the fire department is viewed negatively by the city administration.

These chiefs, while pointing out that the Marlborough Fire Department does have some good attributes and many good members, feel very strongly that it is a department that is deep in turmoil with a number of serious and deep seated issues. One chief stated that his concern about Marlborough is so significant that he automatically responds any time his department is dispatched to respond into the city. Most troubling among these concerns is that there is a feeling among the chiefs that Marlborough's emergency scene/fireground discipline is poor. They show up on fires not always properly geared up and ready to go to work, and at times

have ignored orders. While this situation has improved over the past five years or so, there are still occasional incidents. One chief relayed a recent incident that he witnessed when Marlborough arrived on the scene of a four alarm fire and one of their officers told a higher ranking chief officer who was giving him orders with some sense of urgency to "calm down".

The chiefs have significant concern over the lack of command consistency in Marlborough at any given time. They feel that the command structure as it currently operates is designed to fail. This translates into command, control, and consistency issues on the fire ground. Although as noted previously, this situation has improved over the past five years, there was a time before that where the situation had gotten so bad that no one wanted to call Marlborough for assistance or respond into the city. In fact, the chiefs informed the study team that at one point there was talk among the Massachusetts Fire District 14 chiefs, of which Marlborough is a participant, regarding sending a letter to the mayor expressing their concerns about the department and its operations.

The chiefs also relayed to the study team that Marlborough has lagged behind other area departments in important firefighter safety initiatives. They were the last in the area to adopt an Incident Management System (IMS) and firefighter accountability system. Even today, the practical application of these critical functions on Marlborough incidents has been inconsistent. Marlborough is still perceived as being in the infancy of utilizing Rapid Intervention Teams (RIT) during fireground operations.

Despite the frankness regarding their concerns about the Marlborough Fire Department, the chiefs also stressed that there are a number of positives there as well that provide a solid foundation for the future. They feel that the current chief has done a good job despite the fact that he has almost no support structure within the department, and as the only non-union uniformed member of the department he is, in essence, an island. In order for the next chief to be successful where others have not been, they believe that in addition to having a very diverse skill set to lead and manage the department into the future, he will need a strong support team of two or three assistant chiefs who will work with him to make the organizational changes that will be necessary over the next three to five years. They believe that there is a core group of personnel, both firefighters and officers, who are frustrated with the current conditions within the department and are looking for change. They want to make changes, but those who speak up, or try to change the status quo, are taken to task by the union.

Citizen Commendations and Complaints

Based upon interviews with the current fire chief and the department's staff, it appears that, like most fire departments, the Marlborough Fire Department handles the majority of its emergency incidents and requests for service without any formal thank you or complaint from those who were served. As with any busy, full service department, there is the occasional citizen complaint or letter of thanks or appreciation. The study team learned that in some

cases, the complaint or compliment was handled by an on duty shift officer who just happened to receive the call. In these cases, the chief's office may not have even been notified. This practice creates a system with serious consistency problems which certainly could lead to credibility problems with the entire process.

The MRI study team includes the handling of compliments, thank yous and calls/letters of appreciation in this section because feedback of any type, positive or negative, is important to the fire department's objective and overall evaluation of their operations. It is also vitally important that personnel be commended when they do a good job or handle themselves in a professional manner and their service, skills, or demeanor are acknowledged, and reflect positively on the department.

Like most fire departments, the Marlborough Fire Department deals with feedback on its services strictly in a reactive manner as a result of the occasional "customer" complaint or compliment. Progressive departments have begun to take a more proactive approach to determining how well they are meeting their customer's expectations through the use of customer satisfaction surveys. These departments send out a survey to a statistically reliable percentage (some send them to 100%) of customers to garner information on how well the department provided service. The responses are analyzed and are used to help the department correct deficiencies, enhance services, improve training, and improve the department's stature and image.

There is no consistent process to deal with complaints from the public on fire safety or fire code related issues. These can include complaints about neighbors burning trash illegally, exit doors blocked or locked in a business, or illegal business operations, such as an auto body shop with no approved paint spray booth. Again, they are frequently received by an on duty officer who will forward them to the deputy chiefs who collectively handle fire prevention and code related issues. The potential implications of these complaints, and the associated actions taken on them, can range from severe life threats to general neighborhood quality of life issues. The relative severity of the complaint will also dictate how quickly it should be investigated. There should be a formal procedure in place to receive these complaints and refer them to either the fire inspector (assuming this position is created), the on duty shift commander, the fire chief (even outside of normal business hours) or to a different city, state, or federal agency. The results of the investigation and final disposition should then be noted and the report filed for future reference. All documents should be maintained in accordance with state freedom of information statutes.

RECOMMENDATIONS

16.1 The fire chief should continue to provide regular briefings and reports to the mayor and city council concerning the operations of the fire department. The chief should

communicate regularly with the mayor and council to receive feedback on the performance of the department.

16.2 *As recommended in Chapter 15, Sense of Common Vision and Employee Feedback, the mayor and city council should take an active role in setting appropriate goals and a vision for the fire department. City 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.*

16.3 *The fire department should consider offering building tours and ride-alongs to elected officials and other department heads to further familiarize them with fire operations. Officials could also be encouraged to participate in or observe training activities.*

16.4 *All formal grievances that originate within the fire department should be forwarded to the personnel department regardless of the level at which they were resolved. This will allow the city to fully track grievance activity and monitor for consistency of settlement, setting of precedent, etc.*

16.5 *All formal discipline (written reprimand and above) that occurs within the fire department should be forwarded to the personnel department for inclusion in the member's permanent personnel file. This will also allow personnel to track progressive discipline, consistency of discipline, and allow them to provide appropriate guidance and support to the fire chief and his staff. Records of previous verbal warnings that later resulted in a written reprimand or higher should also be forwarded to personnel for inclusion in the personnel file.*

16.6 *One of the next fire chief's first priorities should be to take tangible steps to change the perception of the Marlborough Fire Department among its mutual aid partners and restore the confidence of their chiefs in Marlborough's operational and command consistency.*

16.7 *If the union is willing to approach the process objectively, and with a commitment to attempt to begin repairing relations with the city and building bridges for the future, the City of Marlborough should seriously consider participating in the IAFC/IAFF Labor Management Initiative.*

16.8 *The Marlborough Fire Department should develop a procedure for the handling of formal commendations, thank yous, and other positive acknowledgements of the department, its services, and/or personnel, whether they are made verbally or in writing. The procedure should include a recommendation that the fire chief respond, in writing, to the person delivering the compliment, commendation, thank you, or*

acknowledgement. The procedure should include a provision that all department personnel are notified of the positive feedback that was received along with an acknowledgement by the fire chief. Finally, a copy of the letter, or a memorandum from the department if the feedback was verbal, should be placed in the personnel file of all personnel involved.

16.9 Fire department successes should be openly recognized by elected officials.

16.10 The Marlborough Fire Department should develop a formal procedure for handling citizen complaints. The procedure should include a provision that verbal complaints should immediately be referred to the on duty shift commander for initial documentation and investigation, with the fire chief formally notified as soon as practical, as determined by the severity of the complaint. The procedure should include a formal complaint form that could possibly be adapted from the police department's internal affairs complaint form. The procedure should include a provision that the fire chief will determine who will conduct the investigation, and if necessary, will refer the complaint to the police department, city human resources department, and/or city legal counsel, if appropriate. The complaint should be fully investigated, the investigation documented in writing, and the complainant (if known) and the personnel involved formally notified of the results. The disposition status of complaints should be recorded as: Sustained, Not Sustained, Unfounded, and Exonerated. If necessary, disciplinary action can be initiated. The procedure should specify that even anonymous complaints must be received and investigated, and it should specify how completed investigation reports are filed and maintained. The department should also provide formal in-service training to all officers to ensure that all citizen complaints are handled properly and consistently.

16.11 The Marlborough Fire Department should give consideration to the implementation of a procedure to actively seek feedback from "customers" to whom the department has provided service. It is recommended that this procedure involve a formal customer satisfaction survey instrument that can be sent to every customer, or at a minimum, is sent to some statistically valid and reliable sampling or percentage of those the department has served. In order to be effective, the feedback must be analyzed, and if necessary, corrective action taken on any identified deficiencies.

16.12 The Marlborough Fire Department should develop a procedure for the handling of complaints from the public on fire safety and/or fire code related issues. The procedure should include a designated form for receiving the complaint, and specify how it is processed depending upon the immediate availability of the fire inspector (if this position is created) or fire prevention chief to assess its severity and/or urgency. Off-hour complaints should be forwarded to the on duty shift commander for evaluation, with appropriate notifications made based upon the severity of the

situation. The procedure should designate how complaint investigations are documented, and how the reports are filed and maintained for future reference.

CHAPTER 17

BENCHMARKING AND COMPARATIVE ANALYSIS

OVERVIEW

As the study progressed, the team worked with the fire chief and mayor's office to develop appropriate points of comparison for the benchmarking and comparative analysis. We asked that the benchmark communities be selected by the mayor and the chief. This collaboration is done purposefully to avoid any contention that members of the Marlborough Fire Department selected favorable comparables. The communities of Braintree, Fitchburg, Gloucester, Leominster, Natick, Salem, and Woburn were selected. In an effort to extract the maximum amount of data, Chief Fortin was asked to contact the fire chief in each community and request cooperation and response. Four of the seven communities (57%) actively responded and provided the necessary data to be included in this study. Although not optimal, a response of around fifty percent is average. It should also be noted that while some responses were complete, others lacked the ability to provide the full data set requested. The communities of Fitchburg, Leominster, Natick, and Salem responded to this request and provided the data displayed in the tables below. The Marlborough data utilized in this comparative analysis was provided by the Marlborough Fire Department. As a result, there may be slight deviations in these statistics when compared to those found in other areas of this report. Costs per capita and per call in Marlborough are on par with the average of the four other communities.

Benchmarking is an effective way of making general comparisons between similar communities and identifying trends and patterns, but there are limitations to how the data should be used. The methodology for calculating various data categories may vary from community to community. For example, a fire department budget in one community might not include personnel benefit costs, which would skew the comparison. In the past, MRI has encountered fire departments that assign a fire incident number to routine activities such as fire inspections. However, the data provided by these communities provides information that can benefit the City of Marlborough.

RESPONSES

COMMUNITY	COMMUNITY POPULATION	SQUARE MILES	COMMERCIAL/RESIDENTIAL MIX PERCENTAGE
FITCHBURG	41,000	28	70 - 30
LEOMINSTER	41,000	29	NO RESPONSE
NATICK	33,006	16	23 - 77
SALEM	42,000	8	NO RESPONSE
AVERAGE	39,252	20.25	
MARLBOROUGH	39,414	22.1	45 - 55
DEVIATION	1.00	1.09	

COMMUNITY	FISCAL 2014 COMMUNITY BUDGET	FIRE / EMS BUDGET FOR FISCAL YEAR 2014	COST PER CAPITA	COST PER CALL
FITCHBURG	$ 103,000,000	$ 5,898,340	$ 144	$ 651
LEOMINSTER	NO RESPONSE	$ 7,300,000	$ 178	$ 1,052
NATICK	$ 135,000,000	$ 7,504,158	$ 227	$ 1,588
SALEM	$ 100,000,000	$ 8,092,253	$ 193	$ 1,305
AVERAGE	$ 112,666,667	$ 7,198,688	$ 185	$ 1,149
MARLBOROUGH	$ 137,086,500	$ 7,173,560	$ 183	$ 1,178
DEVIATION	1.22	1.00	0.99	1.03

Municipal Resources

COMMUNITY	TOTAL INCIDENT VOLUME 2013	NFIRS INCIDENT TYPE 111, BUILDING FIRE-2013	FIRE DOLLAR LOSS IN 2013
FITCHBURG	9,059	283	$ 1,500,000
LEOMINSTER	6,936	49	NO RESPONSE
NATICK	4,726	61	$ 710,675
SALEM	6,200	14	NO RESPONSE
AVERAGE	6,730	102	$ 1,105,338
MARLBOROUGH	6,088	50	$ 1,338,925
DEVIATION	0.90	0.49	1.21

COMMUNITY	FIRE CALLS IN 2013	EMS CALLS IN 2013	THE CLOSEST PIECE OF FIRE APPARATUS RESPONDS TO ALL MEDICAL CALLS?
FITCHBURG	4,039	5,020	NO - APP. 50%
LEOMINSTER	2,006	4,930	YES
NATICK	NO RESPONSE	2,860	YES
SALEM	3,286	2,314	YES
AVERAGE	3,110	3,781	
MARLBOROUGH	2,599	3,489	YES
DEVIATION	0.84	0.92	

Municipal Resources

COMMUNITY	NUMBER OF CAREER PERSONNEL	TOTAL NUMBER OF PERSONNEL ASSIGNED TO EACH SHIFT	MINIMUM SHIFT STRENGTH	NUMBER OF OFFICERS ASSIGNED TO EACH SHIFT
FITCHBURG	78	16	16	5
LEOMINSTER	80	NO RESPONSE	17	4
NATICK	83	20	17	6
SALEM	88	20	16	7
AVERAGE	82	19	17	6
MARLBOROUGH	77	18	13	3*
DEVIATION	0.94	0.96	0.79	0.55

* Does not include deputy chief. If deputy chief is included, deviation is .67.

COMMUNITY	SHIFT FLOAT (DIFFERENCE BETWEEN NUMBER ASSIGNED AND MINIMUM)	SUBSTITUTION (REPLACING PERSONNEL ON SHIFT) PAY BUDGETED FISCAL 2014	SUBSTITUTION (OVERTIME TO REPLACE PERSONNEL ON SHIFT) TRANSFERS FISCAL 2014
FITCHBURG	3	$ 350,000	$ 300,000
LEOMINSTER	NO RESPONSE	$ 563,000	$ 434,686
NATICK	3	$ 545,000	NO RESPONSE
SALEM	4	$ 734,778	NO RESPONSE
AVERAGE	3	$ 548,195	$ 367,343
MARLBOROUGH	5	$ 250,000	$ 100,000
DEVIATION	1.50	0.46	0.27

Municipal Resources

COMMUNITY	TOTAL OVERTIME BUDGETED FY 2014	ACTUAL TOTAL OVERTIME FY 2014	NUMBER OF PERSONNEL ALLOWED OFF FOR VACATION AT ONCE?	OTHER THAN VACATION, WHAT IS THE LARGEST REASON THAT PERSONNEL ARE ABSENT?
FITCHBURG	$ 350,000	$ 300,000	3	PERSONAL DAY
LEOMINSTER	$ 563,000	$ 997,686	4 (VACATION & PERSONAL)	SICK
NATICK	$ 545,000	NO RESPONSE	3 / SUMMER 4	NO RESPONSE
SALEM	$ 734,778	$ 784,778	5	PERS./FLMA
AVERAGE	$ 548,195	$ 694,155	4	
MARLBOROUGH	$ 250,000	$ 350,000	5*	PERS./SICK
DEVIATION	0.46	0.50	1.25	

* Marlborough also allows 4 additional personnel off on personal leave at any time for a total number of personnel permitted on scheduled leave of 9. This increases the deviation to 2.25.

COMMUNITY	NUMBER OF STATIONS	ENGINE COMPANY CREW SIZE	LADDER CO. CREW SIZE	ISO RATING
FITCHBURG	3	3	3	2
LEOMINSTER	3	3	3	3
NATICK	4	3	2	3
SALEM	4	3	3	3
AVERAGE	3.5	3	2.75	2.75
MARLBOROUGH	3	3	2	3
DEVIATION	0.86	1.00	0.73	1.09

Municipal Resources

COMMUNITY	NUMBER OF ENGINES STAFFED	NUMBER OF LADDERS STAFFED	RESCUE/SQUAD STAFFED	COMMAND VEHICLE STAFFED
FITCHBURG	3	1	YES	YES DEPUTY CHIEF
LEOMINSTER	3	2	YES	YES DEPUTY CHIEF
NATICK	4	1	0	1
SALEM	4	2	0	1
AVERAGE	3.5	1.5	YES	1
MARLBOROUGH	3	1	YES	NO
DEVIATION	0.86	0.67		

COMMUNITY	OSHA 2 IN 2 OUT COMPLAINT? (MINIMUM 4 PERSONNEL ON FIREGROUND)	NFPA 1710 COMPLIANT	PERSONNEL ACCOUNTABILITY SYSTEM UTILIZED
FITCHBURG	YES	MOSTLY	YES
LEOMINSTER	YES	YES	YES
NATICK	YES	NO	YES
SALEM	YES	YES	YES
AVERAGE	YES	MIXED	YES
MARLBOROUGH	YES	NO	YES
DEVIATION			

Municipal Resources

COMMUNITY	IS DISPATCH CENTRALIZED WITH POLICE?	CIVILIAN DEATH OR INJURY 2013	NUMBER OF LONG TERM ABSENCES IN FY 2014 (OVER 3 MONTHS)
FITCHBURG	NO	0	2
LEOMINSTER	NO	3	2
NATICK	YES	0	3
SALEM	NO	0	2
AVERAGE		.75	2.25
MARLBOROUGH	YES	0	1
DEVIATION		0	0.44

COMMUNITY	FIREFIGHTER INJURIES 2013	NUMBER OF FIRE RELATED ON THE JOB INJURIES IN FY 2014	HOURS OF INJURED ON DUTY LEAVE FISCAL 2014	DOES THE COMMUNITY HAVE INJURED ON DUTY INSURANCE COVERAGE?
FITCHBURG	3	3	334	YES
LEOMINSTER	NO RESPONSE	NO RESPONSE	NO RESPONSE	NO
NATICK	13	4	2450	YES
SALEM	2	2	576	NO
AVERAGE	6.00	3	1120	MIXED
MARLBOROUGH	10	11	10,800	YES
DEVIATION	1.66	3.67	9.64	

Municipal Resources

COMMUNITY	DOES THE COMMUNITY HAVE INJURED ON DUTY INSURANCE COVERAGE?	AVERAGE YEARS OF SERVICE - ALL FIRE DEPT. PERSONNEL	AVERAGE AGE OF ALL FIRE DEPT. PERSONNEL
FITCHBURG	YES	15.5	42
LEOMINSTER	NO	NO RESPONSE	NO RESPONSE
NATICK	YES	16	45
SALEM	NO	20	42
AVERAGE	MIXED	17	43
MARLBOROUGH	YES	18	44.53
DEVIATION		1.05	1.04

Based upon the information illustrated above, we have developed the following observations and recommendations:

OBSERVATIONS

- The comparable communities that were selected were well aligned with Marlborough in terms of population and land area.
- Marlborough's overall community budget is 22% higher than the average.
- Marlborough is well balanced in terms of industrial residential mix, and as a destination community, offers a higher than average commercial and industrial presence.
- Marlborough experiences 50% of the average in terms of actual building fires and 84% of all fire calls.
- All respondents had an Insurance service Office (ISO) rating of 3, which indicates a level of protection offered by less than 10% of fire departments nationwide.
- Marlborough responds to 92% of the average of emergency medical services calls. Most comparables, along with Marlborough, dispatch an engine company to every medical emergency.
- Overall, Marlborough experiences 90% of the incident volume of the average.

Municipal Resources

- In terms of staffing, Marlborough has 94% of the average in terms of the number of employees. However, this number drops when the minimum shift strength is evaluated. Marlborough has 79% of the average shift strength and 55% of the average in terms of the number of officers assigned to each shift.

- Based on our interviews, strong feeling exist that overtime should be reduced. However, when compared to comparable communities, Marlborough utilizes 50% of the average overtime. Much of this savings is based on the high number of personnel assigned above the minimum shift strength. Presently, Marlborough has a shift float of five personnel. Based on this, five members assigned to a crew can be absent before additional personnel are hired. This practice allows several vacancies to occur before overtime expenses are incurred.

- The comparable communities are split in that some operate four stations while others operate three stations.

- The average strength of a staffed ladder company is three personnel. In Marlborough, this vehicle is staffed with two personnel.

- Most comparable communities staff four engines, but many of these communities do not staff a rescue. Marlborough staffs three engines and a rescue.

- All communities except for Marlborough staff a command vehicle on a 24/7 basis.

- Marlborough has experienced less than 50% of the average of long-term absences.

- Marlborough allows nine personnel to be on scheduled leave (vacation and personal) during any shift. Most communities allow four personnel to be absent.

- Injured on duty leave (111F IOD) is more three and a half times that of the average. Marlborough has also experienced 50% more than the average of non-job related injuries or illness.

- Overall, cost per capita and per incident are very close to the average generated by the four responsive peer communities.

DISCUSSION AND RECOMMENDATIONS

The number of officers on shift in Marlborough is low when compared to the average in the comparable communities. The number of first line supervisors (lieutenants) should be increased by one per shift. This is in addition to the officer on Engine 1 being reclassified from a captain to a lieutenant.

Every comparable community staffs a command vehicle 24/7. This is a tool that the shift commander utilizes to maximize resource deployment and effectively, efficiently, and safely, manage emergency incidents. In Marlborough, this vehicle is only operated when a deputy chief is on duty. This produces an inconsistent level of response, direction, and incident management. The command vehicle should be staffed on a 24/7 basis by the shift commander (captain as recommended in Chapter 5, *Organizational Structure, Staffing, and Scheduling*).

An evaluation of the average staffing patterns indicate that Marlborough has a high shift float and therefore a low level of overtime. As Marlborough operates with a lower than average shift staffing level and a high level of float, the minimum shift strength should be increased by two to fifteen personnel per shift.

The level of leave utilized for both on the job and off the job injuries or illness is significantly higher than that of the comparable communities. Specifically, injured on duty injuries (IOD) approach ten times the average of the experience in the other communities. A medical management company that specialized in handling 111F claims should be consulted. Meditrol is one company that operates within Massachusetts. Employing a firm of this type could help reduce the number of leave hours by rapidly returning personnel to duty or moving claims forward toward a disability retirement.

RECOMMENDATIONS

17.1 The number of first line supervisors (lieutenants) assigned to each shift should be increased by one in addition to the officer of Engine 1 being reclassified as a lieutenant.

17.2 The command vehicle should be staffed on a 24/7 basis by the shift commander (captain).

17.3 The minimum shift strength should be increased by two to fifteen personnel per shift.

17.4 The nature of injuries should be evaluated and an injury prevention program developed in conjunction with the city's insurance provider.

17.5 The City of Marlborough should hire a firm that specializes in the handling of 111F claims. The goal of this action should be to reduce the number of leave hours experienced due to both on- and off-duty injuries and illnesses and either return personnel to active duty, or hasten the disability retirement process.

CHAPTER 18

THE STUDY TEAM

The following MRI personnel participated in the study:

MRI Principal

Donald R. Jutton, founder and President of Municipal Resources, Inc., is a graduate of Bradford College with a BA in Urban Planning and Management and an MS in Community Economic Development from New Hampshire College. He has also done graduate work in management and administration at Harvard University. Mr. Jutton has a broad government management and operations background, having served as Manager in Meredith, Littleton, Salem, and Wakefield, New Hampshire. While maintaining a strong working knowledge of local government process and organizational planning, the primary emphasis of his work has been in the area of creative community development and pursuit of systemic change in management and delivery of core community services. Mr. Jutton's success in establishing collaborative efforts and managing very complex initiatives between public and private entities has effectively bridged frequently competing interests and has led to successful economic development activity valued at millions of dollars in many communities. He is noted for continually challenging client communities to rethink traditional approaches and explore innovative alternatives to community development and service delivery problems, emphasizing collaborations and partnerships that expand conventional thinking and extend to all corners of the community. His involvement and advocacy has led to many unique and noteworthy operational changes including a combined Town/School budgeting and annual meeting process in Littleton, NH; shared police services between Greenville and Temple, NH; a three community economic development initiative between Lisbon, Littleton and Bethlehem, NH; a municipal/public/private Mill redevelopment partnership in Troy, NH; and a first of its kind partnership agreement between NASA's Stennis Space Center, Plymouth State University, SAU 35 and the Town of Littleton, NH. The results of his creative activities with communities have been reported in USA TODAY, Heart of NH Magazine, the Boston Globe, and numerous regional and local newspapers and journals.

Project Manager

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 in 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.

MRI Associates

Brian P. Duggan now commands the Fire Department in Northampton, Massachusetts, where he has instituted substantial changes to modernize and restructure the entire department including equipment, facilities, personnel, and training. In conjunction with his staff, Brian has created a regional Advanced Life Support Program that currently serves eighteen communities within the Northampton Area. He formerly commanded the Northborough, Massachusetts, Fire Department, and has significant experience with the Massachusetts Department of Fire Services where he held several key positions. Mr. Duggan developed and directed the Graduate and Undergraduate Fire Science Programs at Anna Maria College in Paxton Massachusetts from 1995 - 2003. Mr. Duggan has a Business Management/Fire Science degree from Providence College and a Master's Degree of Business Administration (MBA) from Nichols College in Dudley, Massachusetts. He is also a graduate of the National Fire Academy Executive Fire Officer Program and the Senior Executive Program for State and Local Leaders at Harvard

University. In December 2012, Mr. Duggan received a Master's Degree in Homeland Security through the Naval Post Graduate School based in Monterey, California, where his thesis entitled *"Enhancing Decision-making during the First Operational Period of Surge Events"* was selected as an outstanding thesis. He is one of only a few fire service professionals to be designated as a Chief Fire Officer by the Commission on Fire Accreditation International. He leads the Massachusetts fire service through his affiliation as Chairman of the Fire Chief Association of Massachusetts Technology Committee and as a Regional Director on the Massachusetts State Fire Mobilization Committee. Mr. Duggan has authored several publications, inclusive of writing Section 7, Chapter 3, Fire Department Information Systems, in the Nineteenth and Twentieth Editions of the National Fire Protection Association's Fire Protection Handbook. Chief Duggan has served as a subject advisor to MRI since 2002 and will occasionally work on a project team.

George Klauber has been the Fire Chief in Derry, New Hampshire, since 2003. His career in fire service spans 36 years. Chief Klauber graduated from Charter Oaks State College with a BS in Fire Science and Technology, and has taken numerous courses at the National Fire Academy. He is a Certified Fire Officer in accordance with NFPA 1021; a Certified Fire Service Instructor in accordance with NFPA 1501; and a Certified Safety Officer in accordance with NFPA 1521. Prior to joining the Derry Fire Department, Chief Klauber was Fire Chief for the City of Waterbury, Connecticut. Chief Klauber is a member of the International Association of Fire Chiefs; the New England Association of Fire Chiefs, the New Hampshire Fire Chiefs Association; the National Fire Protection Association, and the International Association of Emergency Managers. Chief Klauber has been providing consulting services to MRI clients since 2001.

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. 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. Recently, Chief Loomer was chosen to coordinate that state's Chief Fire Officer Training Program. Chief Loomer remains a credentialed Fire Chief and Fire Prevention Officer for the Commonwealth of Massachusetts. He obtained his AS in Fire Protection Technology from Oklahoma State University in 1973, and is a 1996 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, and a nationally certified fire instructor. Since joining Municipal

Resources as a subject expert in 2012, Chief Loomer has served as an Interim Fire Chief for a Massachusetts client, as well as, provided coaching and mentoring services to a New Hampshire fire department during a period of leadership transition in that organization. Bob also serves on recruitment and project teams.

Raymond Gretz is a Battalion Fire Chief in Washington, D.C. He became a volunteer Firefighter EMT in 1990 at the College Park Volunteer Fire Department in College Park Maryland. His volunteer service included serving as a line officer to the rank of Captain and being an elected member of the Board of Directors. Ray has considerable experience in operations as well as training, special operations and a variety of administrative positions. Other experience includes serving as the agency Finance Section Chief for National Security Special Events such as Presidential Inaugurations. He is a certified public manager and a graduate of the National Fire Academy's Executive Fire Officer program. He also holds a Master's Degree in Homeland Security from the Naval Postgraduate School in Monterey California.