

Relationship between Staffing, Training and Safety of Fire Departments

An Interactive Qualifying Project Report

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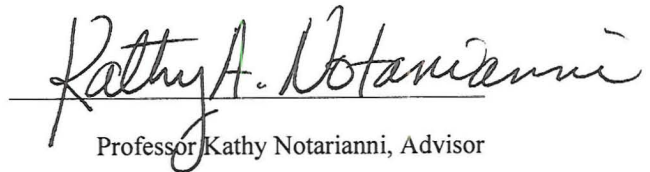
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Abstract

This project analyzed methods to increase the safety of firefighters and to provide for solid public protection. Research was focused on staffing levels and training of fire departments in the Worcester area. A succession of interviews and correspondences were conducted to gather this information. The data was analyzed for correlations between staffing, training, injury levels and the budget. Results of this analysis are presented along with a series of recommendations for future studies.

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Authorship

For this report all project group members, Beth Higgins, David Laramee, and Tatiana Winey have agreed that all work was divided evenly between them. For all sections of this project it should be known that it was a combined group effort. In addition all group members were present for all interviews and had input on the questions that were asked.

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Nomenclature

FEMA- Federal Emergency Management Agency

Firefighter I & II- illustrates the essential skills a firefighter must possess

First responder – “is a person who has completed forty to sixty hours of training in providing care for medical emergencies. They have more skill than someone who is trained in first aid but are not emergency medical technicians” (Wikipedia, 2006).

Hazmat- Hazardous Materials

IAFF- International Association of Firefighters

IFSTA- International Fire Service Training Association

NFPA- National Fire Protection Association

Predetermined run card- A card that shows the sequence in which different towns will respond as mutual aid call depending on the level of the alarm. See appendix 6.2.2.3

Proficiency training- ongoing training (beyond the academy) performed to maintain skill levels

Executive Summary

This study stemmed from a belief that budget constraints are compromising firefighter safety. Although there are many aspects to the fire department that could have been considered, this study focused on staffing levels and training programs.

It is well documented in the literature that firefighter injuries increase dramatically as staffing levels are decreased. However, a majority of fire departments do not meet NFPA minimum staffing recommendation, thus firefighters are forced to do additional work and the strain and exhaustion which may result, creates a greater probability of injuries. Low staffing levels also increase the amount of property damage and civilian fatalities.

Training programs are important for maintaining firefighter safety. The less familiar firefighters are with certain scenarios or apparatuses, the greater the possibility for injury. As the role of the fire department changes to include more than firefighting, it diminishes their direct experience in fires, which in turn makes firefighters less likely to recognize impending flashover, collapse, or other dangerous conditions. Also, “modern protective equipment may make life-threatening fire conditions less obvious and firefighters must be trained to recognize the visual and physical clues to impending danger” (FEMA USFA, 2). Therefore training is crucial to both maintain their skills, and learn new ones.

This study attempted to identify a correlation between reduced staffing levels, inadequate proficiency training programs, and the occurrence of injuries. The study also

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wished to show that budgets are being steadily reduced (through cutting funds or simply not meeting inflation rates) and are the source of the reduction in staffing levels and the inadequacies in training programs. By identifying these links, it was hoped that a recommendation to increase or alter the budget to allot more funds to these areas could be argued on the basis of increasing safety.

Interviews were the primary source of information in this project. Initial contacts were made via e-mail and phone conversation to twelve individual departments in the Worcester area. The towns were chosen to represent both call and career departments in communities ranging in size and population density. As the study progressed, six departments were selected as willing and able to both participate and acquire the information. For some departments, it was more convenient to meet with this group and relay the information verbally. For these four departments, this group traveled to their station and met with either the chief of the department or another officer. Prepared questions led to open discussion and the information was recorded in bulleted form. Charts were created for easy comparison and analysis of the data received from each department.

The discussions with the departments revealed that the firefighters and officers identify budgeting and staffing levels as the major issues that they face today. The departments may meet NFPA recommended levels, but meeting the standard does not ensure that staffing levels in general are adequate. Closing stations and removing engines from service will reduce staff, even if the remaining companies are fully staffed. Additionally, some towns use off-duty firefighters to meet the requirement, calling them in to respond to an incident.

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The research revealed that there are no regulations for performing proficiency training, with the exception of a federally mandated refresher course in hazmat and first responder. Individual departments decide whether to perform training, how often, and what to focus on. There is a significant possibility that departments may leave out important exercises or material. The training program in the Worcester fire department, however, seemed to this group to be well rounded. Worcester firefighters regularly attend training and have their own dedicated training department. This department creates and enforces training drills and classes.

Preliminary academy training also differs from town to town. This study was surprised to find that Worcester, and cities like it, have their own specialized fire academy. Most other communities use the Massachusetts Fire Academy to train their firefighters. However, a certificate of completion is not required in every department.

Injury statistics were difficult to obtain. Fire departments are only required to report injuries that happen during a fire event. Tracking methods are typically unreliable and differ from chief to chief. Retrieving comprehensive injury data is often impossible.

Budgets were analyzed to determine how they have changed in the last two fiscal years. It was found that the majority of the budgets were not increased to a level comparable to the inflation rate in those years. Not meeting the inflation rate means that cuts were made somewhere in the department.

This study recommends that staffing levels be increased, but can not yet establish a number of personnel needed. To assess exactly how many firefighters would make an optimal staffing level in the department, one would first have to deal with how many fire stations are necessary to provide the best coverage, along with where the optimal location

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would be. A future study should be conducted to establish this information. No matter what, increased staffing will decrease injuries and increase the effectiveness of the fire department.

In addition it is recommended that training budgets be increased to a level where their programs can become comparable to Worcester. This would ensure that call fire departments are able to pay their firefighters to attend company training and career departments can hire additional staff to cover training hours. An increased budget also would allow for additional course materials as needed. Further research can look at the impact and feasibility of creating some standards for fire proficiency training.

Quantitative correlations between injury rates and training and staffing levels were not possible due to a lack of sufficient injury records and the statistical insignificance of available data. To track injury rates with increased accuracy, it is recommended that templates be presented to the chief in anticipation of a future study. The templates are both easy for the chiefs to complete and the researchers to analyze. The accuracy of injury data is important because the number of occurrences is low and human error is high.

1 Introduction

If current trends continue to stay on the course they are on the safety of firefighters and the public they swore to protect is going to diminish. Just as the community relies on its firefighters to help them, the firefighters rely on the community to help keep them safe through an adequate budget, which in turn effects staffing and training.

Although firefighters today face many risks, two major issues appear to be at the forefront. These major issues are staffing levels and training. Staffing is a highly debated issue, especially when the high cost of maintaining employees is factored into the budget. However, inadequate staffing creates unsafe conditions for both the firefighters and the public as they cannot effectively perform all their duties. Training and pre-planning procedures prepare the firefighters for whatever situations they may face. This reduces casualties and increases effectiveness.

Training became a focus in this project when little to no information was found. There were no standards regarding proficiency training besides a federal regulation requiring hazmat and first responder refresher courses. Individual towns were left to determine the amount and type of training to be performed.

This project sought to determine if staffing levels and training programs were affecting the safety of local firefighters and the public. The fire departments in the Worcester area were contacted about participation in our project. Those who agreed were solicited to submit their staffing level and training programs for analysis. A correlation

between the aforementioned areas and fire fighter injuries and the funds allocated to the fire departments were analyzed.

2 Background

2.1 *The Problem*

For the foreseeable future there is always going to be the need for fire fighters, and this is not debatable. Since there is always going to be this need they should be given the safest working conditions possible. Although “it is generally accepted that a municipality has the right to determine the level of fire protection it wants...neither [the citizens] nor their elected representatives have the right to jeopardize the safety of the employees providing those services” (Crowley). It is the community who decides this level through the budget. As a society the consequences of reducing the budget are not fully considered. When the budget gets cut it affects the staffing levels, which in turn affects the safety of firefighters who are expected to help their community in an emergency at a moments notice. The “minimum staffing levels are in question, especially during periods in which municipal budgets are especially tight. Budget issues notwithstanding, fires and emergency medical situations will continue to require prompt, efficient fire fighter responses” (Crowley). This safety also impacts the safety of the community they serve to protect; if there are not enough fire fighters present they are not able to fight the fire to their fullest capabilities, nor are they able to perform adequate rescue mission.

2.1.1 Staffing

Fire fighters these days are expected to do more than just fight fires. Fire calls are only about a quarter of calls that they respond to. The majority of the calls they respond

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to are emergency medical service (EMS) calls. Other types of calls that they encounter are rescue, hazardous materials operation, special operations and related activities.

The National Fire Protection Association (NFPA) has created a standard for firefighter staffing levels (NFPA 1710) that both maximizes effectiveness and safety of the firefighters. In addition to NFPA 1710 there have been many studies focused on this issue. They suggest that there should be a minimum of four fire fighters responding to all calls. The reason for this is that four fire fighters are more effective, efficient, and safer than three fire fighters. And five fire fighters are more effective, efficient, and safer than four fire fighters. While five fire fighters may be seen as optimal it isn't always realistic, but three fire fighters is just unsafe and not cost effective, making four the minimum recommended requirement (Crowley). However, a study by the NFPA in conjunction with Federal Emergency Management Association (FEMA) determined that a majority of fire departments do not meet this minimum standard of four firefighters (FEMA USFA NFPA, 2002).

When staffing levels are low, the risk of injury among firefighters and those they are trying to help increases. This can be seen as injuries increase at an alarmingly rate as crew size is reduced. There is "increased risk to the firefighters when aggressive procedures are undertaken without the support necessary to complete them safely" (Crowley). The "rate of firefighter injuries expressed as total hours of disability per hours of fire ground exposure were 54% greater for engine companies staffed with 3 personnel when compared to those staffed with 4 firefighters" (Crowley).

2.1.2 Training and Pre-Planning

Training plays a big role in the safety of the firefighters. It is important for firefighters to be prepared for situations that they may encounter at a fire scene. As the role of the fire department changes to include more than firefighting, it diminishes their direct experience in fires, which in turn makes firefighters less likely to recognize impending flashover, collapse, or other dangerous conditions (FEMA USFA, 2). Also, “modern protective equipment may make life-threatening fire conditions less obvious and firefighters must be trained to recognize the visual and physical clues to impending danger” (FEMA USFA, 2). Therefore training is crucial to maintain their skills, and learn new ones.

In addition to training, fire departments need to improve or initiate pre-planning programs. The Worcester Fire Department lost six firefighters in the Cold Storage fire of 1999. This fire involved an abandoned warehouse with hazardous conditions the fire department was not aware of. The investigators determined that there was a “lack of pre-planning on the Worcester Fire Department's part, for fire incidents such as this one” (Slepicka, 2000). If the fire department had pre-planned, then the firefighters would have had a better idea as to the characteristics of the building and what to expect, which could have helped to save their lives. As the number of personnel is decreased, the likelihood that the fire department can conduct pre-planning is also reduced.

2.1.3 Budget Constraints Impinge on Safety

Inadequate funding of the fire department translates into safety issues for the firefighters as well as the public. Since salaries are the largest component of the budget, which becomes apparent when a budget such as Worcester was examined; it is a common practice for staffing levels to be diminished in order to cut costs. A lack of funding also

contributes to improperly maintained training programs and facilities and reduced pre-planning. All of these issues are potentially detrimental to the safety of the firefighters. When funds are limited, equipment quality is also impacted and can contribute to increased injury or fatalities. A limited budget has many departments struggling to maintain recommended staffing levels, as well as training, equipment or facilities.

2.2 Why it is a Problem?

2.2.1 Inadequate Staffing Levels Endanger Firefighters

Inadequate staffing of the fire department is dangerous for the safety of both firefighters and the public. A structural fire can progress to flashover “(the very rapid spreading of the fire due to super heating of room contents and other combustibles)...in less than ten minutes” (IAFF, 5). It is therefore imperative that firefighters respond quickly and with enough manpower to perform their duties. Various studies have determined that twelve to fifteen firefighters and a chief are necessary to respond to a structural fire alarm (IAFF, 10). A minimum of four fire fighters must arrive with engine or ladder (IAFF, 12), with five being preferred.

The recommended number of firefighters is based on how many people are needed to man the equipment to launch a defensive fire attack. Various studies have identified that it is essential to have four personnel per engine or ladder truck, with five being the ideal. “Three men are needed to place a single line of 2 ½ inch hose in service. One additional man is needed to operate a pump, plus a foreman so pumper companies require a minimum of five men” (IAFF, 7).

Although “it is generally accepted that a municipality has the right to determine the level of fire protection it wants...neither [the citizens] nor their elected

representatives have the right to jeopardize the safety of the employees providing those services” (IAFF, 1). The International Association of Firefighters (IAFF) has collected a multitude of studies on the effect of staffing levels on firefighter safety. From these studies, they found that firefighters are injured at an alarmingly increasing rate as crew size is reduced. There is an “increased risk to the firefighters when aggressive procedures are undertaken without the support necessary to complete them safely” (IAFF, 18). The “rate of firefighter injuries expressed as total hours of disability per hours of fire ground exposure were 54% greater for engine companies staffed with three personnel when compared to those staffed with four firefighters” (IAFF, 17).

Firefighters are also subject to “increased physiological stress...as they try to compensate for the lower staffing level” (IAFF, 18). So, an improperly staffed fire company not only takes longer to respond and longer to suppress a fire, but can be exhausted from the task rendering them useless for further firefighting (IAFF, 19). Cardiovascular stress is increased by 16% when the staffing level is reduced from four to three (IAFF, 21).

2.2.2 Deficient Training and Planning Leaves Firefighters Unprepared

Fire departments provide a wide array of services that firefighters must be trained to handle. Depending on the community they serve, firefighters may be called upon to perform rescue and fire suppression in high rise buildings, confined spaces, marine environments (requiring divers), motor vehicle accidents, and in areas with hazardous materials. In addition to these tasks, firefighters provide first response in EMS, Hazmat incidents, and other emergencies. To help prepare them, basic training at a fire academy is required for all new recruits. Once completed, firefighters must continually update and

maintain their skills through drills and formal training. “The fire department shall develop a recurring proficiency cycle with the goal of preventing skill degradation and potential for injury and death of members” (NFPA 1500, 3). It is the responsibility of the individual departments to determine the focus and frequency of their training programs.

In addition to refresher skills, fire departments should continually develop their knowledge of the community which they protect. The more knowledge the fire department has about a structure the more effective their suppression and rescue operations in that structure will be. Prior to responding in an emergency, ideally firefighters should already have inspected a building for possible threats. These threats could include, but are not limited to, any hazardous materials on site, lack of fire barriers, occupancy levels, and condition of the building and whether alarm or sprinkler systems exist (Anderson, 1999). Building plans and water supply information are crucial to organize an attack and should be provided to the fire department for all structures.

2.2.3 The Community Depends on its Firefighters

When firefighters respond to a fire, the public expects that they will be aggressively attacking and suppressing the fire, while rescuing victims and saving the property (IAFF, 1). In reality, the lack of proper staffing makes much of this impossible. “When staffing falls below minimum acceptable levels, so does service, and the goals and expectations set by the community are essentially abandoned” (IAFF, 2).

Responding with an appropriately sized team is the only way to reduce fire damage. When fire companies are understaffed, the firefighters “generally are limited to the use of small hose streams until additional help arrives” (IAFF, 13). These small hose streams may be “totally ineffective in containing even a small fire and in conducting

effective rescue operations” (IAFF, 13). The fire is then able to spread and “at each stage of a fire’s extension beyond the room of origin, the rate of civilian deaths, injuries and property damage grows exponentially” (IAFF, 4).

The survival of victims depends on the ability of the fire department to perform that operation. The same IAFF study found that when a “rescue occurred between 12 and 15 ½ minutes, the survival rate was 46.6 %. The rate dropped to 5.5 % when rescue occurred between 15 and 17 ½ minutes” (IAFF, 6). Rescue is more effective with a four person crew than a 3 person crew as they “could perform rescue of potential fire victims 80% faster” (IAFF, 5).

2.3 Conclusion

From the information gathered to this point it became apparent that certain aspects of fire departments needed further attention. To better assess the operations of fire departments, the fluctuation of the budget, as well as training and staffing levels need to be examined. Comparison of fire department budgets over multiple years becomes important in distinguishing if there is a consistent upward or downward trend. Analyzing this trend in relationship to the inflation rate over that same time period provides an indicator of the magnitude of that trend. In addition, the type of department, such as call or career, has an effect on the budget for which it is allowed. Upon further examination it was also discovered that there was not a lot, if any, literature on proficiency training as it related to staffing issues and injury levels among firefighters.

It is believed that proper staffing levels and training translate into a fire department that is both safer for the firefighters and more effective in protecting the community that they serve. Adequate staffing levels ensure that there is enough

manpower for the firefighters to respond quickly to emergencies with enough staff to function properly. Training ensures that firefighters are effective and up to date in their skills. This project sought to explore the effects of staffing and training levels in fire departments surrounding the Worcester area. The following section documents the methods that were used.

3 Methodology

3.1 Choosing a Focus

The project began with a broad look at the available information for fire departments. From there it was decided that the project would focus on the safety of the firefighters. More precisely, the goal was to determine how training and staffing effect the safety of the firefighters, and how the budget affects staffing and training due to the fact that this information is not documented. This was discussed farther in section 2.1. While safe staffing levels are well studied, the actual staffing levels are difficult to find. Similarly, there was a lack of information on training, but it is possible that training also greatly impacts their safety.

3.2 Defining our Area of Study

To perform an accurate study of fire departments one would have to look at every department in United States. However, this was too large of a sample to be taken. Looking at a smaller pool such as only fire departments in Massachusetts was still too great of a scope for this project. It was decided that in order to study these issues in depth, a small sample of towns was taken and their fire departments analyzed. Due to time and travel constraints, the focus was on towns and cities in the Worcester area which encompassed a diverse look of the area. Once the geographic area was narrowed down, a

matrix was created of information for each town. Important criteria for choosing towns were size, population density, and type of fire department (career, volunteer, call, or combined). Twelve towns were chosen in an attempt to represent a fair mix of criteria.

3.3 First Contact

Once the towns were chosen, it was decided that the chief of each department would be contacted for information. A list of the needed information was created. This included:

- Two year history of the number and type of calls the department responded to
- Number of firefighters per company/shift
- Injury and fatality statistics for the last ten years
- Rank structure of the department
- Number of firefighters in each rank
- Total number of firefighters employed
- Whether the department had any additional special functions such as water rescue, high rise capabilities, etc.
- If and how they participate in mutual aid
- Inventory of their equipment, including the age and condition
- Training schedule
- Whether the department pre-plans for fires and emergencies
- A copy of the budget from this year, last year, and any projected budgets
- If a breakdown of the salary data is not included in the budget, this was requested as well

This information created a better understanding of some of the basic functions and structures of the departments. This list was composed into an e-mail which was sent out to the chiefs, a copy on the e-mail can be seen in appendix 6.2.

3.4 Follow Up

Once the chiefs responded with the preliminary data, it was then possible to organize it and identify missing information. After the subsequent e-mails were sent and follow-up calls were made, the departments most willing and able to provide the requested information were selected for this study.

Originally information from twelve departments was requested, hoping to end up with a minimum of six departments. Considering the time constraints, needing a broad, but detailed view it was determined that six towns would be a reasonable sample. This would identify if these issues were worth pursuing further in a future study, however, it would not allow for any statistically meaningful data due to the small sample.

As the initial data was analyzed gaps were discovered with several of our towns. From here it was decided that in person interviews would be more beneficial, however this did not seem necessary for all towns due to the depth of their replies to our initial contact.

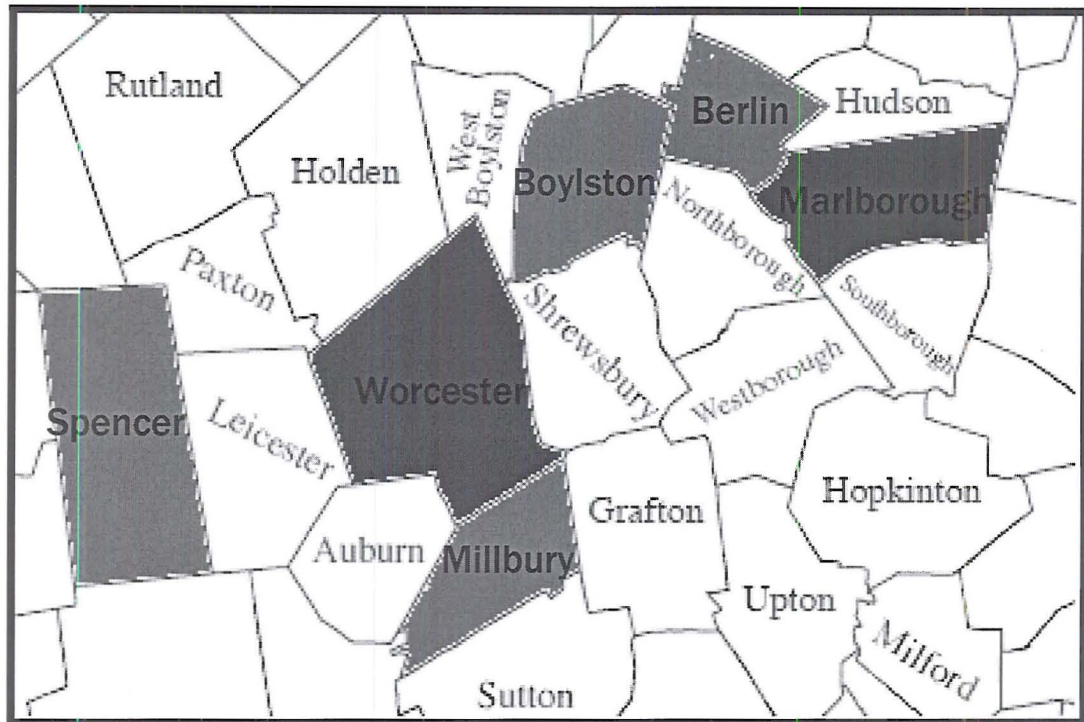


Figure 1: Study Participants (red indicates call department, blue career)

3.5 Interviews

The interviews that were conducted with the chiefs revealed the department goals and the standards they wish to meet or have already met, such as NFPA 1710. This then allowed for the expansion of the range of the query, in the areas of training, and whatever else they thought was important. With the limited amount of information on proficiency training, it was necessary to explore the subject matter in greater detail. This led to discussions of how they decided where to focus the training exercises, as well as how to conduct them. From there it continued onto changes that they may have made to their training program in the wake of the 1999 Worcester cold storage fire.

3.6 Analysis

Through interviews possible correlations were identified between the budget and staffing levels as well as budget and training for several towns. Spreadsheets were created to aid with making quick comparisons between the six different departments

included in this study. Through this case study it was hoped that recommendations might develop that would help improve safety of the departments, therefore, decreasing injuries.

4 Findings and Results

Of the six towns studied in this report, four were call departments and two were career departments. Towns with call departments ranged in size from a population of 2,700 to 13,400 and had a population density of 200 to 900 people per square mile. The career departments had populations of 37,700 and 176,000 with densities of 1,700 and 4,500 people per square mile respectively. This study sought to investigate the different challenges faced by each type of department in meeting staffing and training goals and in minimizing the time to respond to a call.

4.1 Department Types

4.1.1 Call Departments

A call fire department is one where the firefighters only get paid while they are actively responding to an emergency call. A typical call firefighter will have a full time job; sometimes it is local, other times it is not. Since call firefighters have other jobs they need to be notified about an incident. Some departments such as Boylston notify their firefighters by beeper (Flanagan and MacKenzie), while others will use a fog horn; however this method is becoming less common. Some call departments may have one or two full time personnel at the station during regular business hours. All the call departments that were studied participated in mutual including strike teams.

4.1.1.1 Issues Faced By Call Departments

For call departments, it is difficult to get response during the day because many of the firefighters work outside of town and can not respond in a reasonable time. In

in addition call and volunteer firefighters receive little to no pay to risk their lives though they are expected to respond at a moment's notice.

4.1.2 Career Departments

A career fire department is a fire department with full time fire personnel. For the members of these departments this is their full time job. This type of department is typical of larger communities due to the larger demand and bigger budget. In a career department the firefighters are always ready to go when a call is sounded.

4.2 Training Programs

A number of the chiefs interviewed expressed the need for a standard for minimum firefighter training. Most of the departments are already training to the Department of Fire Services Firefighter I and II standards and it is believed by some of the departments we spoke to that this should be the state if not the national standard.

4.2.1 Academy

4.2.1.1 Massachusetts Firefighting Academy

The Massachusetts Fire Academy is the training resource for most of the state's fire departments. The academy was created to provide training to all the state fire personnel without cost to the cities and towns. The academy provides an eleven week basic training program (firefighter I and II); as well as officer training and continuing education. Training resources are available to individual departments in the form of media, instructors, and use of their facilities. (Massachusetts Fire Academy)

4.2.1.2 Specialized Academy

Worcester, like most large cities, has their own firefighter training academy. This way they can create a "Worcester firefighter" or one that is prepared for the diverse

scenarios encountered in the city. Like the Massachusetts State Firefighter Academy, Worcester trains to the specifications of firefighter I and II and expands upon that to focus on issues specific to them, such as multi-family homes. Worcester recruit training is done every twelve to eighteen months with a class size of twenty-four to thirty recruits at a time to keep up manpower. Once firefighters graduate, they must be proficient at their duties. Lower staffing levels do not allow for one-on-one supervision of rookie firefighters by experienced officers while at an incident, as was practiced in the past. (Maloney)

4.2.2 Proficiency Training

4.2.2.1 Similarities between towns

While conducting our research, many towns indicated that they utilize the course materials offered by the Massachusetts Firefighting Academy to enhance and supplement their training programs. The academy also provides free courses to any Massachusetts firefighter who wishes to take them. This includes all call and volunteer firefighters who wish to donate additional time to attend courses.

Fire departments must hold refresher courses in hazardous materials and first responder skills according to a federal mandate. How often these classes must be held depends on the type of department. All of the call/volunteer departments said that they performed these refresher courses at least biannually, if not annually. The career departments perform this training annually. All departments decide what additional topics to train on by doing an informal needs assessment.

4.2.3 Effects of Worcester Cold Storage Fire

The Worcester Cold Storage fire of 1999 has affected all of the local fire departments to some degree. After this incident, the Worcester Fire Department determined that it would be beneficial to conduct seminars and training courses focused on firefighter survival techniques (Henderson). These techniques included how to save themselves in collapsing buildings and other dangerous situations (Henderson). Most of the departments that were encountered said that one or more of their members attended the seminar. Many of the firefighters who attended shared what they had learned with their fellow firefighters (Plummer). Training programs in a number of departments were adjusted to increase the focus on these techniques.

4.2.4 Summary of Fire Department Research

4.2.4.1 Berlin

4.2.4.1.1 General Information

Berlin has a population of 2,700 and covers thirteen square miles with one fire station. There are thirty firefighters on call. Berlin is very focused on firefighter safety issues. Before they can leave for a fire all seat belts must be fastened or the breaks will not disengage. Once at a fire scene they always maintain a team of firefighters with a charged hose on the lawn during any fire, ready to go in and rescue a downed or lost firefighter if necessary. (Plummer)

The response time is usually twelve to eighteen minutes to arrive on scene from the time of the call. Usually two to three firefighters will respond to a minor incident and six to eight will respond to a structure fire. However, there have been times when only one man has gone to a fire. This is because once the first firefighter shows up at the fire station he will typically wait five minutes for anyone else to show up, if no one else

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arrives he leaves alone to go to the incident scene. If more help is needed they will utilize mutual aid, usually getting help from a surrounding town. Four of the six surrounding towns have full time fire departments. (Plummer)

4.2.4.1.2 Training

Berlin meets twice a month for training drills. They do their “hands-on” training by doing apparatus checks; making sure that all the necessary equipment is there, works, and that the personnel are familiar with it and know how to use it. In deciding what to train on, they try to choose topics that everyone would be interested in, or that they would find useful. An example is conducting a class on how to use thermal imaging goggles. This is something that the firefighters would find interesting, but that also has a practical application. (Plummer)

It is important to keep training interesting to encourage the firefighters to attend since the town has not budgeted to pay for time spent training. Training is considered mandatory, but enforcing this causes a dilemma. The town needs the manpower and does not want to lose any of its experience firefighters, but they need to be up to date on their skills. Attendance is also an issue when it comes to incident command training. They rarely train in this area because it requires the chief, and the majority of the department to perform a drill; it is often not possible to assemble everyone at once. (Plummer)

4.2.4.2 Boylston

4.2.4.2.1 General Information

Boylston has a population of 4,200 and covers sixteen square miles with one fire station. Boylston has recently, in the last two years, become a combination department with the chief and one lieutenant holding full-time positions. They work 7am-5pm

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Monday through Friday, operating both EMS and Fire. This chief is an active member of the fire department and responding to all calls while on duty, unlike most traditional chiefs. They hope to add a third full-time employee, also a lieutenant, July 2006 to work 12pm-8pm. The calls typically peak during the early morning (6am-8am) and early evening hours (4pm-8pm) and this would help cover the rush. (Flanagan and MacKenzie)

There are thirty-six firefighters technically on call, but only twenty are active. Their ages average between thirty and thirty-five. They try to follow NFPA 1710, but often must rely on surrounding towns for mutual aid during the daytime hours when firefighters are away at their full-time jobs. At night, fifteen to twenty firefighters will arrive at the firehouse within five minutes of receiving the call. They try to run a minimum of three to an engine with the chief going ahead to answer a call while the full-time lieutenant will wait for a crew to arrive before responding. (Flanagan and MacKenzie)

4.2.4.2.2 Training

Training is held on Wednesday nights three times per month. Firefighters must attend 75% of the classes and can make up missed classes in Sterling or West Boylston. As an additional incentive, firefighters are paid for attending training. The training is a 50/50 mix of hands-on and classroom training. Since Chief Flanagan is a Massachusetts Firefighting Academy instructor, most of their material is from the Mass fire academy. However, they also take course materials from the National Firefighting Academy. The schedule is flexible to accommodate new topics. They often focus on seasonal topics for training, such as brush fires or cold water rescue. In addition to Chief Flanagan, they

frequently invite guests to give a lecture. They hope by training so much that they will maintain the firefighter's interest in volunteering. (Flanagan and MacKenzie)

4.2.4.3 Millbury

4.2.4.3.1 General Information

Millbury has a population of 13,400 and covers fifteen square miles with four fire stations. Millbury fire department consists of forty-five on call Firefighters, seven lieutenants, four Captains, four Assistant Chiefs, one Chief Engineer (Fire Chief) and one full time clerk. The department as a whole has active members, less than fifteen members are considered to be inactive, responding to less than 10% of calls. They have four stations and are therefore the largest of the call departments that were studied. (Markey)

The average age of the call firefighters is thirty-eight. The response time is around seven minutes from the time of call. The department tries to follow the guidelines of NFPA 1710, but this is difficult since they are a call department. Firefighters wait two to three minutes for other personnel, but if the required four do not arrive at that station, the responding firefighters will pick up any crew who has responded to another station. No truck will respond to a call for an incident on the Massachusetts Turnpike or a mutual aid call unless there are four firefighters on the truck. (Markey)

4.2.4.3.2 Training

The Millbury Fire Department holds training four times per month. They take attendance, and pay the firefighters who attend. The training sessions are held every Monday night with the exception of holidays. The training sessions are three hours long.

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One Monday a month is used for station maintenance. They also try to do some mutual aid drills involving surrounding towns. (Markey)

The training schedule is prepared a year in advance by the Training Officer who tries to incorporate both useful and interesting topics. This allows for “officers choice”, where the officer determines and provides training for their crew that night. After conducting their training, the officers must provide a report about what training was done. Other training that they perform is in the form of classes that are run by Massachusetts Firefighting Academy instructors, firefighters with special expertise, or local companies. For example, the Chief works for a propane company and therefore conducts gas training. Companies such as NSTAR, Mass Electric, and Otis Elevator also provide occasional training, along with tours of local businesses and buildings. (Markey)

4.2.4.4 Spencer

4.2.4.4.1 General Information

Spencer has a population of 12,000 and covers thirty-three square miles with one fire station. The Spencer fire department has a full-time Chief who works Monday through Friday 8am-4pm. There are forty-one firefighters on call, all of whom are active. The average age in the department is thirty-seven years old. (Parsons)

This department tries to meet NFPA 1710. It takes about eleven minutes from the time of call to the time they arrive on scene. The firefighters wait five minutes in the station for more personnel to respond before they leave for the scene. (Parsons)

4.2.4.4.2 Training

Training topics are planned two years in advance based on an internal needs assessment. The first and third Monday of every month are scheduled as training days with the last Monday of the month set aside for officer meetings. On the second Monday of every month, the rescue company has an additional training session. The department also will call special meetings as required. (Parsons)

Training is mandatory and the firefighters are compensated for the time. Training materials are taken from the Massachusetts Firefighting Academy, the International Fire Service Training Association (IFSTA), among other resources. Since they are a call department officers do not perform additional training exercises with their crews. (Parsons)

Call Departments				
	Berlin	Boylston	Millbury	Spencer
Number of active Firefighters	30	20	46	41
Response Time (min)	15	10	7	11
Time to wait at station (min)	5	5	3	5

Table 1: Staffing and Response Time Comparison for Call Departments

4.2.4.5 Marlborough

4.2.4.5.1 General Information

Marlborough has a population of 37,700 and covers twenty-one square miles. Marlborough is a full time fire department that has three stations, and employs sixty-eight firefighters. In the past they had a combination call/career department, but in 2004 the last call firefighter was cut out of the budget. The firefighters’ average age is thirty to

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forty. They were an older department until a recent round of retirements, which then allowed for hiring of new recruits. However with the new recruits they still have eight vacant positions, authorized within the budget. (Adams and Ayotte)

The current staffing levels are inadequate to meet NFPA 1710 when they first arrive at the incident. The department will then “call back” off duty firefighters to meet NFPA 1710 at the scene. This is cheaper than hiring more staff once benefits are factored in, but generates a lot of overtime. With this arrangement they are able to handle up to a two alarm fire. Once they get past a two alarm fire (multiple alarms require additional manpower and equipment), mutual aid is automatically engaged; a predetermined run card goes into effect. (Adams and Ayotte)

Another issue facing the town of Marlborough is the need for a station west of Interstate highway 495. As a busy industrial area, a quick response is important. Realizing this importance, companies have offered to pay for the construction of the fire station. Despite this offer, there is still no fire station because the town was not willing to pay for additional staffing. (Adams and Ayotte)

4.2.4.5.2 Training

Stemming from their staffing issue, as well as a lack of funding the proficiency training program is minimal. In order to do formal training classes or drills they need to fill the positions that are vacant while the firefighters are training to maintain proper station coverage. This problem is compounded when the same training needs to be repeated for all four shifts. However, once or twice in a year the department receives a grant for training purposes and is able to fill the shifts and conduct formal training. (Adams and Ayotte)

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For the rest of the year officers perform informal training with their companies. They find hands on training in small groups to be more conducive to the learning of the firefighters. Informal training takes many shapes. With no fire prevention bureau, firefighters are responsible for doing the building inspections. They often take this opportunity to address possible emergency scenarios that they might encounter. Another form of training is done through post incident evaluation. This is a way to accentuate the positive performance as well as identify any weaknesses. Even with the amount of all their informal training they feel there is still the need for additional formal training. (Adams and Ayotte)

4.2.4.6 Worcester

4.2.4.6.1 General Information

Worcester is the second largest city in New England, with a population of 176,000, and has diversity to match its size. Eleven fire stations protect the thirty-nine square miles of the city. Worcester has a significant industrial presence intertwined with a unique residential sector and several major highways. The varied landscape of the city provides a challenging front for firefighting.

Worcester is home to many different types of industry. These include a nuclear reactor at WPI and a LNG natural gas filling station. These potential hazards and those of other factories/organizations require extensive hazmat education and pre-planning just in case an incident should arise. (Maloney)

Many of Worcester's residents live in triple-decker homes that are very close together. These densely packed residences are a serious fire hazard due to their high fuel content and the threat of fire spreading to neighboring buildings. (Maloney)

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Worcester fire department has 418 firefighters. They try to meet NFPA 1710, having a minimum of four firefighters responding within four minutes of a fire call. They have established a department standard to respond within four to six minutes 95% of the time. They meet this standard. For the majority of their companies, they try to have three firefighters and one officer in order to meet this standard. Stations on the outskirts of the city must meet this staffing requirement. Larger stations in the middle of the city will send firefighters to the smaller outskirt stations when a position needs to be filled due to sickness, injury, vacation etc. Therefore the larger stations often run three firefighter crews instead of the recommended four. (Henderson)

Worcester has an eight day rotation of two ten hour days forty-eight hours off, followed by two fourteen hour nights with seventy-two hours off. The median age of the firefighters is forty-six, but should be in the mid to high thirties if they replaced each retired firefighter with a new recruit. The vacancy factor in their budget is being increased yearly, meaning that there are more positions allowed to go unfilled. (Henderson)

4.2.4.6.2 Training

Worcester has its own sub-department, encompassing two percent of the overall budget, to manage all of its training needs. They run two proficiency training periods per year; fall (September to January) and spring (January to June). Officer school training is held three times per year, as well as executive officer training two to three times per year. The training officers devise their own courses according to NFPA standards and the city's specific needs. (Maloney)

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Supplemental training is performed by the commanding officer in each company. The officer is required to do eight drills a month on various subjects. One of these drills is mandated by the training department while the remaining drills are devised by the officer from observations and assessments of the company. These drills typically last fifteen to thirty minutes and can be accomplished through discussion or hands-on practice. The main goal of these drills is to improve effectiveness of the company as a team. (Maloney)

All of Worcester's training is done in house, but their training instructors often go to other towns. The training schedules are shared with Auburn and Shrewsbury who sometimes attend Worcester's courses. Other instructors have been invited to conduct a class, but this does not occur often. They also do not have to travel to use the Massachusetts Firefighting Academy burn building since they have recently received their own through the Leary foundation (a result of the 1999 Cold Storage fire). (Maloney)

Even though they have their own training department, Worcester lacks sufficient classroom space. They are currently using space provided by the Army Reserves facility across town. This is undesirable and creates liability issues when firefighters are required to travel in their own vehicles across the city while on duty. Another reason it is undesirable is because the preferred way to train is to have classroom instruction followed by immediate hands-on practice, which is not currently possible. To help remedy this situation, adequate classroom space has been included in the plans for the new station (a memorial to the firefighters lost in the Cold Storage fire). (Maloney)

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Career Departments		
	Marlborough	Worcester
Number of active Firefighters	69	418
Response Time (min)	NA	4

Table 2: Staffing and Response Time Comparison for Career Departments

4.3 Staffing Data

The following table, Table 3, details the staffing levels of the fire departments in this study. It breaks the department down into the number of firefighters in each position and how many firefighters are in one company.

Town	Total	Chief	Deputy Chief	Captain	Lieutenant	Private	Call	Recruit	Clerk	Per	
	Firefighters		or assistant chief				Firefighter			Company	
Call Fire Departments											
Berlin	42	1	2	2	3		34	0	0		
		part-time									
Boylston	27	1	1		1 full-time	1	24			n/a	
		full-time	call		4 call	(EMT/FF)				call	
Millbury	65	1	4	4	7		45	4	1	n/a	
										call	
Spencer	53	1	1	5	5		41			n/a	Ambulance staffed
		full-time		call	call		call			call	by the two full-time firefighters
Career Fire Departments											
Marlborough	69	1	4	4	4	56	0	0	1	1 officer	0 officers
										2 firefighters	2 firefighters
Worcester	418	1	15	25	77	300	0	0 - 30*	6**	1 officer	
										3 firefighters	
*classes of 24-30 recruits occur every 12-18 months						** Clerks include bookkeeper, typist, accountant, assistant					

Table 3: Department Staffing Breakdown

4.4 Injuries

Data on injuries was collected due to the belief that staffing and training levels correlate to firefighter injuries. As previously discussed in section 2.2.1, the link between staffing levels and injury rates among firefighters and civilians has been analyzed extensively. However, the effect of training on injuries is not known. Further studies would be necessary to explore this possible link.

It is possible that increased training programs focused on firefighter safety, prompted by the 1999 Cold Storage fire, decreased the rate of injuries. Captain Maloney believes that if staffing levels in Worcester had not decreased as the training program was enhanced after the 1999 fire, injury levels would have declined. One result of a decline in staffing levels is an older department. This contributes to the rise in injuries because as age increases, common injuries such as back and joint occur with more frequency (Adams and Ayotte). There are other issues that effect injury levels, however, and the cause of their fluctuation can not be isolated at this point in this study. Future studies will need to look at staffing levels, median ages, activity level of the department, and training programs together to see what may have an effect.

The information needed to accomplish these studies can be hard to obtain. Statewide firefighter injury statistics are not tracked for all types of calls. The State Fire Marshall's office requires fire departments to report injuries that occurred while responding to a fire call (Dion). Other injury statistics are not collected by state or federal factions.

Similarly, it is difficult to obtain injury data from the fire departments. Methods for storing and tracking injury incidents have typically been unreliable. Therefore,

accurate long-term data is hard to acquire. Particular details of these injury incidents are also difficult to obtain.

Future studies may find that the use of off-hand estimates, such as those that were obtain from the fire chiefs may be sufficient for analysis. However, the number of injuries occurring over the past ten years was so small an estimate off by one could carry as much as a thirty-three percent error. A better strategy to obtain detailed injury data might be to approach the fire departments to start tracking in depth accounts of all injuries.

4.5 Results: Analysis and Budget Effects

4.5.1 Staffing

The general consensus between fire departments was that the biggest issues facing them today are money and staffing. According to the career department officials contacted within this study, staffing levels are being reduced because of budgetary constraints. Due to this, fire departments do not always meet NFPA 1710 despite their best efforts. Simply meeting 1710 on a call does not ensure adequate numbers of firefighters in the department. (Marlborough is a prime example of this.) Stations are closed (or not built) to save on personnel costs (Adams and Ayotte).

Call and volunteer departments are the natural result of a small budget. Small communities may not have the activity level that warrants a full-time department or see it as a high priority. Often they do not allocate adequate funds for equipment. An example of this would be in Berlin where there is only \$4000 a year allocated for replacing turnout gear. The problem is that one ensemble costs \$2000 and they do not require their firefighters to pay for any of their own equipment.

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Staffing in call departments depends primarily on who is available and willing. This can be influenced by the type of call, where it came from, and if the firefighters believe it is a false alarm. Increased compensation for call firefighters could, in theory, increase attendance.

4.5.2 Training

If staffing were to be increased, cities, such as Worcester, would be able to keep cohesive teams together. These teams are more efficient and effective since practice allows them to anticipate one another's actions. Increased staffing also helps training in cities such as Marlborough, by providing enough coverage for shifts that are deployed on training exercises.

Of all the departments we studied, Worcester was the only city with an official training department. Their program appeared to be in-depth and very well organized. Training is a big priority in the Worcester fire department, from exercises as intense as burn building drills to simple hydrant hookups. Their program could be beneficial to implement in other towns.

For call departments, it would be easier to require training if some incentive for attending existed. Towns such as Berlin cannot hold the firefighters to the mandatory training attendance because they do not pay them to attend and cannot afford to lose firefighters who are already firefighter I and II trained. This seems to be less of an issue for Boylston, who pays their firefighter to attend training and requires they attend 75%. They also pay for attending make up courses in surrounding towns.

If the training budget were increased, departments could offer compensation as an incentive for firefighters to seek continuing education at the Massachusetts fire academy.

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The academy itself is free to attend for all Massachusetts firefighters and should be taken advantage of.

4.5.3 Budgeting

Through examination of the budgets it was realized that the budgets that the fire departments were given did not typically increase in proportion to the inflation rate. Only one town in our study did surpass the inflation rate for the appraised years. It is suspected that this increase is due to the overtime payments made during a busier than average year (Adams and Ayotte). According to an economic study the inflation rate between the years of study was 3.4% (Sahr). The chart below illustrates the how the increase in budget compares to the inflation rate. From this it can be inferred that services are being reduced as the cost of services goes up.

		Call				Career	
		Berlin	Boylston	Millbury	Spencer	Marlborough	Worcester
Budgets	2004	\$ 30,493	\$ 128,986	\$ 331,062	\$ 228,000	\$ 5,551,952	\$ 28,960,630
	2005 Estimate with the 3.4% Inflation	\$ 31,530	\$ 133,372	\$ 342,318	\$ 235,752	\$ 5,740,718	\$ 29,945,291
	2005 Actual	\$ 30,600	\$ 131,531	\$ 341,399	\$ 230,424	\$ 5,841,943	\$ 29,005,595
	Δ 2005	-930	-1,841	-919	-5,328	101,225	-939,696
	Percentage needed to meet current inflation	2.95	1.38	0.27	2.26	-1.76	3.14
	amount budget increased	0.45	2.02	3.13	1.14	5.16	0.26
Green means over inflation rate					Red means under inflation rate		

Table 4: Inflation and Budget

5 Conclusion and Recommendations

5.1 Increase Staffing by Budget

In order to adequately attack a fire, a minimum of four firefighters is required, with five being optimal, as discussed in Section 2.1.1. With less than four firefighters, several potentially dangerous scenarios could occur. For example, there could be a delay in getting water to the fire due to the lack of sufficient manpower to operate the hoses. With a four person crew, however, water typically reaches the fire faster and the amount of property damage is decreased. Civilian injuries and fatalities are also reduced as rescues performed by a four person crew are eighty percent more effective than a three person crew, as stated in section 2.2.3.

Another possible scenario would be a lack of firefighters available to perform a rescue in the event of a fallen firefighter. Having the appropriate number of firefighters could reduce firefighter injuries by fifty percent or more. In addition, a staffing shortage lessens the amount of time that a fire department can spend performing pre-planning and building evaluations. This pre-planning allows firefighters to anticipate possible hazards they may encounter in the event of an emergency. Therefore an adequately staffed fire department creates a safer community for civilians and firefighters. How many firefighters a jurisdiction needs depends not only on the number of firefighters on a crew, but on the number of fire stations that are needed for adequate coverage of the community.

Recommendation 1: To ensure adequate coverage and response time, every jurisdiction should conduct an analysis of fire station locations.

5.1.1 Career Departments

The career fire departments in this study did not always meet NFPA 1710 staffing standards although they strive to meet it. Worcester fire department requires that the stations on the outskirts of the city have the NFPA recommended four firefighters per company at all times, as stated in Section 4.2.4.6.1. To do this, however, personnel from the inner city stations are sometimes transferred to these outlying stations. At this point companies in the inner city will have three personnel instead of the recommended four. These deficient staffing levels and the discussion in section 2.2 about how staffing affects firefighter and community safety show that Worcester would benefit from a staffing increase. Enough personnel should be on staff so that all companies meet NFPA 1710 staffing levels at all times, this includes enough personnel to cover sick time, injury leave, vacation, training etc. This would involve restructuring or increasing the fire departments budget as firefighters have a minimum salary of \$50,000 plus benefits (see Worcester's budget in appendix 6.3.5).

Marlborough fire department is also in need of increased staffing levels. Marlborough fire department is not always able to meet NFPA 1710 staffing requirements when they initially arrive on the scene of a call, as revealed in Section 4.2.4.5.1. They must call in off-duty firefighters to augment their responding force. This group recommends that the city of Marlborough increase firefighter staffing so that all companies meet the NFPA 1710 staffing recommendation at all times. As with Worcester, this would involve restructuring and likely increasing the budget as a Marlborough firefighter makes a minimum of \$40,000 per year plus benefits (see Appendix 6.2.1.3 for a copy of Marlborough's budget).

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Additionally Marlborough is in need of a fire station west of Interstate 495 in their busy industrial area, as stated in Section 4.2.4.5.1. Staffing for such a station would require a considerable budget increase to cover the cost of hiring new firefighters.

Although only two career departments were analyzed in this study, a report from the NFPA and FEMA suggests that the problem of not meeting NFPA 1710 staffing recommendations is not localized, as explained in Section 2.2. Career departments across the country would likely benefit from additional staff. This would in turn benefit the communities they serve.

Recommendation 1a: To increase the safety of the firefighters and the communities they serve, staffing levels in career fire department should be increased to meet NFPA 1710 in all companies, during all shifts.

5.1.2 Call Departments

Unlike career departments, it is not possible to say whether call departments consistently meet the staffing requirements of NFPA 1710. As discussed in Section 4.1.1, the number of responders varies from call to call and time of day. For the fire departments that were analyzed, if there was insufficient response by call firefighters in the town, mutual aid was requested to supplement.

It is possible that having a combination department, consisting of both full-time and call firefighters would benefit the community by providing a reliable responding force, as Boylston is implementing by having two full-time firefighters during the day in addition to paging more personnel when needed. If more call fire departments adopted a combination department, response time would likely improve as the delay inherent in

calling for mutual aid, or waiting for firefighters to respond, would be avoided. However, as in career departments, additional staff means additional funding needed. This could significantly increase the budget.

Recommendation 1b: To reduce the time to arrive at the incident scene and maximize effectiveness, call departments should hire a minimum number of paid fulltime firefighters who are on duty during the day.

5.2 Increase Training by Budget

The type of emergencies that firefighters regularly face is changing. As discussed in section 2.1.1, fewer calls are fire related and firefighter's responsibilities have broadened. With fire scenarios becoming less frequent, performing drills to maintain proficiency has become more important. New skills must also be mastered to execute these new roles.

Since there is no official recommendation or regulation on proficiency training, outside of hazmat and first responder refreshers, training programs are difficult to quantify. Of the six departments that were investigated, Worcester fire department appeared to have an extensive program and is therefore a possible model. This study recommends that towns increase their training budget to create a regular training program, like Worcester's, that covers topics ranging from basic skills to more complex operations.

An increase in the training budget would allow towns such as Marlborough to hire firefighters needed to cover the shifts for firefighters out on training. It would also allow call departments, such as Berlin, to pay their firefighters to attend training, which could

feasibly increase attendance. It is hard to say what other impacts an increase in training may have; as Captain Maloney stated in Section 4.2.4.6.2, the effect of training is difficult to gauge as there are many variables that influence injury levels.

Recommendation 2: To increase firefighter safety, towns should fund training programs to the level and scope of the Worcester fire department and perform drills and classes regularly on topics ranging from basic skills to more complex operations.

5.3 Public Awareness

The public is ultimately in charge of their town's budget. It is the public that votes to appropriate funding for a new fire station, additional firefighters, etc. With this being the case, it is necessary and appropriate that the citizens understand the structure and functions of their fire department and how cut-backs affect safety. For example, town officials are refusing to fund personnel for a fire station in Marlborough, as discussed in section 4.2.4.5.1, compromising the coverage in some sections of the city. If the citizens of Marlborough fully understood the situation, they might be more alarmed and willing to increase the fire department's budget to staff this new station. This lack of understanding is not unique to Marlborough. The public is generally unaware of many of the issues facing their firefighters and how it could affect their own safety.

We recommend that a survey be created to analyze what the public may know about their local fire department. At this point, a public education program could be implemented to fill in the knowledge gaps. The program would raise awareness of the issues facing the fire service and thus the community. With this enlightened view, the public will be better equipped to make judgments concerning the fire department budget.

Recommendation 3: To increase public support for fire department funding, a program should be created to educate the public on the functions of the fire department, how budget constraints can reduce the fire department's effectiveness, and how reduced effectiveness puts firefighters and the community at risk.

5.4 Recommendations for Future Studies

Further research can look at the impact and feasibility of creating some standards for fire proficiency training. A future study may begin by developing a model for proficiency training that would cover the major aspects of fire fighter duties. This could then be submitted to fire departments to evaluate its practicability. Adjustments can be made to the model using input from the fire departments. This would be beneficial because it would ensure that fire departments addressed all the major training areas.

This group also recommends that a future study focus on in-depth analysis of the fire department and town budgets. This task would require a comprehensive knowledge of financial planning. Studying the budget would likely encompass the entire scope of an IQP as the politics and finances involved are quite complicated.

As mentioned previously in section 4.4, it is hard to obtain accurate injury reports. The tables below provide an alternate means of gathering injury data. It is recommended that they be presented to the chief in anticipation of a future study. The templates are both easy for the chiefs to complete and the researchers to analyze.

Call Department Injury Report								
Incident Number	Date			Injury	Cause	Rank	Inactive Time (days)	Compensation
	Month	Day	Year					
1								\$ -
2								\$ -

Table 5: Call Department Injury Tracking Form

Career Department Injury Report									
Incident Number	Date			Injury	Cause	Rank	Pay Rate	# of Shifts missed	Compensation
	Month	Day	Year						
1							\$ -		\$ -
2							\$ -		\$ -

Table 6: Career Department Injury Tracking Form

5.4.1 Additional Advice for Future Studies

A pearl of wisdom that could be garnered from this study was that in-person interviews were by far the most valuable tool to gather information from the fire departments. The insight of the chiefs and officers was extremely helpful in focusing this project. It was also useful to contact the chiefs by phone and email prior to meeting, so they could gather any of the information we requested or appoint someone to do so. This also prepares them for the focus of the upcoming interview.

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6 Appendix

6.1 Town Matrix

TOWN	POPULATION			AREA (sq miles)	POPULATION DENSITY	TYPE OF FIRE DEPARTMENT
	2004	2000	1990			
Auburn	16,381	15,901	15,005	15.5	1056	Paid
Berlin	2,677	2,380	2,293	13	205.9	Volunteer
Bolton	4,389	4,148	3,134	19.93	208.12	Volunteer
Boylston	4,181	4,008	3,517	15.8	264.6	Paid Volunteers
Charlton	12,295	11,263	9,576	42.53	264.83	Volunteer
Clinton	13,890	13,435	13,222	7.5	2,355.70	Paid
Grafton	16,297	14,894	13,035	23	708.6	Paid
Holden	16,595	15,621	14,628	36	460.97	Paid
Hudson	18,726	18,113	17,233	11.5	1,574.39	Paid
Lancaster	6,719	7,380	6,661	27.68	266.67	Volunteer
Leicester	10,904	10,471	10,191	23	474.09	Paid
Marlborough	37,699	36,255	31,813	21.09	1,719.45	Paid
Millbury	13,376	12,784	12,228	15	891.7	Volunteer
Northborough	14,320	14,013	11,929	19	753.68	Paid
Oxford	13,735	13,352	12,588	27	501.47	Paid
Paxton	4,541	4,386	4,047	14.73	297.69	Paid Volunteers
Rutland	7,245	6,353	4,936	35.26	180.19	Paid
Shrewsbury	33,161	31,640	24,146	21	1579.09	Paid
Spencer	12,014	11,691	11,645	32.85	355.91	Paid Volunteers
Sterling	7,742	7,257	6,481	30.52	237.75	Paid
Sutton	8,878	8,250	6,824	32.38	254.79	Paid
Westborough	18,737	17,997	14,133	20.52	876.85	Paid
West Boylston	7,616	7,481	6,611	12.7	599.68	Paid Volunteers
Worcester	175,966	172,648	169,759	39	4511.95	Paid

6.2 *Initial E-mail*

Dear Chief _____,

We are students at WPI doing a school project studying fire department budgets and how they relate to staffing levels and training programs. We are creating our own model fire department budget and would like to see how to make it maximize safety of the firefighters.

We contacted your department earlier and were told to email you a list of information that we are looking for. Would you be willing to provide us with this information about your department?

1. budget for last year and this year (if possible), predicted (future) budget, and salaries (if not in budget)
2. number and type of calls over past 2 years
3. number of firefighters per shift and per company
4. rank structure and the number of personnel in each position
5. special functions of the department (if any)
6. Do you participate in mutual aid with the surrounding communities?
7. training schedule or program information
8. firefighter injury and fatality figures for past 10 years
9. Equipment: inventory and age of equipment

Thank you very much for your time and help. If you have any questions please call David at (xxx) xxx-xxxx or email us at fire-budget@wpi.edu. Please let us know when it is convenient for us to come and pick up this information.

Sincerely,
David Laramée, Tatiana Winey, and Beth Higgins

6.2.1 Responses

6.2.1.1 Berlin

6.2.1.1.1 E-mail 1

12/23/2005

Hi All,

The Deputy has asked that I respond to your request for info. I will put together what I can in the next week. As a precursor, this is an all call department (i.e. no one on duty, but we are paid when we respond to calls) so some of your questions may get different answers than those of a career department. In that light, I wonder if you have considered the major differences between the two department types and of course the combination departments that exist between the two? I would be willing to meet at our quarters if that is of any help also. Will get the info put together then we can "talk" more.

Ric Plummer

Berlin, MA FD

& WPI BSEE '67

6.2.1.2 Boylston

6.2.1.2.1 E-mail 1

1/12/2006

David,

I hope it is not too late to respond to your request. Unfortunately have been in the process of moving my office and some of the "to do" items got pushed off a little longer than I expected. I have attached responses to the nine questions listed below. Please feel free to contact me if you have any questions.

Thanks,

Joe Flanagan

Boylston Fire Chief

(Attachment)

Responses to WPI Budget Survey

**Boylston Fire Department
PO Box 634
599 Main Street
Boylston, MA 01505
Phone: (508) 869-2342**

Email: j.flanagan.firedept@boylston-ma.gov

1. Overall budget for FY2006: \$134,389 (Salaries: \$109,739, Expenses: \$24,650)
Overall budget for FY2005: \$131,531 (Salaries: \$106,881, Expenses: \$24,650)
2. EMS calls: 300
Fire calls: 100 (including all types of fires and alarm investigations)
3. July 2004-June 2005: One full-time chief and 24 call firefighters

Relationship between staffing, training and safety of fire departments

July 2005-present: One full-time chief, one full-time firefighter/EMT (7:00-16:00)

4. Rank structure: One chief, one deputy chief and five lieutenants
5. The fire department provides fire protection and EMS services to the community
6. We currently have mutual aid agreements with all of our surrounding communities along with participation in the statewide structural, brush and ambulance task forces
7. Training every Wednesday evening from 19:00-22:00, members also regularly attend courses at the Mass Fire Academy and National Fire Academy
8. No fatalities within the last 10 years; six minor injuries
9. Apparatus: Listing at: <http://www.boylston.org/fire/index.shtml>

6.2.1.3 Marlborough



City of Marlborough

FIRE DEPARTMENT

215 Maple Street, Marlborough, Massachusetts 01752
Business (508) 485-2323 Facsimile (508) 460-3795

WPI Research Project

Community Statistics:

Marlborough is a community of 37,000+ people located 26 miles west of Boston and 15 miles east of Worcester. Marlborough is intersected by Interstates 495 and 290, US Route 20 and State Route 85. There are over 13,000 structures in Marlborough, including the following:

- single family homes
- multi-family homes (two and three family)
- condominium complexes
- apartment complexes
- commercial, retail and industrial occupancies
- schools
- nursing homes
- assisted living facilities
- a 160 bed hospital
- houses of worship

Marlborough also has numerous parks, a recreational lake and other bodies of water, a golf course and a small privately owned airport.

The Marlborough Fire Department protects the City working out of three fire stations:

- Station 1/Headquarters, 215 Maple Street.
- Station 2: 100 Pleasant Street.
- Station 3: 260 Boston Post Road.

Budget Information:

- FY 2005: \$5,818,922
- FY 2006: \$5,841,943 YTD expended as of 12/21/05 \$3,107,431
- Projected increase for FY 2007: between 3 and 5%.

The City of Marlborough does not discriminate on the basis of color, national origin, sex, religion, age, or disability in employment or provision of services.

Relationship between staffing, training and safety of fire departments

Number and types of calls:

- 2004: 5,668
- 2005 year to date (22 December 2005): 5,329
- 2005 projected run total: 5,500+
- see enclosed graph for types of calls

Number of firefighters per group:

- 4 groups working the 10 and 14 schedule (2 ten hour days, 2 fourteen hour nights, 4 days off)
- 4 officers and 14 firefighters per group (effective 20 January 2006)

Number of Firefighters per Company:

- Engine Companies: 2 firefighters and an officer
- Ladder Companies: 2 firefighters
- Rescue Company: 2 firefighters

Marlborough Fire Department Rank Structure:

- Chief of Department: 1
- Deputy Fire Chiefs: 4
- Captains: 4
- Lieutenants: 4
- Firefighters: 56
- Administrative Assistant: 1

Department Functions:

The Marlborough Fire Department provides the following services to its citizens and businesses:

- Fire Suppression
- Fire Prevention
- Public Fire Education
- First Response EMS
- Hazmat
- Confined space and trench rescue

Mutual Aid:

Marlborough is part of Fire District 14, which is made up of 21 communities. Run cards are set up for up to ten alarms with a predetermined response, drawing from the resources of the neighboring departments first, and if more apparatus or personnel are needed, the outlying areas are called in the event of a major fire or mass casualty incident. The District also has a well developed multiple access

The City of Marlborough does not discriminate on the basis of color, national origin, sex, religion, age, or disability in employment or provision of services.

Relationship between staffing, training and safety of fire departments

radio system for communications and a collective joint purchasing program for equipment.

Marlborough is also part of State Hazmat District 3, which encompasses the twenty one communities of District 14 and twenty six other communities.

Training Schedule:

Training is done when whenever the opportunity arises. As Marlborough does not have a full time fire prevention bureau, the companies in the districts handle the inspectional details. Training schedules are set up around the inspection schedules. Training can be a simple as street drills and district familiarization to multi company drills.

There are monthly EMS classes and two EMS refreshers per year,

The Department does do some specialized training, doing annual refreshers for trench and confined space rescue, ice and water rescue, etc.

Firefighter Injuries and Fatalities:

Marlborough has been fortunate in the fact that we have not had a line of duty death since 1949, when Fire Chief Samuel Daoust suffered a fatal heart attack while directing operations at a two alarm fire on Main Street.

Unfortunately, firefighters do get injured in the line of duty. The department has averaged 10 firefighters per year out on injury leave in the past 9 years. In 2005, 13 firefighters have been out of work due to injuries received on the fireground and elsewhere. The timeframe for IOD leave has been from 1 week to 6 months.

Equipment Inventory:

The Department operates the following as first line apparatus:

Engine Companies

- Engine 1: 2004 E-One Typhoon custom rescue pumper, 1500 gpm, 750/30 gallons water/foam out of Station 1/HQ
- Engine 2: 2003 E-One Typhoon custom rescue pumper, 1500 gpm, 750/30 gallons water/foam out of Station 2.
- Engine 3: 1997 E-One Hurricane custom pumper, 1250 GPM pump, 750/30 gallons foam/water out of Station 3..

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Relationship between staffing, training and safety of fire departments

Ladder Companies:

- Ladder 2: 1999 E-One 110' rear mount aerial, on a Hurricane chassis out of Station 1/HQ.
- Ladder 1: 1983 E-One 110' rear mount aerial on a PemFab custom Chassis out of Station 3.

Rescue Company

- Rescue 1: 2003 Saulsbury/Freightliner medium Rescue out of Station 1/HQ.

Reserve Apparatus:

- Engine 4: 1988 E-One pumper on a Ford C8000 cab/chassis, crew cab, 100 gpm, 750 gallons of water.
- Engine 5: 1991 Central States pumper on a International Navistar 4 door cab/chassis, 750/30 gallons water/foam

Support Vehicles:

- Car 1: 1998 Ford 4x4 Explorer (Chief)
- Car 2: 1999 Ford 4x4 Expedition (Deputy Chief at HQ)
- Car 3: 1999 Chevrolet 4x4 Suburban (Captain/Lieutenant at HQ))
- Car 4: 2006 Ford F-350 4x4 pickup truck (Station 2)
- Car 5: 2005 Ford F-350 4x4 pickup truck (Station 3)
- Car 6: 1987 Ford Econoline van (Arson investigation unit)
- Car 7: 1986 Humvee 4X4 (brush fire Unit)

Other Marlborough FD equipment:

- Trench Rescue and confined space equipment trailer.
- Mass Decontamination Unit trailer and equipment.
- Avon 14 foot inflatable boat with a 10 horsepower Honda outboard motor.
- Magnum diesel powered generator/lighting unit.

The City of Marlborough does not discriminate on the basis of color, national origin, sex, religion, age, or disability in employment or provision of services.

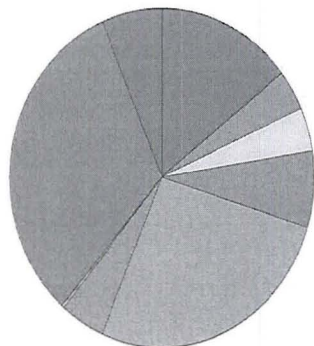
Marlborough Fire Department Incidents - Primary Type Only

Printed: 12/22/2005 11:15 am

From Date: 1/1/2004 11:15:06AM to: 12/22/2005 11:15:06AM

Jurisdiction: Marlborough Fire

Primary Type Incidents



False Alarms & False Calls	14.4%
Fire	4.1%
Good Intent Calls	4.0%
Hazardous Conditions(No Fire)	7.3%
Other Incidents (codes w/ no rollout values)	26.8%
Other Type of Incidents	4.9%
Overpressure, Ruptures, Explosion, Overheat(no ensuing fire)	0.3%
Rescue & Emergency Medical Service	32.3%
Service Calls	6.2%
Severe Weather & Natural Disasters	0.0%
Total	100.0%

Fire

- 213 Building fire
 - 1 Fires in structures other than in a building
 - 20 Cooking fire, confined to container
 - 7 Chimney or flue fire, confined to chimney or flue
 - 3 Fuel burner/boiler malfunction, fire confined
 - 2 Trash or rubbish fire, contained
- 31 Passenger vehicle fire
- 27 Mobile property (vehicle) fire, other
- 41 Brush, or brush and grass mixture fire
- 27 Natural vegetation fire, other
- 4 Outside rubbish, trash or waste fire
- 13 Outside rubbish fire, other
- 4 Special outside fire, other
- 2 Cultivated orchard or vineyard fire
- 34 Fire, other
- 429 Sub-Total,Fire

Overpressure, Ruptures, Explosion, Overheat(no ensuing fire)

- 1 Overpressure rupture of steam pipe or pipeline
- 1 Overpressure rupture of steam boiler
- 5 Overpressure rupture from steam, other
- 1 Chemical reaction rupture of process vessel
- 11 Excessive heat, scorch burns with no ignition
- 8 Overpressure rupture, explosion, overheat other
- 27 Sub-Total,Overpressure, Ruptures, Explosion, Overheat(no ensuing fire)

Marlborough Fire Department Incidents - Primary Type Only

Printed: 12/22/2005 11:15 am

From Date: 1/1/2004 11:15:06AM to: 12/22/2005 11:15:06AM

Jurisdiction: Marlborough Fire

Rescue & Emergency Medical Service

24 Medical assist, assist EMS crew
2,602 EMS call, excluding vehicle accident with injury
442 Vehicle accident with injuries
19 Motor vehicle/pedestrian accident (MV Ped)
46 Motor vehicle accident with no injuries
33 Lock-in (if lock out , use 511)
1 Search, other
2 Removal of victim(s) from stalled elevator
1 Trench/below grade rescue
1 Extrication of victim(s) from machinery
4 Extrication, rescue, other
14 Rescue or EMS standby
216 Rescue, emergency medical call (EMS) call, other
3405 Sub-Total,Rescue & Emergency Medical Service

Hazardous Conditions(No Fire)

6 Gasoline or other flammable liquid spill
11 Gas leak (natural gas or LPG)
3 Oil or other combustible liquid spill
50 Flammable gas or liquid condition, other
1 Chemical hazard (no spill or leak)
3 Carbon monoxide incident
6 Heat from short circuit (wiring), defective/worn
1 Overheated motor
2 Light ballast breakdown
27 Power line down
61 Arcing, shorted electrical equipment
29 Electrical wiring/equipment problem, other
125 Aircraft standby
4 Vehicle accident, general cleanup
2 Explosive, bomb removal (for bomb scare, use 721)
1 Attempt to burn
437 Hazardous condition, other
769 Sub-Total,Hazardous Conditions(No Fire)

Service Calls

114 Lock-out
5 Ring or jewelry removal
49 Water evacuation
21 Water or steam leak
26 Smoke or odor removal
3 Animal problem
4 Animal rescue
67 Assist police or other governmental agency
3 Police matter
10 Public service
103 Assist invalid
19 Unauthorized burning
48 Cover assignment, standby, moveup

Marlborough Fire Department Incidents - Primary Type Only

Printed: 12/22/2005 11:15 am

From Date: 1/1/2004 11:15:06AM to: 12/22/2005 11:15:06AM

Jurisdiction: Marlborough Fire

185 Service Call, other
657 Sub-Total,Service Calls

Good Intent Calls

1 Dispatched & canceled en route
8 Authorized controlled burning
2 Prescribed fire
5 Vicinity alarm (incident in other location)
102 Smoke scare, odor of smoke
31 Steam, vapor, fog or dust thought to be smoke
1 Barbecue, tar kettle
77 EMS call, party transported by non-fire agency
5 Hazmat release investigation w/ no hazmat
184 Good intent call, other
416 Sub-Total,Good Intent Calls

False Alarms & False Calls

28 Municipal alarm system, malicious false alarm
3 Direct tie to FD, malicious/false alarm
7 Central station, malicious false alarm
10 Local alarm system, malicious false alarm
38 Malicious, mischievous false call, other
1 Bomb scare - no bomb
10 Sprinkler activation due to malfunction
2 Extinguishing system activation due to malfunction
149 Smoke detector activation due to malfunction
10 Heat detector activation due to malfunction
124 Alarm system sounded due to malfunction
2 CO detector activation due to malfunction
344 System malfunction, other
12 Sprinkler activation, no fire - unintentional
1 Extinguishing system activation
201 Smoke detector activation, no fire - unintentional
168 Detector activation, no fire - unintentional
115 Alarm system sounded, no fire - unintentional
1 Carbon monoxide detector activation, no CO
120 Unintentional transmission of alarm, other
166 False alarm or false call, other
1512 Sub-Total,False Alarms & False Calls

Severe Weather & Natural Disasters

1 Wind storm, tornado/hurricane assessment
1 Lightning strike (no fire)
2 Sub-Total,Severe Weather & Natural Disasters

Other Type of Incidents

1 Citizen complaint
341 Special type of incident, other
144 Fire Dept. Detail
486 Sub-Total,Other Type of Incidents

Other Incidents (codes w/ no rolup values)

Marlborough Fire Department Incidents - Primary Type Only

Printed: 12/22/2005 11:15 am

From Date: 1/1/2004 11:15:06AM to: 12/22/2005 11:15:06AM

Jurisdiction: Marlborough Fire

10 110 Structure Fire/Explo (Added during conversion)
1,711 320 Emergency Medical (Added during conversion)
1,104 UUU Undetermined/Not Rep (Added during conversion)
2825 Sub-Total,Other Incidents (codes w/ no rollup values)
0,528 Incident Types

Total Count of Unique Incident Numbers for this Period: 10,528

Grand Total Count of Unique Incident Numbers for this Period: 10,528

12/21/2005
14:32:02

CITY OF MARLBOROUGH
YEAR-TO-DATE BUDGET REPORT
AS OF DECEMBER 21, 2005

PAGE 1
glytdbud

FOR 2006 99

ACCOUNTS FOR: 100 GENERAL FUND	ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD EXPENDED	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
02 PROTECTION							
2200 FIRE DEPARTMENT							
12200001 50130 FIRE CHIEF	82,642	.00	82,642.00	38,326.15	.00	44,315.85	46.4%
12200001 50335 DPTY CHIEF	275,668	.00	275,668.00	126,488.84	.00	149,179.16	45.9%
12200001 50450 FIREFGHTER	2,846,992	.00	2,846,992.00	1,326,262.52	.00	1,520,729.48	46.6%
12200001 50800 FIRE CAPTN	242,016	.00	242,016.00	116,352.21	.00	125,663.79	48.1%
12200001 50810 FIRE LBUT	444,034	.00	444,034.00	208,785.14	.00	235,248.86	47.0%
12200002 51214 PUBSAF AST	44,328	2.751.52	47,079.52	23,964.72	.00	23,114.80	50.9%
12200003 51226 FIRST RSDR	77,567	.00	77,567.00	66,508.13	.00	11,058.87	85.7%
12200003 51300 OVERTIME	190,000	.00	190,000.00	167,742.79	.00	22,257.21	88.3%
12200003 51324 OT-VEH MNT	22,000	.00	22,000.00	12,567.26	.00	9,432.74	57.1%
12200003 51328 OT-CALL FR	55,000	.00	55,000.00	51,379.10	.00	3,620.90	93.4%
12200003 51412 HAZMAT PAY	76,000	.00	76,000.00	75,000.00	.00	1,000.00	98.7%
12200003 51430 LONGEVITY	153,785	.00	153,785.00	124,533.19	.00	29,251.81	81.0%
12200003 51440 EDUC INCNT	282,718	.00	282,718.00	206,265.88	.00	76,452.12	73.0%
12200003 51450 NIGHT DIFF	110,514	.00	110,514.00	92,654.29	.00	17,859.71	83.8%
12200003 51480 EMER MEDCL	168,867	.00	168,867.00	122,293.12	.00	46,663.88	72.4%
12200003 51481 TRAINING	5,000	.00	5,000.00	3,187.46	.00	1,812.54	63.7%
12200003 51490 HOLIDAY	347,388	.00	347,388.00	149,127.18	.00	198,260.82	42.9%
12200003 51920 SICK BUYBK	153,424	104.00	153,528.00	81,132.15	.00	72,395.85	52.8%
12200003 51940 CLOTH ALLW	66,500	.00	66,500.00	27,250.63	.00	39,249.37	41.0%
12200003 51980 LICNSE FEE	6,600	.00	6,600.00	750.00	.00	5,850.00	11.4%
12200005 53490 COMM M&SUP	250	.00	250.00	142.35	.00	107.65	56.9%
12200005 54220 OFF SUP/EX	1,200	.00	1,200.00	556.68	.00	643.32	46.4%
12200005 55000 OPER SUPP	1,500	.00	1,500.00	253.35	.00	1,246.65	16.9%
12200005 55050 MEDICAL SU	6,000	.00	6,000.00	526.93	.00	5,403.07	9.9%
12200005 55800 OTH SUPP	2,500	.00	2,500.00	1,203.08	.00	1,296.92	48.1%
12200006 51990 MEAL ALLOW	6,000	.00	6,000.00	3,927.96	.00	2,072.04	65.5%
12200006 52120 ELECTRIC	25,000	.00	25,000.00	11,734.76	.00	13,265.24	46.9%
12200006 52200 NATRL GAS	38,000	.00	38,000.00	6,135.31	.00	31,864.69	16.1%
12200006 52450 RADIO RFRS	7,750	.00	7,750.00	447.49	.00	3,02.51	59.7%
12200006 52500 R&M EQUIP	7,000	.00	7,000.00	5,093.69	.00	1,906.31	72.8%
12200006 52560 VEHL R&M	55,000	.00	55,000.00	34,821.23	3,670.64	16,508.03	70.0%
12200006 52820 PHONEANSSV	8,700	.00	8,700.00	3,190.50	.00	5,509.50	36.7%
12200006 54830 FUEL	20,000	.00	20,000.00	13,857.48	.00	6,142.52	69.3%
12200006 57340 DUES & SUB	2,800	.00	2,800.00	1,685.00	.00	1,115.00	60.2%
12200006 57300 CONP&TRAIN	4,500	22.97	4,522.97	1,093.85	50.00	3,379.12	25.3%
12200006 57890 CIV CLOTH	200	.00	200.00	.00	.00	200.00	.0%
12200006 58510 FIRE PREV	1,500	.00	1,500.00	198.30	.00	1,301.70	13.2%
12200007 58512 FIRE EQUIP	4,000	.00	4,000.00	.00	.00	4,000.00	.0%

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FOR 2006 99

ACCOUNTS FOR: 100 GENERAL FUND	ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD EXPENDED	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
12200007 58714 MISC EQ RP	3,000	.00	3,000.00	772.46	.00	2,227.54	25.7%
12200007 58750 COMMEQ-RPL	1,000	.00	1,000.00	575.11	.00	424.89	57.5%
12200007 58780 PROTGEARRP	2,000	.00	2,000.00	664.54	1,335.46	.00	100.0%
TOTAL FIRE DEPARTMENT	5,841,943	2,878.49	5,844,821.49	3,107,430.93	5,056.10	2,732,334.46	53.3%
TOTAL PROTECTION	5,841,943	2,878.49	5,844,821.49	3,107,430.93	5,056.10	2,732,334.46	53.3%
TOTAL GENERAL FUND	5,841,943	2,878.49	5,844,821.49	3,107,430.93	5,056.10	2,732,334.46	53.3%
TOTAL EXPENSES	5,841,943	2,878.49	5,844,821.49	3,107,430.93	5,056.10	2,732,334.46	

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FOR 2006 99

100	GENERAL FUND	ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD EXPENDED	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
	GRAND TOTAL	5,841,943	2,878.49	5,844,821.49	3,107,430.93	5,056.10	2,732,334.46	53.3%

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FOR 2005 99

ACCOUNTS FOR: 100 GENERAL FUND	ORIGINAL APPROP	TRANFRS/ ADJUSTMTS	REVISED BUDGET	YTD EXPENDED	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
02 PROTECTION							
2200 FIRE DEPARTMENT							
12200001 50130 FIRE CHIEF	83,775	2,447.13	86,221.66	86,221.65	.00	.01	100.0%
12200001 50335 DPTY CHIEF	272,424	-324.29	272,099.71	272,099.72	.00	.01	100.0%
12200001 50450 FIREFGHTER	2,817,925	6,339.00	2,824,264.00	2,824,205.82	.00	58.18	100.0%
12200001 50800 FIRE CAPTN	239,483	-230.53	239,252.47	239,252.47	.00	.00	100.0%
12200001 50810 FIRE LIEUT	436,685	1,311.00	437,996.00	437,889.01	.00	106.99	100.0%
12200002 51214 PUBSAF AST	45,180	.38	45,180.38	45,180.38	.00	.00	100.0%
12200003 51170 CALL FIRE	1,000	-74.45	925.55	925.55	.00	.00	100.0%
12200003 51226 FIRST RSDR	76,711	-1,113.79	75,597.21	75,597.21	.00	.00	100.0%
12200003 51300 OVERTIME	184,084	39,053.05	223,137.05	223,137.05	.00	.00	100.0%
12200003 51324 OT-VEH MNT	20,000	4,955.42	24,955.42	24,955.42	.00	.00	100.0%
12200003 51328 OT-CALL FR	55,000	23,906.75	78,906.75	78,906.75	.00	.00	100.0%
12200003 51412 HAZMAT PAY	76,000	.00	76,000.00	76,000.00	.00	.00	100.0%
12200003 51430 LONGEVITY	152,086	-2,088.02	149,997.98	149,997.98	.00	.00	100.0%
12200003 51440 EDUC INCNT	272,746	-3,573.52	269,172.48	269,172.48	.00	.00	100.0%
12200003 51450 NIGHT DIFF	109,293	-1,387.81	107,905.19	107,905.19	.00	.00	100.0%
12200003 51480 EMER MEDCL	164,611	-1,526.49	163,084.51	163,084.51	.00	.00	100.0%
12200003 51481 TRAINING	5,000	131.62	5,131.62	5,131.33	.00	.29	100.0%
12200003 51490 HOLIDAY	337,270	-5,938.62	331,331.38	331,331.38	.00	.00	100.0%
12200003 51920 SICK BUYBK	136,159	421.00	136,580.00	136,579.99	.00	.01	100.0%
12200003 51940 CLOTH ALLW	66,500	.00	66,500.00	65,290.02	.00	1,209.98	98.2%
12200003 51980 LICNSE FEE	4,050	-1,050.00	3,000.00	3,000.00	.00	.00	100.0%
12200005 53490 COMM M&SUP	250	.00	250.00	126.71	.00	123.29	50.7%
12200005 54220 OFF SUP/EX	1,200	.00	1,200.00	1,200.00	.00	.00	100.0%
12200005 55000 OFFR SUPP	1,500	500.00	2,000.00	2,000.00	.00	.00	100.0%
12200005 55050 MEDICAL SU	6,000	.00	6,000.00	5,914.97	.00	85.03	98.6%
12200005 55800 OTH SUPP	2,500	.00	2,500.00	2,500.00	.00	.00	100.0%
12200006 51990 MEAL ALLOW	6,000	.00	6,000.00	5,876.32	.00	123.68	97.9%
12200006 52120 ELECTRIC	25,000	.00	25,000.00	25,000.00	.00	.00	100.0%
12200006 52200 NATRL GAS	30,000	18,000.00	48,000.00	47,270.10	.00	729.90	98.5%
12200006 52450 RADIO RPRS	750	.00	750.00	729.25	.00	20.75	97.2%
12200006 52500 R&M EQUIP	7,000	.00	7,000.00	6,702.40	.00	297.60	95.7%
12200006 52560 VEHCL R&M	55,000	.00	55,000.00	54,927.22	.00	72.78	99.9%
12200006 52820 PHONEANSSV	8,700	.00	8,700.00	8,493.54	.00	206.46	97.6%
12200006 54830 FUEL	17,500	7,850.00	25,350.00	25,350.00	.00	.00	100.0%
12200006 57340 DUES & SUB	2,800	.00	2,800.00	2,800.00	.00	.00	100.0%
12200006 57380 CONF&TRAIN	5,000	-1,536.36	3,463.64	3,440.67	.00	22.97	99.3%
12200006 57890 CIV CLOTH	200	-200.00	.00	.00	.00	.00	.0%
12200006 58510 FIRE PREV	1,500	.00	1,500.00	1,500.00	.00	.00	100.0%

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ACCOUNTS FOR: 100 GENERAL FUND	ORIGINAL APPROP	TRANSFRS/ ADJSTMTS	REVISED BUDGET	YTD EXPENDED	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
12200007 58512 FIRE EQUIP	4,000	.00	4,000.00	3,794.62	.00	205.38	94.9%
12200007 58714 MISC EQ RP	3,000	.00	3,000.00	2,955.98	.00	44.02	98.5%
12200007 58750 COMMEQ-RPL	1,000	.00	1,000.00	709.20	.00	290.80	70.9%
12200007 58780 PROTGEARRP	2,000	.00	2,000.00	1,767.00	.00	233.00	88.4%
TOTAL FIRE DEPARTMENT	5,736,882	85,871.47	5,822,753.00	5,818,921.89	.00	3,831.11	99.9%
TOTAL PROTECTION	5,736,882	85,871.47	5,822,753.00	5,818,921.89	.00	3,831.11	99.9%
TOTAL GENERAL FUND	5,736,882	85,871.47	5,822,753.00	5,818,921.89	.00	3,831.11	99.9%
TOTAL EXPENSES	5,736,882	85,871.47	5,822,753.00	5,818,921.89	.00	3,831.11	

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FOR 2005 99

100	GENERAL FUND	ORIGINAL APPROP	TRANSFERS/ ADJSTMTS	REVISED BUDGET	YTD EXPENDED	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
	GRAND TOTAL	5,736,882	85,871.47	5,822,753.00	5,818,921.89	.00	3,831.11	99.9%

6.2.1.4 Millbury

6.2.1.4.1 Email 1

12/21/05

Millbury Fire is happy to provide information for your survey. Attached please find three files. These include a written response to survey questions, a copy of our training schedule, and a copy of our fleet inventory. If you need anything else, please feel free to contact the office at 508-865-5328 or by e-mail.

Chief Rudge (ram)

Attachments (3) [Survey.doc\(48KB\)](#) [Training Schedule.doc\(77KB\)](#) [Equipment Survey.doc\(39KB\)](#)

(Attachment 1)

MILLBURY FIRE DEPARTMENT

December 21, 2005

WPI Research Project

1. Budget for last year and this year, predicted budget for next year.
 - FY05 \$331,062
 - FY06 \$522,165 (\$148,000 hydrant account transferred to Fire Department, \$4,256 Forest Fire Department incorporated into Fire Dept.)
 - FY07 \$530,000 (estimated)

Salaries for all positions are included in the budget.

2. Number and types of calls over last 2 years

	FY04	FY05
STRUCTURE FIRES	16	16
VEHICLE FIRES	17	13
CHIMNEY FIRES	8	6
OUTSIDE/RUBBISH FIRES	4	9
BRUSH FIRES	11	7
SERVICE CALLS	96	119
CHIEF ONLY CALLS	9	6
FALSE ALARMS	44	49
MUTUAL AID CALLS	23	19
ACCIDENT/RESCUE CALLS	21	21
ALARM MALFUNCTIONS	122	94
BOMB THREATS	3	0

Relationship between staffing, training and safety of fire departments

6.2.2 TOTAL ALARMS	374	359
---------------------------	------------	------------

3. Number of firefighters per shift and per company.
Shifts not applicable. We are a call department with four stations. Board members-5, HQ-19 members, Station 2-13 members, Station 3-11 members, Station 5-13 members, Recruits-4. 65 members in all.
4. Rank structure and number of personnel in each position.

Chief Engineer (Fire Chief)	1
Asst. Chiefs	4
Captains	4
Lieutenants	7
Firefighters	45
Recruits	4
Head Clerk (full time)	1
5. Special functions of the department
First Responder, confined space rescue, haz-mat, Rapid Intervention Team,
6. Do you participate in mutual aid with the surrounding communities? Yes
7. Training Schedule or program information.
See attachment
8. Firefighter injury and fatality figures for past 10 years
No fatalities. 25 injuries since 1998.
9. Equipment: inventory and age of equipment
See attachment

(Attachment 2)

Millbury Fire Department Training Schedule

JANUARY 1 - DECEMBER 31, 2005
JANUARY

PM's-REVIEW S.O.G.'s & MONTHLY MEETING

- | | |
|----|---|
| 10 | <u>ALL COMPANIES</u> -TOUR OF FELTER'S BUILDING |
| 17 | HOLIDAY-MARTIN LUTHER KING DAY |
| 24 | <u>ALL COMPANIES</u> -MASS. ELECTRIC AT HQ |

Relationship between staffing, training and safety of fire departments

- 31 ALL COMPANIES-“RESPONDING SAFELY TO ALARMS”-AT HQ WITH SGT. DESORCY
- FEBRUARY**
- 7 PM’s -REVIEW S.O.G.’s & MONTHLY MEETING
- 14 HQ & E2-MASTER BOX 101 AT HQ-LT. BOUTHILLETTE
E3 & E5-AMBULANCE FAMILIARITY--STATION 3
- 21 HOLIDAY-PRESIDENT’S DAY
- 27* ICE RESCUE AT BOAT RAMP WITH LT. GASCO
RESCUE 1, E2, & E3 9:00 A.M.-11:00 A.M.
HQ, & E5 11:00 A.M. - 1:00 P.M.
- 28 ALL COMPANIES-NSTAR--LOCATION TBA
- *SUNDAY TRAINING
- MARCH**
- 7 PM’s – REVIEW S.O.G.’s & MONTHLY MEETING
- 14 ASSOCIATION MEETING AT HQ
- 21 ALL COMPANIES-FIRST RESPONDER REFRESHER AT HIGH SCHOOL
- 28 ALL COMPANIES-FIRST RESPONDER REFRESHER AND AED REFRESHER AT HIGH SCHOOL
- APRIL**
- 4 PM’s – REVIEW S.O.G.’s & MONTHLY MEETING
- 11 HQ & E2-AMBULANCE FAMILIARITY AT HQ
E3 & E5-MASTER BOX 101 AT STATION 3 WITH LT. BOUTHILLETTE
- 18 HOLIDAY-PATRIOT’S DAY
- 25 HQ & E2-REVIEW FOAM OPERATIONS AT MIDDLE SCHOOL WITH JOE GERVAIS
E3 & E5-INSPECT AND TEST SCBA’S AT STATION 3
- MAY**
- 2 PM’s – REVIEW S.O.G.’s & MONTHLY MEETING
- 9 ALL COMPANIES-GAS SCHOOL---CHIEF RUDGE IBA REAR LOT

Relationship between staffing, training and safety of fire departments

- 16 HQ & E2-INSPECT AND TEST SCBA'S AT HQ
E3 & E5-REVIEW FOAM OPERATIONS AT MIDDLE SCHOOL WITH
JOE GERVAIS
- 23 FULL DEPARTMENT DRILL AT WHEELABRATOR
- 30
JUNE HOLIDAY-MEMORIAL DAY
- 6 PM's – REVIEW S.O.G.'s & MONTHLY MEETING
- 13 RESCUE 1, E3, E5-WATER RESCUE AT BOAT RAMP
ON MACARTHUR DRIVE WITH LT. GASCO
HQ & E2-LADDER DRILLS AT TRAINING TOWER
WITH LT. BOUTHILLETTE
- 20 HQ & E2-WATER RESCUE AT SINGLETARY BOAT RAMP
WITH LT. GASCO
SCOPE, E3, & E5-LADDER DRILLS AT TRAINING TOWER
WITH LT. BOUTHILLETTE
- 27
JULY ALL COMPANIES—TOUR OF WHEELABRATOR
- 4 HOLIDAY-FOURTH OF JULY
- 11 PM's – REVIEW S.O.G.'s & MONTHLY MEETING
- 18 HQ & E5--TEST HOSE
E2 & E3-ACCOUNTABILITY AT STATION 2 WITH
CAPT. COLEMAN
- 25 HQ & E5—ACCOUNTABILITY AT HQ WITH
CAPT. COLEMAN
E2 & E3--TEST HOSE
- AUGUST**
- 1 PM's – REVIEW S.O.G.'s & MONTHLY MEETING
- 8 HQ & E2-VEHICLE EXTRICATION AT DIRENZO'S
WITH LT. GASCO
E3 & E5-“SIZE UP” AT STATION 3--CAPT. COLEMAN
- 15 RESCUE, E3 & E5-VEHICLE EXTRICATION AT DIRENZO'S WITH LT.
GASCO
HQ & E2-“SIZE UP” AT STATION 2--CAPT. COLEMAN
- 22 FULL DEPARTMENT DRILL-BAG OPERATION-
LOCATION TO BE ANNOUNCED

Relationship between staffing, training and safety of fire departments

28 ASSOCIATION MEETING

DECEMBER

5 PM's – REVIEW S.O.G.'s & MONTHLY MEETING

12 ALL COMPANIES-REVIEW VENTING PROCEDURES
AT HQ (INSTRUCTOR TBA)

19 ALL COMPANIES-ELEVATOR SAFETY AT HQ WITH
A REPRESENTATIVE FROM OTIS ELEVATOR

26 HOLIDAY-CHRISTMAS OBSERVED

NO CHANGES ARE TO BE MADE TO THE SCHEDULE WITHOUT THE
APPROVAL OF THE BOARD OF FIRE ENGINEERS!

BOARD OF FIRE ENGINEERS
JANUARY, 2005

(Attachment 3)

MILLBURY FIRE DEPARTMENT	
ITEM	DATE OF PURCHASE
Engine 1-2000 Ferrara Ignitor	July, 2000
Aerialscope-1977 Mack	1977
Rescue Squad-1981 Ford	1981
Hose 1-1972 Mack Rehab	1997
Engine 2-2003 Ferrara Ignitor	July, 2003
Engine 3-1997 Freightliner	April, 1997
Engine 4-1989 Mack	September, 1989
Engine 5-2001 Ferrara Ignitor	July, 2002
Fire Alarm Truck-1993 GMC	July, 2001
Forestry Truck -1983 Chevy Pick Up	January, 1983
Fire Van-1992 Chevy Astro	January, 1999
Car 1-1998 Ford Explorer	Acquired from Police Dept.
14' 1995 SUGAR SAND BOAT	Jan., 2004

6.2.2.1.1 Email 2

3/2/06

Relationship between staffing, training and safety of fire departments

In response to your recent e-mail,

1. **How do you decide what topics to train on?**

The Millbury Fire Department holds training every Monday evening-excluding holidays. The Training Officer prepares a schedule for the entire year. State-mandated training is always included (first responder, CPR recertification, etc.) The first Monday of every month is used for station maintenance and preventative maintenance inspections. Some of the basics are covered every year as well-- such as ice training, confined space rescue, "gas" school, and vehicle extrication. We try to incorporate other topics that will be interesting to the members as well as provide useful training information. We also try to incorporate a mutual aid training drill which will involve/include surrounding towns.

2. **Are your courses from the Mass. Academy or supplemental materials or do you create your own courses?**

We do use some instructors from Mass. Academy. We also use our own members as well as outside instructors. Millbury's Fire Chief works for a propane company. He conducts the "gas" school. One member is proficient in fire alarm boxes. He conducts our master box training. We have also had different companies provide training such as NSTAR, Mass. Electric, and Otis Elevator. The training schedule also includes tours of new businesses/buildings. We have several outside instructors who come in to do other training such as Haz-Mat, Incident Command, foam operations, etc.

3. **Has your training changed since the 1999 Cold Storage fire?**

Yes, as every department in the country has probably changed. The focus has turned to better accountability and firefighter safety. Rapid Intervention Teams (RIT) have become the standard for most towns. Naturally, training in these areas must be incorporated into the schedule.

4. **Also, could you give us an estimate for how many injuries and fatalities your department has had in the past 10 years, from 1996 to present?.**

The Millbury Fire Department has been fortunate in that we have not suffered a fatality (either civilian or firefighter) in the last 10 years. We have had 16 civilian injuries and 25 firefighter injuries in that time. The firefighter injuries do include treatment for exhaustion or overexertion.

If you need more information, please contact our office.

Sincerely,

Regina A. Markey
Head Clerk
Millbury Fire Department

6.2.2.1.2 Email 3

4/11/06

Relationship between staffing, training and safety of fire departments

Sorry for the delay in responding-no pun intended!

1. What is the average age of the firefighters in your department?

The average age of our fire department members is 38

2. What is the average response time from when a call comes in to when they are on the scene or have left the station?

The average response time is 6.8 minutes

3. Does your department try to meet NFPA 1710?

NFPA 1710 sets standards for the Organization & Deployment of Fire Suppression Operations...etc. While we do our best to adhere to the Standard, a call department always has a varying number of personnel who will respond.

4. How long do firefighters wait for additional staff before leaving the station?

Responding firefighters will often wait an average of 2 to 3 minutes for other personnel to respond. While waiting, the firefighter is usually starting the truck and donning his gear. While getting the truck to the scene is a priority, it is always more beneficial to have enough personnel there to operate the equipment. We do have certain calls that require a 4-man crew--No truck is to respond on the Mass. Pike without a 4-man crew. No truck is to respond to a mutual aid call without a 4-man crew. If after waiting a short time, a 4-man crew is not available at one station, a truck will pick up additional crew who have responded to another station to provide the required crew.

5. Are all the call firefighters active or do only a few respond regularly? Do you have an estimate of how many are active?

Of the 61 members on our department, I would estimate less than 15 would be considered inactive (responding to 10% or fewer of the calls). Our department has fairly active members.

6. Is training mandatory?

Training is held every Monday night from 19:00 until 22:00-excluding holidays. A training schedule is established at the beginning of the year. Attendance is taken and members are paid for the training.

7. Do firefighters get paid to attend training?

See above

8. Do officers train informally within their groups while on call?

The training schedule does provide for "Officer's Choice". This means the company officer(s) must determine and provide training for their crew on that night. The company officer must provide a written report indicating what training was provided.

Relationship between staffing, training and safety of fire departments

Any other questions-let me know.

Regina Markey
Head Clerk
Millbury Fire

6.2.2.1.3 Phone Interview with Judy Brink

Phone interview with Judy Brink, assistant town clerk of Millbury, on April 7, 2006:

She gave us fiscal year 2004 (July 2003- June 2004): \$331,062

Fiscal year 2005 (July 2004-June 2005): \$341,399

6.2.2.1.4

6.2.2.2 Spencer

6.2.2.2.1 Email 1

1/5/06

Just Attachments in this email.

Attachment 1
Spencer Fire WPI Budget information

1) Budget	FY2004	\$228,000.00		
	FY2005	\$230,424.00		
	FY2006	\$291,334.00		
	FY2007 (proposed)	\$319,710.00		
2) Number of calls over last 2 years				
	Calendar year 2004	415 calls	Fire calls	88
			Rescues	41
			Haz mats	116
			Service calls	53
			Good intent	32
			False	83
			Severe wx	2
	Calendar year 2005	493 calls	Fire Calls	78
			Rescue	30
			Haz Mats	140
			Service calls	69
			Good Intent	36
			False	81
			Severe wx	59

3) Firefighters per shift.

Only full time person is the Chief. M-F 8-4. All others are call firefighters.

4) Rank Structure

- (1) Chief
- (1) Deputy Chief
- (5) Captains
- (5) Lieutenants

Relationship between staffing, training and safety of fire departments

5) Special functions

We provide extrication, high angle and confined space rescue services district communications.

6) Mutual aid with surrounding communities?

Yes we are very active in calling and going to mutual aid. We also participate in the District 7 strike teams.

7) Training schedule

(Separate document being sent with this)

8) Firefighter injuries or fatalities for last 10 years.

No fatalities but there have been numerous injuries but all minor in nature. I would have to guess around 50.

9) Equipment

Apparatus

Engine 1 (spare, owned by St. Joseph's Abbey) 1972 Mack

Engine 2 1998 Freightliner/E-one

Engine 3 1986 Maxim

Engine 4 1995 International/E-One

Ladder 1 1983 American LaFrance

Tanker 1 2006 International/4-Guys

Rescue 1 1990 GMC/E-One

Rescue 2 1984 GMC

Forestry 1 2005 Ford F-350

Forestry 2 1986 GMC K20

Marine 1 2005 Rescue One Connector Boat

All equipment on the apparatus has been purchased at numerous times over the years. Some dates to approximately 30 years old to recently purchased.

Relationship between staffing, training and safety of fire departments

(Attachment 2)

2004	January	February	March	April	May	June	July	August	September	October	November	December
1st Monday	CPR	FA	Fire Alarm	Fire Behavior	Bldg. Const	Officers Night		Tanker Shuttle		Extinguishers	Ventilation	Forcible Entry
Rescue Co. 2nd Monday	Auto Extrication	Confined Space	Dive(pool) Training	Auto Extrication	Dive Training	Open Water Rescue		High Angle		Dive Training	Auto Extrication	Ice Rescue
3rd Monday	CPR	SCBA #1	SCBA #2	SCBA #3	Hydrant Practical	SCBA #4	Supply Line note3	Company Comp.	Grnd Ladders	Fire Control		

2005	January	February	March	April	May	June	July	August	September	October	November	December
1st Monday	Hazmat Refresher	FA	Defensive Driving	Officers night	Static Water Sources	MCI		Foam		Portable Eq.	Officers night	Utilities
Rescue Co. 2nd Monday	Auto Extrication	Confined Space	Dive(pool) Training	Auto Extrication	High Angle	Open Water Rescue		Dive Training		Dive Training	Auto Extrication	Ice Rescue
3rd Monday	CPR	Elevators	SCBA #1	SCBA #2	SCBA #3	SCBA #4	Supply Line note4	Company Comp.	Grnd Ladders	Fire Control		

Key	
Annual Training	
Bi-Annual	
Rescue Co.	

* All Rescue Company meetings to be held on the 2nd Monday, unless announced otherwise at the previous meeting.

Notes:

1. Officers meeting, last Monday of each month.
2. Special meetings will be called as required.
3. Ladder 1, Engine 2 will lay supply line.

Relationship between staffing, training and safety of fire departments

6.2.2.2.2 E-mail 2

2/27/2006

Our topics are based on some that we train annually on, ie: SCBA's, haz mat. We figure out training cycle out two years in advance on items we believe that we need for the following years. The Worcester fire has not significantly changed our training schedule. It has only enhance the training that we do. Including RIT in all fire calls, two tag systems etc.

And no I have not attended the worc classes.

Chief Robert Parsons

Spencer Fire

Station: 508-885-3555

Fax: 508-885-2732

6.2.2.2.3 Email 3

3/30/06

1. What is the average age of the firefighters in your department? 37
2. What is the estimated average response time from when a call comes in to when they are on the scene or have left the station? 10.5 minutes to scene
3. Does your department try to meet NFPA 1710? Yes
4. How long do firefighters wait for additional staff before leaving the station? 5 minutes
5. Are all the call firefighters active or do only a few respond regularly? Do you have an estimate of how many are active? All active.
6. Is training mandatory? Yes
7. Do all firefighters attend the rescue training on the 2nd Monday or just a rescue group? Just the Rescue Company.
8. Do you get your class materials from the Mass Academy? All resources not just the Academy. IFSTA, etc.
9. Do firefighters get paid to attend training? Yes
10. Do officers train informally within their groups while on call? No

Chief Robert Parsons

Spencer Fire and Emergency Services

Station: 508-885-3555

Fax: 508-885-2732

6.2.2.3 Fire Marshall E-mail

Here are the figures you requested. There are some parameters. All these figures are fire-related, not total on-duty (all types of incidents). The number of incidents is the number of fire incidents that the corresponding fire department reported to the Massachusetts Fire Incident Reporting System (MFIRS). In MA fire departments are only required to report fires or explosions that result in a dollar loss or human casualty.

If you need further data you can go to the following website and look at our annual reports. 2004 is the last year that we have complete data for.

<http://www.mass.gov/dfs/osfm/firedata/mfirs/index.htm>

Thanks

DD (Derryl Dion)

(See attached file: Firefighter Injuries & Deaths - WPI project 4-7-06.xls)

Berlin							
Year	# of Incidents	Fire Service Injuries	Civilian Injuries	Fire Service Deaths	Civilian Deaths	Dollar Loss	
1995	35	2	0	0	0	\$	615,500
1996	25	2	0	0	0	\$	247,500
1997	30	0	0	0	0	\$	23,750
1998	20	0	0	0	0	\$	60,600
1999	39	1	2	0	0	\$	97,300
2000	30	0	0	0	0	\$	107,850
2001	37	2	0	0	0	\$	803,100
2002	16	2	0	0	0	\$	286,500
2003	19	0	0	0	0	\$	19,670
2004	30	1	0	0	0	\$	47,450
Total	281	10	2	0	0	\$	2,309,220

Relationship between staffing, training and safety of fire departments

Boylston						
Year	# of Incidents	Fire Service Injuries	Civilian Injuries	Fire Service Deaths	Civilian Deaths	Dollar Loss
1995	5	0	1	0	0	\$ 23,500
1996	0	0	0	0	0	\$ -
1997	4	0	0	0	0	\$ -
1998	0	0	0	0	0	\$ -
1999	3	0	0	0	0	\$ 38,000
2000	0	0	0	0	0	\$ -
2001	1	0	0	0	0	\$ 150,000
2002	1	0	0	0	0	\$ -
2003	6	0	0	0	0	\$ 3,000
2004	8	0	0	0	0	\$ 540,000
Total	28	0	1	0	0	\$ 754,500

Marlborough						
Year	# of Incidents	Fire Service Injuries	Civilian Injuries	Fire Service Deaths	Civilian Deaths	Dollar Loss
1995	144	1	4	0	1	\$ 351,286
1996	121	1	4	0	1	\$ 647,115
1997	142	1	4	0	0	\$ 297,420
1998	127	2	1	0	0	\$ 450,280
1999	124	4	0	0	1	\$ 658,630
2000	119	1	1	0	0	\$ 332,810
2001	130	3	1	0	1	\$ 1,102,365
2002	74	0	7	0	0	\$ 662,376
2003	52	0	0	0	0	\$ 567,550
2004	48	0	0	0	0	\$ 510,230
Total	1081	13	22	0	4	\$ 5,580,062

Millbury						
Year	# of Incidents	Fire Service Injuries	Civilian Injuries	Fire Service Deaths	Civilian Deaths	Dollar Loss
1995	25	1	0	0	0	\$ 25,700
1996	37	1	4	0	0	\$ 645,200
1997	28	1	3	0	0	\$ 263,820
1998	34	3	1	0	0	\$ 182,800
1999	43	2	0	0	0	\$ 38,500
2000	54	3	3	0	0	\$ 350,300
2001	35	0	0	0	0	\$ 779,100
2002	67	3	3	0	0	\$ 256,450
2003	49	2	1	0	0	\$ 559,500
2004	52	0	1	0	0	\$ 107,890
Total	424	16	16	0	0	\$ 3,209,260

Relationship between staffing, training and safety of fire departments

Spencer						
Year	# of Incidents	Fire Service Injuries	Civilian Injuries	Fire Service Deaths	Civilian Deaths	Dollar Loss
1995	68	1	1	0	0	\$ 12,654
1996	44	2	0	0	0	\$ 40
1997	27	0	1	0	1	\$ 68
1998	28	0	1	0	0	\$ 4
1999	46	0	0	0	0	\$ 64,000
2000	68	3	1	0	0	\$ 98,802
2001	59	0	2	0	0	\$ 185,300
2002	68	0	0	0	0	\$ 7,000
2003	72	0	1	0	0	\$ 122,300
2004	79	2	1	0	0	\$ 19,700
Total	559	8	8	0	1	\$ 509,868

Worcester						
Year	# of Incidents	Fire Service Injuries	Civilian Injuries	Fire Service Deaths	Civilian Deaths	Dollar Loss
1995	2413	127	12	0	4	\$ 5,563,361
1996	2150	141	20	0	2	\$ 4,225,414
1997	965	50	9	0	2	\$ 2,033,300
1998	1274	62	8	0	1	\$ 3,376,690
1999	1795	479	11	6	1	\$ 4,663,291
2000	1431	70	8	0	4	\$ 3,336,355
2001	1385	44	4	0	1	\$ 2,423,443
2002	1424	1	2	0	2	\$ 1,989,444
2003	2606	36	0	0	3	\$ 4,242,460
2004	3208	39	0	0	0	\$ 5,237,869
Total	18651	1049	74	6	20	\$ 37,091,627

All Fires						
Year	# of Incidents	Fire Service Injuries	Civilian Injuries	Fire Service Deaths	Civilian Deaths	Dollar Loss
1995	32156	1314	755	1	60	\$ 641,819,236
1996	28340	1097	708	1	80	\$ 140,150,881
1997	28381	993	655	0	65	\$ 123,873,925
1998	25983	778	653	1	59	\$ 135,233,903
1999	29679	1209	611	8	53	\$ 188,191,297
2000	25065	840	621	0	79	\$ 190,208,084
2001	28189	717	506	0	59	\$ 202,776,019
2002	27493	621	444	1	61	\$ 186,589,972
2003	27823	514	413	1	60	\$ 176,793,326
2004	29811	581	376	0	52	\$ 187,451,273
Total	282920	8664	5742	13	628	\$2,173,087,916

Questions and Follow-ups

6.3 Interviews

6.3.1 Interview Questions

Training

- ~ ask about training, how is it done, what does it consist of. Is it structured?
- ~ are there agendas for training, or do they decide what to focus on as they go along
- ~ How do they decide what they need training in?
- ~ are more classes added through out the year if new issues arise?
- ~ Where do they get the information to do training? Is there a data base, look at an article and decide to address and issue that it brought up
- ~ Who pays for training?
- ~ How often do they do hands on verses class room?
- ~ can we get some of the training hand outs?
- ~ For on call departments do the firefighters get paid for training?
- ~ have you ever considered sending ff to different towns to work, and improve on training?

Pre-planning?

- ~ is there any pre-planning that the town does?
- ~ Who does the pre-planning?
- ~ is it done on all buildings, abandoned etc. or just the main buildings, such as library...?

Injuries

- ~ What types of injuries have there been?
- ~ What caused the injuries? Was it work related?
- ~ Are there any incident reports that we can look through
- ~ How long is the average injury leave?

General

- ~ How many fire fighters are there per-call/ company?
- ~ is your department trying to meet NPFA 1710?
- ~

- ~ Would it be cheaper to hire another firefighter then to pay those who are injured?

6.3.2 Berlin Fire Department: Ric Plummer

Interview with Berlin Fire Department:

Ric Plummer

Firefighter

Board of Fire Engineers

Interview conducted on Wednesday 2/15/2006

Beth Higgins

David Laramee

Tatiana Winey

Training: firefighters are required to have firefighter I&II training from the Mass Firefighting Academy, but do not need the certificate (done weekly for 6months)

- IFSTA Essentials-what a firefighter at level II needs to know
- Meet 2 times per month in training drill
- First responder/CPR training every 2 years
- Hazmat 24 hr course every 2 years
- Mass Firefighting Academy is free for all Massachusetts firefighters.
- Departments can go and use the Mass Firefighting Academy burn facility. An instructor will be provided upon request.
- Ric Plummer is a fire instructor II and can teach or generate a class. He prefers to teach material from the Mass Firefighting Academy then create his own. He feels that if you train on something, you better be able to say where you got it from or you are liable for any issues.
- What they train on is personal choice. Ric Plummer will teach on whatever the firefighters or him self are interested in taking, or what they think would be useful
 - The department plans on doing a training class on how to use the thermal imaging goggles
- To decide what to teach Ric Plummer does an informal needs assessment. How many firefighters can operate and drive a certain truck or properly use other equipment. Are the firefighters proficient with how to use all the possible functions?
- Do “hands-on” training by doing apparatus checks and making sure everything that is supposed to be on the truck is, that it works and that the firefighters know how to use it
- Fire department does not pay for training, but it is required
- Whoever shows up for training shows up
- Can not make them show up for training classes, so try to make them interesting hoping that more firefighters will attend
- Don’t train on incident command because you need the chief and everyone to do it
- Don’t train with different towns unless using a Mass Academy instructor and that is how they meet with him to do the training

Department:

- Call department
- Beautiful, shiny, relatively new trucks
- Have incident command system (ICS), although not always accurate due to operator error
- Have separate “rescue” dept in the same building
- Have a pumper truck because there is no public water supply
- Use water with foam mix to help put out fires faster, as well as to use less water
- 30 call firefighters

Relationship between staffing, training and safety of fire departments

- ISO rating of 9 (10 is no department at all)
- Chief is also the fire warden (forest warden)

Response Time

- It takes Ric Plummer about 5 minutes from call to get to the station from his house
- He then waits up to 5 minutes for someone else to respond, but will leave alone after that if no other firefighters have arrived
- Total estimated time to get to scene from call is 12-18 (actual statistics not available because system doesn't keep track of it accurately)
- Usually 2-3 firefighters respond to a non major sounding call, but as few as 1 may respond, especially if to the mall due to the high number of false alarms
- 6-8 respond to a structure fire
- 4 of the 6 surrounding towns have full-time fire depts. which will respond if needed

Safety

- Berlin is very big on safety.
- They have a team of firefighters with a charged hose on the lawn of any fire, ready to go in and rescue a downed or lost firefighter if necessary
- Seatbelts must be fastened or the truck will not disengage its breaks (automatic feature)
- Trying to do more code enforcement. There are good laws in place for the town, but they are not enforced strictly enough

Other Stuff

- Z budget means zero budget. It is what they would spend if they didn't have any restriction (what they would like to spend)
- Town pays for turn-out gear, but there is only \$4000 in the budget each year and each turnout gear costs \$2000
- Trucks are supposed to be maintained on a yearly basis, but often go longer due to lack of money to service the vehicles as well as other equipment

6.3.2.1 Berlin Calls

6.3.2.1.1 2005

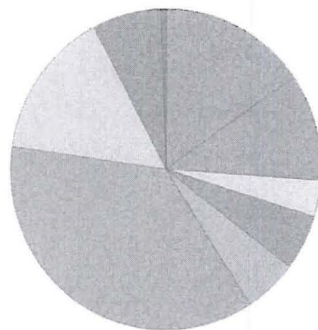
Berlin Fire Department Incidents - Primary Type Only

Printed: 1/2/2006 10:43 am

From Date: 1/1/2005 12:00:01AM to: 12/31/2005 11:59:59PM

Jurisdiction: Berlin Public Safety

Primary Type Incidents



False Alarms & False Calls	15.2%
Fire	11.0%
Good Intent Calls	3.7%
Hazardous Conditions(No Fire)	5.4%
Other Incidents (codes w/ no rolup values)	5.6%
Other Type of Incidents	36.5%
Rescue & Emergency Medical Service	14.8%
Service Calls	7.3%
Severe Weather & Natural Disasters	0.6%
Total	100.0%

Fire

- 28 Building fire
- 2 Cooking fire, confined to container
- 1 Fuel burner/boiler malfunction, fire confined
- 1 Passenger vehicle fire
- 6 Mobile property (vehicle) fire, other
- 1 Forest, woods or wildland fire
- 12 Brush, or brush and grass mixture fire
- 1 Natural vegetation fire, other
- 1 Construction or demolition landfill fire
- 1 Special outside fire, other
- 3 Fire, other
- 57 Sub-Total,Fire

Rescue & Emergency Medical Service

- 74 Vehicle accident with injuries
- 1 Motor vehicle accident with no injuries
- 2 Rescue, emergency medical call (EMS) call, other
- 77 Sub-Total,Rescue & Emergency Medical Service

Hazardous Conditions(No Fire)

- 2 Gasoline or other flammable liquid spill
- 3 Gas leak (natural gas or LPG)
- 2 Oil or other combustible liquid spill
- 1 Light ballast breakdown
- 11 Power line down

Berlin Fire Department Incidents - Primary Type Only

Printed: 1/2/2006 10:43 am

From Date: 1/1/2005 12:00:01AM to: 12/31/2005 11:59:59PM

Jurisdiction: Berlin Public Safety

- 4 Vehicle accident, general cleanup
- 1 Threat to burn
- 4 Hazardous condition, other
- 28 Sub-Total,Hazardous Conditions(No Fire)

Service Calls

- 3 Water evacuation
- 3 Water or steam leak
- 7 Smoke or odor removal
- 1 Assist police or other governmental agency
- 6 Cover assignment, standby, moveup
- 18 Service Call, other
- 38 Sub-Total,Service Calls

Good Intent Calls

- 2 Dispatched & canceled en route
- 1 No incident found on arrival at dispatch address
- 1 Authorized controlled burning
- 2 Smoke scare, odor of smoke
- 3 Steam, vapor, fog or dust thought to be smoke
- 1 Hazmat release investigation w/ no hazmat
- 9 Good intent call, other
- 19 Sub-Total,Good Intent Calls

False Alarms & False Calls

- 1 Direct tie to FD, malicious/false alarm
- 26 Smoke detector activation due to malfunction
- 10 Alarm system sounded due to malfunction
- 33 Smoke detector activation, no fire - unintentional
- 3 Detector activation, no fire - unintentional
- 5 Alarm system sounded, no fire - unintentional
- 1 Carbon monoxide detector activation, no CO
- 79 Sub-Total,False Alarms & False Calls

Severe Weather & Natural Disasters

- 1 Lightning strike (no fire)
- 1 Severe weather or natural disaster standby
- 1 Severe weather or natural disaster, other
- 3 Sub-Total,Severe Weather & Natural Disasters

Other Type of Incidents

- 2 Citizen complaint
- 186 Inspection
- 2 Special type of incident, other
- 190 Sub-Total,Other Type of Incidents

Other Incidents (codes w/ no rollup values)

- 1 Ignore Incident
- 28 Detail
- 29 Sub-Total,Other Incidents (codes w/ no rollup values)
- 520 Incident Types

Berlin Fire Department Incidents - Primary Type Only

Printed: 1/2/2006 10:43 am

From Date: 1/1/2005 12:00:01AM to: 12/31/2005 11:59:59PM

Jurisdiction: Berlin Public Safety

Total Count of Unique Incident Numbers for this Period: 520

Grand Total Count of Unique Incident Numbers for this Period: 520

6.3.2.1.2 2004

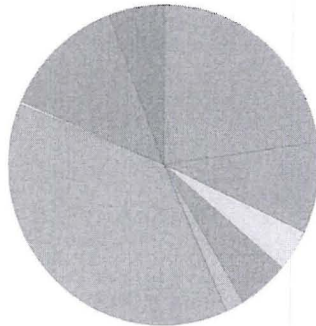
Berlin Fire Department Incidents - Primary Type Only

Printed: 1/2/2006 10:41 am

From Date: 1/1/2004 12:00:01AM to: 12/31/2004 11:59:59PM

Jurisdiction: Berlin Public Safety

Primary Type Incidents



False Alarms & False Calls	22.9%
Fire	9.0%
Good Intent Calls	4.3%
Hazardous Conditions(No Fire)	5.3%
Other Incidents (codes w/ no rollup values)	2.0%
Other Type of Incidents	37.9%
Overpressure, Ruptures, Explosion, Overheat(no ensuing fire)	0.2%
Rescue & Emergency Medical Service	12.7%
Service Calls	5.9%
Total	100.0%

Fire

- 14 Building fire
- 5 Cooking fire, confined to container
- 1 Chimney or flue fire, confined to chimney or flue
- 2 Fuel burner/boiler malfunction, fire confined
- 1 Trash or rubbish fire, contained
- 1 Passenger vehicle fire
- 1 Road freight or transport vehicle fire
- 12 Mobile property (vehicle) fire, other
- 5 Brush, or brush and grass mixture fire
- 1 Grass fire
- 1 Outside rubbish, trash or waste fire
- 1 Dumpster or other outside trash receptacle fire
- 1 Outside equipment fire
- 46 Sub-Total,Fire

Overpressure, Ruptures, Explosion, Overheat(no ensuing fire)

- 1 Munitions or bomb explosion (no fire)
- 1 Sub-Total,Overpressure, Ruptures, Explosion, Overheat(no ensuing fire)

Rescue & Emergency Medical Service

- 59 Vehicle accident with injuries
- 5 Motor vehicle accident with no injuries
- 1 Ice rescue
- 65 Sub-Total,Rescue & Emergency Medical Service

Hazardous Conditions(No Fire)

Berlin Fire Department Incidents - Primary Type Only

Printed: 1/2/2006 10:41 am

From Date: 1/1/2004 12:00:01AM to: 12/31/2004 11:59:59PM

Jurisdiction: Berlin Public Safety

- 3 Gasoline or other flammable liquid spill
- 3 Gas leak (natural gas or LPG)
- 5 Oil or other combustible liquid spill
- 1 Heat from short circuit (wiring), defective/worn
- 1 Light ballast breakdown
- 7 Power line down
- 2 Arcing, shorted electrical equipment
- 1 Building or structure weakened or collapsed
- 1 Explosive, bomb removal (for bomb scare, use 721)
- 3 Hazardous condition, other
- 27 Sub-Total,Hazardous Conditions(No Fire)

Service Calls

- 1 Water or steam leak
- 3 Smoke or odor removal
- 1 Unauthorized burning
- 11 Cover assignment, standby, moveup
- 14 Service Call, other
- 30 Sub-Total,Service Calls

Good Intent Calls

- 5 Dispatched & canceled en route
- 1 No incident found on arrival at dispatch address
- 1 Authorized controlled burning
- 5 Smoke scare, odor of smoke
- 5 Steam, vapor, fog or dust thought to be smoke
- 5 Good intent call, other
- 22 Sub-Total,Good Intent Calls

False Alarms & False Calls

- 1 Municipal alarm system, malicious false alarm
- 2 Direct tie to FD, malicious/false alarm
- 1 Central station, malicious false alarm
- 5 Sprinkler activation due to malfunction
- 34 Smoke detector activation due to malfunction
- 2 Heat detector activation due to malfunction
- 6 Alarm system sounded due to malfunction
- 2 Sprinkler activation, no fire - unintentional
- 54 Smoke detector activation, no fire - unintentional
- 2 Detector activation, no fire - unintentional
- 7 Alarm system sounded, no fire - unintentional
- 1 False alarm or false call, other
- 117 Sub-Total,False Alarms & False Calls

Other Type of Incidents

- 1 Citizen complaint
- 192 Inspection
- 1 Special type of incident, other
- 194 Sub-Total,Other Type of Incidents

Other Incidents (codes w/ no rollup values)

- 1 Ignore Incident

Berlin Fire Department Incidents - Primary Type Only

Printed: 1/2/2006 10:41 am

From Date: 1/1/2004 12:00:01AM to: 12/31/2004 11:59:59PM

Jurisdiction: Berlin Public Safety

9 Detail
10 Sub-Total, Other Incidents (codes w/ no rollup values)
512 Incident Types

Total Count of Unique Incident Numbers for this Period: 512

Grand Total Count of Unique Incident Numbers for this Period: 512

6.3.3 Boylston Fire Department: Joe Flanagan and Don MacKenzie

Interview with Boylston Fire Department:

Joe Flanagan
Chief

Don MacKenzie
Lieutenant

Interview conducted on Wednesday, 3/1/2006

Beth Higgins
David Laramée
Tatiana Winey

Relationship between staffing, training and safety of fire departments

599 Main St
Boylston, MA

- **Training**
 - Follow Dept of Fire Services firefighter I and II certification
 - Before becoming a firefighter there, must attend a structural burn class at the academy

- **Proficient Training**
 - Firefighters
 - Mandatory to attend 75% training, which they are paid for; If they miss a class they are able to make it up at Sterling or west Boylston
 - 50/50 hands-on and classroom training; do pick training program; National Fire Academy and Mass Fire Academy (chief Flanagan instructor) courses are also used in training; there are guest lecturers to instruct
 - Refresher
 - Firefighters I and II
 - Yearly training: pumps and hydraulics, SCBA, CPR & Defibrillators, Hazmat (federal)
 - Since 99 their training has had more emphasis on basic skills (Lancaster had a fatal fire not too long ago too)
 - Attended Worcester seminars
 - Training schedule is pretty flexible to fit in topics as they come up
 - By training so much they keep the firefighter's interest up

- **Department**
 - Full-time 2 people (chief and lieutenant) 7-5
 - adding a third full-time firefighter (lieutenant) July 1st 12pm-8pm
 - 36 people on call (20 are active)
 - Doing a lot of pre-planning now; old chief didn't do it. Have finished the residential areas and are now working on the business areas (town thinks it can be done in two weeks)
 - Average age 30-35
 - Follow NFPA 1710-typically have enough to respond, but otherwise have automatic mutual aid to bring up to standard once they are there
 - 1 station, 1 shift
 - At night 15-20 firefighters respond in around 5 min
 - 1996 NFPA compliance for closed cabs not met yet. Still have one engine open jump seats
 - Fire Dept is 3% of fiscal budget (fiscal year starts in July).

Relationship between staffing, training and safety of fire departments

- **Calls**
 - Most of their calls are EMS
 - Calls done by pager system, not by the siren
 - Call dept gets \$11/hr (EMS gets \$7/hr in private industry)
 - Response time is about 5 minutes to get “on air” (have crew and leave)
 - 12 min from station to last house on town border
 - Try to run a minimum of 3 to an engine. Chief will go in car 1 to a reported fire and the lieutenant will wait for staff and follow
 - The chief is a working chief. He is 41.
 - Northborough has 3 firefighters 24-7
 - W. Boylston has 2 until 10pm and automatically responds if a ladder truck is needed. Boylston has no ladder and needs a tanker for some parts of town outside hydrant reach
 - Boylston usually responds with a ambulance or engine for mutual aid
 - Runs their own EMS (1 ambulance)
 - Busiest hours are usually 6-8 am and 4-8 pm

- **Other important facts:**
 - Fire chiefs in MA are pushing for a standard and firefighter I & II looks like it for preliminary training
 - Usually get 1 engine from every town to not take too much manpower from any one town
 - Call response time is when they leave the firehouse not get to the fire (response statistics can be misleading)

6.3.3.1 Call breakdown

	2005	2004
Carbon Monoxide Detectors:	2	6
Chimney Fires	3	5
Fire Alarms	25	31
Grass/Woods/Brush Fires	9	12
Mutual Aid	7	10
Structure Fires	11	12
Vehicle Fires	4	8
Investigations	10	15
Public assist	6	10

During 2005, the following permits were issued:

Above Ground Storage (LPG)	32
Blasting	4
Certificate of Compliance	88
Fireworks	0
Oil Burner	41
Oil Tank	24
Tank Truck Inspections	1
Underground Storage	2
Burning Permits	301
Permit fires	398
Tank Removal	3
Carbon monoxide detector	1

The Fire Department continued to operate its Emergency Medical Services division in 2005. EMS continuing education was conducted on a regular basis so that all Fire Department EMTs maintained current certifications as required by the Department of Transportation. The Fire Department worked in conjunction with paramedic services from West Boylston and the University of Massachusetts to provide the town with the highest level of emergency care in the field.

	2005	2004
During 2005, the Fire Department EMS responded to the following calls:		
Residential Calls (total)	240	220
Basic Life Support	202	180
Advanced Life Support	38	40
Industrial Calls	5	4
Motor Vehicle Accidents	34	32
Mutual Aid	7	6
Patient Assists	24	20

File of Life pamphlets remain available to all residents; these pamphlets will provide important health information to EMTs in the event of an emergency. These pamphlets can be obtained by calling the Fire Department office at (508) 869-2342.

Joseph P. Flanagan, Fire Chief

6.3.3.2 Run card

Hydrant District							
Alarm	To Fire					Cover	
	Engines			Ladder	Rescue	Other	Engine
1st	Engine 2	Engine 1	Tanker 1		8R	8A	
2nd	Northboro	Shrewsbury	Sterling Rapid Intervention Team	West Boylston		UMass ALS	Berlin
3rd	Berlin	Clinton	West Boylston	Holden	Northboro Air		Lancaster
4th	Lancaster	Holden	Worcester	Worcester	Leominster EMA Light Tower		Princeton
5th	Princeton Rapid Intervention Team	Hudson	Bolton	Clinton	Holden Air		Westboro
6th	Westboro	Marlboro	Harvard	Berlin	Princeton Light Trailer		Paxton
7th	Paxton	Northboro (2)	Grafton	Sterling			West Boylston
8th	West Boylston (2)	Southboro Rapid Intervention Team	Holden (2)	Northboro			Sterling
9th	Sterling (2)	Auburn	Rutland	Shrewsbury			Hubbardston
10th	Hubbardston	Leominister	Stow	Lancaster			Millbury

Revised: 1/4/2005

6.3.4 Marlborough Fire Department: David Adams and Ron Ayotte

Interview with Marlborough Fire Department:

David Adams
Chief

Ron Ayotte
Captain

Interview conducted on Wednesday, 3/1/2006

Beth Higgins
David Laramée
Tatiana Winey

Relationship between staffing, training and safety of fire departments

Department

- The whole department is full-time. The last call firefighter just got written out of the budget two years ago (2004)
- Not a lot of formal pre-planning, but are familiar with some of the structures from inspections.
 - Hope to implement wireless database with floor-plans and risks in the truck by next year or next two years
- Department can handle up to a 2 alarm fire, after that a pre-determined run card goes into effect and mutual aid is automatic. Run by Ashland.
- Last 6-8 months has been increased fire activity for them, but it fluctuates
 - Received mutual aid received has increased because of this
- Trucks all meet NFPA closed cab standard; just recently traded in their last non compliant truck
- Don't always meet NFPA 1710 but do off-duty call-backs to get enough manpower to meet 1710. So initial response is not meeting 1710, but after the call backs it does
- Average age mid to late 30s, were an older department until last couple years where they had retirements and new recruits
- Short 8 positions from authorized spots

Training

- Training is minimal
- Minimum of 8hrs of hazmat and the first responder refresher courses
- Scheduling is an issue. There is no fire prevention bureau, this means that on-duty firefighters do the inspections
- Will take groups on inspections as a learning tool
- 1-2 times per year they have a grant to bring in an outside trainer and can back-fill to cover shifts
- Must do same training 4 times to get all 4 shifts trained
- Training budget is small making it impractical to do any routine large-scale training
 - In order to do training you need to hire firefighters to cover the shift that is unavailable due to training
- Can do station or company drills while not responding to a call as the opportunity arises. This is usually hands-on
- The majority of training is informal on-duty training. They rarely have classroom training
- Find it is better to train hands-on and in small groups. The firefighters learn better, and it is easier to instruct that way
- Do post incident analysis to accentuate positive and find negative
- Firefighters can go to Mass fire academy classes (free for all Massachusetts firefighters), but must do on their own time, and the department does not pay them for this

Relationship between staffing, training and safety of fire departments

- Some firefighters attended the Worcester workshop, found it very helpful and some shared what they learned
- Don't feel that they get as much training as they should

Injury

- Data that he e-mailed to us during our initial contact was all “on the job” injuries
- Injury data for past 10 years lost in computer/ software upgrade
- 10 years can be estimated based on an average of 8-10 injuries per year in the last two years....so estimate 80-100 in past ten
- No fatalities in past 10 yrs
- The majority of the department injuries are back injuries, knee injuries, sprains & strains, occasional heat exhaustion (short term). These injuries become more common as the firefighter gets older

Other

- Might be able to get 2004 fire department budget breakdown, but it was probably lost in conversion the software/ hardware upgrade
- Statewide mobility plan for large incidents (like 1999).
- Fire service does not have a “unified front” to approach Congress, but the police dept does and gets more funding
 - Public views police as first response when in actuality the firefighters respond first
- Need a fire station west of 495, but town is unwilling to staff it even when companies have offered to buy the land and build the station
- Once benefits are factored in it is cheaper to pay for overtime than it is to hire additional firefighters
- Moved away from call department due to liability issues
 - Call firefighters would get stuck with exterior operations and “grunt work” due to lack of training and practice (like with SCBA units)
 - Since so many people work a great distance from home, its hard to depend on them to show up to a call
- Their view of the 2 biggest issues facing fire departments is money and staffing
 - Firefighters are expected to do more with less

6.3.5 Worcester Fire Department: Joseph Henderson

Interview with Worcester Fire Department:

Joseph Henderson

District Chief

Interview conducted on Monday 2/13/2006

Beth Higgins

David Laramee

Tatiana Winey

Relationship between staffing, training and safety of fire departments

Training: (ask them about 1710) Call Chief Walter Giard or Captain Kevin Maloney (508) 799-1827 or (508) 799-1798.

Best time to call is 1st thing in the morning or 4-5.

- Mandatory yearly courses: defibrillator, hazmat, first responder,
It is a federal mandate depending on type of department.
- Company Officer needs to do some type of in-house training every day.
 - This could be going over a piece of equipment or small maintenance tasks
- Training is done on duty
- Training increased after the Cold Storage fire
 - A seminar for fire departments around the world was held for 4 or 5 years afterwards on firefighter survival techniques. This is a change from just focusing on the safety of civilians, but now addressed how the firefighters can save themselves in collapsing buildings and other dangerous situations.
 - Seminar was held near Worcester Hospital in nearby vacant buildings
 - NIOSH has report on Cold Storage Fire online

Injuries: call Union office talk to Donald Courtney or Frank Raffa (union pres) (508) 831-0519

www.wfd1009.org

if we cant get the info from them, get back in touch with Chief Henderson and he will help

Staffing: Most companies have 1 officer and 3 firefighters.

- Fire houses at outskirts of city MUST have 4 per company so as to meet standards for time and personnel response
 - They are trying to meet 1710
 - 4 firefighters respond in 4 minutes for fire
 - Their personal standard is to respond to 95% of all calls in 4-6 minutes
 - They meet this standard
 - Schedule: 2 10hr days, 48 hrs off, 2 14hr nights, 72 hrs off...8 day rotation

Special Functions: call Special Operations Chief Frank Diliddo (508) 799-1847

- SCUBA, hazmat, trench, confined space, high angle

Mutual Aid: Have mutual aid agreements: if called for assistance, they respond

Relationship between staffing, training and safety of fire departments

- Task Forces and Strike Teams exist at state level: maintains list of dept special equipment or skills, so if one department calls for assistance with something specific the state calls one of these stations with a special service
- After a 4th alarm has been called, surrounding towns are called to cover Worcester's stations while they are at the fire

Equipment: Worcester firefighters need to buy their own turnout gear and uniforms out of a yearly clothing budget of \$1200.

Budget: Chief's Administrative Assistant Michelle Esposito can answer questions about terminology etc. (508) 799-1820

- Vacancy factor covers retirement etc. It is a loss of people.
- Capital budget: is borrowed differently than the money they are paid with and is used for buying new equipment that has a long life expectancy (trucks etc) or to do station maintenance/rehabilitation

Other Facts:

- The majority of fire departments nationwide are call or volunteer. (Call are paid, volunteer are not)
- ICMA: International City Managers Association puts out a book on Managing Fire Dept Resources
- People don't realize what firefighters do and that they are not just resting at the fire station between fires and don't see the work they are doing all the time. This is why their budget is often one of the first to be cut. It tends to be the poorer neighborhoods that need firefighter's assistance more often than the affluent neighborhoods where the city managers would live.
- Worcester is not an OSHA department

Relationship between staffing, training and safety of fire departments

Worcester Budget



GERARD A. DIO, FIRE CHIEF

CITY OF WORCESTER - RECOMMENDED APPROPRIATION FOR FISCAL 2006

WORCESTER FIRE DEPARTMENT - DEPARTMENT #260 (TOTAL)

FY05 POSITIONS	APPROVED FY 05 AMOUNT	PAY GRADE	TITLE - PAY GRADE	FY 06 TOTAL POSITIONS	RECOMMENDED FY 06 AMOUNT
1	\$ 101,483.06	55EM	FIRE CHIEF	1	\$ 103,506.34
3	274,994.61	50EM	DEPUTY FIRE CHIEF	3	278,636.50
1	47,488.40	40M	PRINCIPAL STAFF ASSISTANT	1	49,287.60
12	959,876.56	93	DISTRICT FIRE CHIEF	12	958,911.91
25	1,792,277.02	92	CAPTAIN - FIRE DEPARTMENT	25	1,792,813.18
77	4,959,194.46	91	LIEUTENANT - FIRE DEPARTMENT	77	4,965,347.49
318	17,228,787.15	90	FIREFIGHTER	→ 300	16,673,784.45
1	57,784.56	41M	SENIOR REPAIRMAN - FIRE DEPARTMENT	1	57,784.56
1	43,242.48	34	SIGNAL REPAIRMAN - FIRE DEPARTMENT	1	43,242.48
1	43,242.48	34	FOREMAN - FIRE APPARATUS REPAIRMAN	1	43,242.48
1	39,268.56	32	FIRE APPARATUS REPAIRMAN	1	40,235.76
0	-	32	ACCOUNTANT	1	33,950.88
1	31,654.08	30	BUILDING MAINTENANCE CRAFTSMAN	1	35,245.44
1	35,245.44	28	BOOKKEEPER	1	35,245.44
2	67,901.76	27	PRINCIPAL CLERK	2	67,901.76
1	28,689.13	22	SENIOR CLERK TYPIST	1	28,689.12
446	\$ 25,711,129.75		REGULAR SALARIES	429	\$ 25,207,825.39
VACANT POSITIONS AUTHORIZED / NOT FUNDED:					
43	\$ -	90	FIREFIGHTERS	61	\$ -
1	-	32	FIRE APPARATUS REPAIRMAN	1	-
44	\$ -			62	\$ -
490	\$ 25,711,129.75		SUBTOTAL - REGULAR SALARIES	491	\$ 25,207,825.39
	\$ 107,500.00		DEFIBRILLATOR STIPENDS (For Uniformed Personnel)	\$	104,500.00
	12,494.00		EDUCATIONAL STIPENDS (Fire Chief and 3 Deputies)		13,255.00
	10,372.00		LONGEVITY (Fire Chief and 3 Deputies)		10,181.00
	2,489.00		HAZARDOUS MATERIAL STIPEND (Fire Chief and 3 Deputies)		2,489.00
	13,017.00		EM INCENTIVE PAY		12,973.00
	110,000.00		OUT OF GRADE PAY		115,000.00
	1,376,750.00		HOLIDAY PAY		1,379,845.00
	\$ 1,632,622.00		CONTRACTUAL OBLIGATIONS	\$	1,638,248.00
490	\$ 27,343,751.75		TOTAL REGULAR SALARIES	491	\$ 26,846,073.39
	(380,000.00)		VACANCY FACTOR		(380,000.00)
	\$ 26,963,751.75		TOTAL RECOMMENDED SALARIES	\$	26,466,073.39
	\$ 730,000.00		REGULAR OVERTIME	\$	730,000.00
	-		FIRE CLASS OVERTIME		-
	\$ 730,000.00		TOTAL RECOMMENDED OVERTIME	\$	730,000.00
490	\$ 27,693,751.75	260-91000	TOTAL RECOMMENDED PERSONAL SERVICES	491	\$ 27,196,073.39

Relationship between staffing, training and safety of fire departments



GERARD A. DIO, FIRE CHIEF
CITY OF WORCESTER - RECOMMENDED APPROPRIATION FOR FISCAL 2006
WORCESTER FIRE DEPARTMENT - DEPARTMENT #260 (TOTAL)

FY 05 TOTAL POSITIONS	APPROVED FY 05 AMOUNT	PAY GRADE	TITLE	RECOMMENDED FY 06 AMOUNT
\$	122,600.00		ADMINISTRATION ORDINARY MAINTENANCE	\$ 187,800.00
	251,250.00		MAINTENANCE ORDINARY MAINTENANCE	369,100.00
	6,800.00		PREVENTION ORDINARY MAINTENANCE	9,800.00
	25,700.00		TRAINING ORDINARY MAINTENANCE	11,600.00
	11,850.00		SUPPRESSION ORDINARY MAINTENANCE	10,000.00
	7,800.00		SPECIAL OPERATIONS ORDINARY MAINTENANCE	7,800.00
	3,800.00		HEALTH & SAFETY ORDINARY MAINTENANCE	3,800.00
	31,200.00		SCBA RESPONSE UNIT ORDINARY MAINTENANCE	31,200.00
	-		EMERGENCY MANAGEMENT ORDINARY MAINTENANCE	17,900.00
	430,000.00		CLOTHING ALLOWANCES	418,000.00
\$	891,000.00			\$ 1,067,000.00
	(4,000.00)		FUNDING SOURCES: FROM RESERVE FUNDS	(4,000.00)
\$	887,000.00	260-92000	TOTAL RECOMMENDED ORDINARY MAINTENANCE	\$ 1,063,000.00
\$	40,843.21	260-93000	SAFETY EQUIPMENT (CONTRACTUAL)	\$ 25,000.00
\$	28,621,594.96		TOTAL RECOMMENDED TAX LEVY	\$ 28,284,073.39



GERARD A. DIO, FIRE CHIEF
CITY OF WORCESTER - RECOMMENDED APPROPRIATION FOR FISCAL 2006
WORCESTER FIRE DEPARTMENT - DEPARTMENT #2601 ADMINISTRATION

FY 04 TOTAL POSITIONS	APPROVED FY 04 AMOUNT	PAY GRADE	TITLE - PAY GRADE	FY 05 TOTAL POSITIONS	RECOMMENDED FY 05 AMOUNT
1	\$ 101,483.06	55EM	FIRE CHIEF	1	\$ 103,506.34
1	92,900.13	50EM	DEPUTY CHIEF	1	92,878.83
1	80,768.02	93	DISTRICT CHIEF	1	80,351.46
1	47,488.40	40M	PRINCIPAL STAFF ASSISTANT	1	49,287.60
0	-	32	ACCOUNTANT	1	33,950.88
1	35,245.44	28	BOOKKEEPER	1	35,245.44
1	33,950.88	27	PRINCIPAL CLERK	1	33,950.88
1	28,689.13	22	SENIOR CLERK TYPIST	1	28,689.12
7	\$ 420,525.06		REGULAR SALARIES	8	\$ 457,860.55
	750.00		DEFIBRILLATOR STIPENDS		750.00
	6,412.76		EDUCATIONAL STIPENDS (Fire Chief and 3 Deputies)		7,117.72
	5,454.67		LONGEVITY (Fire Chief and 3 Deputies)		5,218.36
	1,244.62		HAZARDOUS MATERIAL STIPEND (Fire Chief and 3 Deputies)		1,244.62
	5,835.00		EM INCENTIVE PAY		7,483.14
	-		OUT OF GRADE PAY		1,300.00
	13,726.75		HOLIDAY PAY		14,176.00
	\$ 33,423.80		CONTRACTUAL OBLIGATIONS		\$ 37,289.34
7	\$ 453,948.86		REGULAR SALARIES	8	\$ 495,150.39
	\$ 453,948.86		TOTAL RECOMMENDED SALARIES		\$ 495,150.39
	\$ 11,700.00		TOTAL RECOMMENDED OVERTIME		\$ 16,700.00
7	\$ 465,648.86	260-91000	TOTAL RECOMMENDED PERSONAL SERVICES	8	\$ 511,850.39
\$	122,600.00		ADMINISTRATION ORDINARY MAINTENANCE	\$	187,800.00
	3,000.00		ADMINISTRATION CLOTHING ALLOWANCE		3,000.00
	(4,000.00)		FUNDING SOURCES: FROM RESERVE FUNDS		(4,000.00)
\$	121,600.00	260-92000	TOTAL RECOMMENDED ORDINARY MAINTENANCE	\$	186,800.00
\$	40,843.21	260-93000	SAFETY EQUIPMENT (CONTRACTUAL)	\$	25,000.00
\$	628,092.07		TOTAL RECOMMENDED TAX LEVY	\$	723,650.39

Relationship between staffing, training and safety of fire departments



GERARD A. DIO, FIRE CHIEF
CITY OF WORCESTER - RECOMMENDED APPROPRIATION FOR FISCAL 2006
WORCESTER FIRE DEPARTMENT - DEPARTMENT #2602 MAINTENANCE

FY 05 TOTAL POSITIONS	APPROVED FY 05 AMOUNT	PAY GRADE	TITLE - PAY GRADE	FY 06 TOTAL POSITIONS	RECOMMENDED FY 06 AMOUNT
1	\$ 65,684.30	91	LIEUTENANT - FIRE DEPARTMENT	1	\$ 64,149.62
2	112,185.11	90	FIREFIGHTER	1	56,059.67
1	57,784.56	41M	SENIOR REPAIRMAN - FIRE DEPARTMENT	1	57,784.56
1	43,242.48	34	SIGNAL REPAIRMAN - FIRE DEPARTMENT	1	43,242.48
1	43,242.48	34	FOREMAN - FIRE APPARATUS REPAIRMAN	1	43,242.48
1	39,268.56	32	FIRE APPARATUS REPAIRMAN	1	40,233.76
1	31,654.08	30	BUILDING MAINTENANCE CRAFTSMAN	1	35,243.44
8	\$ 393,061.57		REGULAR SALARIES	7	\$ 339,960.01
VACANT POSITIONS AUTHORIZED / NOT FUNDED:					
1	\$ -	32	FIRE APPARATUS REPAIRMAN	1	\$ -
	\$ 750.00		DEFIBRILLATOR STIPENDS		\$ 500.00
	2,100.00		HOLIDAY PAY		6,818.00
	\$ 2,850.00		CONTRACTUAL OBLIGATIONS		\$ 7,318.00
9	\$ 395,911.57		TOTAL RECOMMENDED SALARIES	8	\$ 347,278.01
	16,770.00		TOTAL RECOMMENDED OVERTIME		10,300.00
9	\$ 412,681.57	260-91000	TOTAL RECOMMENDED PERSONAL SERVICES	8	\$ 357,578.01
	\$ 251,250.00		MAINTENANCE ORDINARY MAINTENANCE		\$ 369,100.00
	3,000.00		MAINTENANCE CLOTHING ALLOWANCE		2,000.00
	\$ 254,250.00	260-92000	TOTAL RECOMMENDED ORDINARY MAINTENANCE		\$ 371,100.00
	\$ 666,931.57		TOTAL RECOMMENDED TAX LEVY		\$ 728,678.01



GERARD A. DIO, FIRE CHIEF
CITY OF WORCESTER - RECOMMENDED APPROPRIATION FOR FISCAL 2006
WORCESTER FIRE DEPARTMENT - DEPARTMENT #2603 FIRE PREVENTION

FY 05 TOTAL POSITIONS	APPROVED FY 05 AMOUNT	PAY GRADE	TITLE - PAY GRADE	FY 06 TOTAL POSITIONS	RECOMMENDED FY 06 AMOUNT
1	\$ 91,047.24	50EM	DEPUTY FIRE CHIEF	1	\$ 92,878.83
1	72,699.98	92	CAPTAIN - FIRE DEPARTMENT	1	72,699.98
5	320,414.30	91	LIEUTENANT - FIRE DEPARTMENT	5	312,504.70
12	676,530.76	90	FIREFIGHTER	12	676,947.32
1	33,950.88	27	PRINCIPAL CLERK	1	33,950.88
20	\$ 1,194,643.16		REGULAR SALARIES	20	\$ 1,188,981.71
	\$ 4,750.00		DEFIBRILLATOR STIPENDS		\$ 4,750.00
	3,040.62		EDUCATIONAL STIPENDS (Fire Chief and 3 Deputies)		3,068.64
	2,210.54		LONGEVITY (Fire Chief and 3 Deputies)		2,230.91
	622.19		HAZARDOUS MATERIAL STIPEND (Fire Chief and 3 Deputies)		622.19
	3,591.00		EM INCENTIVE PAY		1,831.62
	-		OUT OF GRADE PAY		3,600.00
	61,600.40		HOLIDAY PAY		65,283.00
	\$ 75,814.75		CONTRACTUAL OBLIGATIONS		\$ 81,380.36
20	\$ 1,270,457.91		REGULAR SALARIES	20	\$ 1,270,368.07
	\$ 1,270,457.91		TOTAL RECOMMENDED SALARIES		\$ 1,270,368.07
	\$ 36,738.00		TOTAL RECOMMENDED OVERTIME		\$ 24,400.00
20	\$ 1,307,195.91	260-91000	TOTAL RECOMMENDED PERSONAL SERVICES	20	\$ 1,294,768.07
	\$ 6,800.00		PREVENTION ORDINARY MAINTENANCE		\$ 9,800.00
	19,000.00		PREVENTION CLOTHING ALLOWANCE		19,000.00
	\$ 25,800.00	260-92000	TOTAL RECOMMENDED ORDINARY MAINTENANCE		\$ 28,800.00
	\$ 1,332,995.91		TOTAL RECOMMENDED TAX LEVY		\$ 1,323,568.07

Relationship between staffing, training and safety of fire departments



GERARD A. DIO, FIRE CHIEF
CITY OF WORCESTER - RECOMMENDED APPROPRIATION FOR FISCAL 2006
WORCESTER FIRE DEPARTMENT - DEPARTMENT #2603 FIRE PREVENTION

FY 05 TOTAL POSITIONS	APPROVED FY 05 AMOUNT	PAY GRADE	TITLE - PAY GRADE	FY 06 TOTAL POSITIONS	RECOMMENDED FY 06 AMOUNT
1	\$ 91,047.24	30EM	DEPUTY FIRE CHIEF	1	\$ 92,878.83
1	72,699.98	92	CAPTAIN - FIRE DEPARTMENT	1	72,699.98
5	320,414.30	91	LIEUTENANT - FIRE DEPARTMENT	5	312,504.70
12	676,530.76	90	FIREFIGHTER	12	676,947.32
1	33,950.88	27	PRINCIPAL CLERK	1	33,950.88
20	\$ 1,194,643.16		REGULAR SALARIES	20	\$ 1,188,981.71
	\$ 4,750.00		DEFIBRILLATOR STIPENDS		\$ 4,750.00
	3,040.62		EDUCATIONAL STIPENDS (Fire Chief and 3 Deputies)		3,068.64
	2,210.54		LONGEVITY (Fire Chief and 3 Deputies)		2,230.91
	622.19		HAZARDOUS MATERIAL STIPEND (Fire Chief and 3 Deputies)		622.19
	3,591.00		EM INCENTIVE PAY		1,831.62
	-		OUT OF GRADE PAY		3,600.00
	61,600.40		HOLIDAY PAY		65,283.00
	\$ 75,814.75		CONTRACTUAL OBLIGATIONS		\$ 81,386.36
20	\$ 1,270,457.91		REGULAR SALARIES	20	\$ 1,270,368.07
	\$ 1,270,457.91		TOTAL RECOMMENDED SALARIES		\$ 1,270,368.07
	\$ 36,738.00		TOTAL RECOMMENDED OVERTIME		\$ 24,400.00
20	\$ 1,307,195.91	260-91000	TOTAL RECOMMENDED PERSONAL SERVICES	20	\$ 1,294,768.07
	\$ 6,800.00		PREVENTION ORDINARY MAINTENANCE		\$ 9,800.00
	19,000.00		PREVENTION CLOTHING ALLOWANCE		19,000.00
	\$ 25,800.00	260-92000	TOTAL RECOMMENDED ORDINARY MAINTENANCE		\$ 28,800.00
	\$ 1,332,995.91		TOTAL RECOMMENDED TAX LEVY		\$ 1,323,568.07



GERARD A. DIO, FIRE CHIEF
CITY OF WORCESTER - RECOMMENDED APPROPRIATION FOR FISCAL 2006
WORCESTER FIRE DEPARTMENT - DEPARTMENT #2604 TRAINING

FY 05 TOTAL POSITIONS	APPROVED FY 05 AMOUNT	PAY GRADE	TITLE - PAY GRADE	FY 06 TOTAL POSITIONS	RECOMMENDED FY 06 AMOUNT
1	\$ 80,899.56	93	DISTRICT FIRE CHIEF	1	\$ 80,899.56
1	72,634.21	92	CAPTAIN - FIRE DEPARTMENT	1	71,121.46
2	131,697.47	91	LIEUTENANT - FIRE DEPARTMENT	2	128,803.50
2	112,272.80	90	FIREFIGHTER	2	112,207.03
6	\$ 397,504.04		REGULAR SALARIES	6	\$ 393,031.55
	\$ 1,500.00		DEFIBRILLATOR STIPENDS		\$ 1,500.00
	4,200.00		OUT OF GRADE PAY		2,300.00
	18,567.62		HOLIDAY PAY		22,274.00
	\$ 24,267.62		CONTRACTUAL OBLIGATIONS		\$ 26,074.00
6	\$ 421,771.66		REGULAR SALARIES	6	\$ 419,105.55
	\$ 421,771.66		TOTAL RECOMMENDED SALARIES		\$ 419,105.55
	\$ 176,748.00		TOTAL RECOMMENDED OVERTIME		\$ 120,900.00
6	\$ 598,519.66	260-91000	TOTAL RECOMMENDED PERSONAL SERVICES	6	\$ 540,005.55
	\$ 25,700.00		TRAINING ORDINARY MAINTENANCE		\$ 11,600.00
	6,000.00		TRAINING CLOTHING ALLOWANCE		6,000.00
	\$ 31,700.00	260-92000	TOTAL RECOMMENDED ORDINARY MAINTENANCE		\$ 17,600.00
	\$ 630,219.66		TOTAL RECOMMENDED TAX LEVY		\$ 557,605.55

Relationship between staffing, training and safety of fire departments



GERARD A. DIO, FIRE CHIEF
CITY OF WORCESTER - RECOMMENDED APPROPRIATION FOR FISCAL 2006
WORCESTER FIRE DEPARTMENT - DEPARTMENT #2605 SUPPRESSION

FY 05 TOTAL POSITIONS	APPROVED FY 05 AMOUNT	PAY GRADE	TITLE - PAY GRADE	FY 06 TOTAL POSITIONS	RECOMMENDED FY 06 AMOUNT
1	\$ 91,047.24	50EM	DEPUTY FIRE CHIEF	1	\$ 92,878.83
8	639,479.22	93	DISTRICT FIRE CHIEF	8	638,010.32
23	1,646,942.83	92	CAPTAIN - FIRE DEPARTMENT	23	1,648,991.74
69	4,441,398.39	91	LIEUTENANT - FIRE DEPARTMENT	68	4,394,205.37
301	16,271,651.12	90	FIREFIGHTER	284	15,772,423.07
402	\$ 23,090,518.80		REGULAR SALARIES	384	\$ 22,546,509.33
VACANT POSITIONS AUTHORIZED / NOT FUNDED:					
43	\$ -	90	FIREFIGHTERS	61	\$ -
	\$ 99,000.00		DEFIBRILLATOR STIPENDS		\$ 96,000.00
	3,040.62		EDUCATIONAL STIPENDS (Fire Chief and 3 Deputies)		3,068.64
	2,706.79		LONGEVITY (Fire Chief and 3 Deputies)		2,731.73
	622.19		HAZARDOUS MATERIAL STIPEND (Fire Chief and 3 Deputies)		622.19
	3,591.00		EM INCENTIVE PAY		3,663.24
	105,800.00		OUT OF GRADE PAY		107,800.00
	1,269,416.23		HOLIDAY PAY		1,256,559.00
	\$ 1,484,176.83		CONTRACTUAL OBLIGATIONS		\$ 1,470,444.80
445	\$ 24,574,695.63		REGULAR SALARIES	445	\$ 24,016,954.13
	(380,000.00)		VACANCY FACTOR		(380,000.00)
	\$ 401,144.00		REGULAR OVERTIME		\$ 467,600.00
	-		FIRE CLASS OVERTIME		-
	\$ 401,144.00		TOTAL RECOMMENDED OVERTIME		\$ 467,600.00
445	\$ 24,595,839.63	260-91000	TOTAL RECOMMENDED PERSONAL SERVICES	445	\$ 24,104,554.13
	\$ 11,850.00		SUPPRESSION ORDINARY MAINTENANCE		\$ 10,000.00
	396,000.00		SUPPRESSION CLOTHING ALLOWANCE		384,000.00
	\$ 407,850.00	260-92000	TOTAL RECOMMENDED ORDINARY MAINTENANCE		\$ 394,000.00
	\$ 25,003,689.63		TOTAL RECOMMENDED TAX LEVY		\$ 24,498,554.13



GERARD A. DIO, FIRE CHIEF
CITY OF WORCESTER - RECOMMENDED APPROPRIATION FOR FISCAL 2006
WORCESTER FIRE DEPARTMENT - DEPARTMENT #2611 SPECIAL OPERATIONS

FY 05 TOTAL POSITIONS	APPROVED FY 05 AMOUNT	PAY GRADE	TITLE - PAY GRADE	FY 06 TOTAL POSITIONS	RECOMMENDED FY 06 AMOUNT
1	\$ 77,830.20	93	DISTRICT FIRE CHIEF	1	\$ 78,751.01
1	\$ 77,830.20		REGULAR SALARIES	1	\$ 78,751.01
	\$ 250.00		DEFIBRILLATOR STIPENDS		\$ 250.00
	4,214.00		HOLIDAY PAY		4,214.00
	\$ 4,464.00		CONTRACTUAL OBLIGATIONS		\$ 4,464.00
1	\$ 82,294.20		REGULAR SALARIES	1	\$ 83,215.01
	\$ 82,294.20		TOTAL RECOMMENDED SALARIES		\$ 83,215.01
	\$ 67,100.00		TOTAL RECOMMENDED OVERTIME		\$ 67,100.00
1	\$ 149,394.20	260-91000	TOTAL RECOMMENDED PERSONAL SERVICES	1	\$ 150,315.01
	\$ 7,800.00		SPECIAL OPERATIONS ORDINARY MAINTENANCE		\$ 7,800.00
	1,000.00		SPECIAL OPERATIONS CLOTHING ALLOWANCE		1,000.00
	\$ 8,800.00	260-92000	TOTAL RECOMMENDED ORDINARY MAINTENANCE		\$ 8,800.00
	\$ 158,194.20		TOTAL RECOMMENDED TAX LEVY		\$ 159,115.01

Relationship between staffing, training and safety of fire departments



GERARD A. DIO, FIRE CHIEF
CITY OF WORCESTER - RECOMMENDED APPROPRIATION FOR FISCAL 2006
WORCESTER FIRE DEPARTMENT - DEPARTMENT #2607 HEALTH & SAFETY

FY 05 TOTAL POSITIONS	APPROVED FY 05 AMOUNT	PAY GRADE	TITLE - PAY GRADE	FY 06 TOTAL POSITIONS	RECOMMENDED FY 06 AMOUNT
1	\$ 80,899.56	93	DISTRICT FIRE CHIEF	1	\$ 80,899.56
1	\$ 80,899.56		REGULAR SALARIES	1	\$ 80,899.56
	\$ 250.00		DEFIBRILLATOR STIPENDS		\$ 250.00
	4,214.00		HOLIDAY PAY		4,214.00
	4,464.00		CONTRACTUAL OBLIGATIONS		4,464.00
1	\$ 85,363.56		REGULAR SALARIES	1	\$ 85,363.56
	\$ 85,363.56		TOTAL RECOMMENDED SALARIES		\$ 85,363.56
	\$ 17,200.00		TOTAL RECOMMENDED OVERTIME		\$ 17,200.00
1	\$ 102,563.56	260-91000	TOTAL RECOMMENDED PERSONAL SERVICES	1	\$ 102,563.56
	\$ 3,800.00		HEALTH & SAFETY ORDINARY MAINTENANCE		\$ 3,800.00
	1,000.00		HEALTH & SAFETY CLOTHING ALLOWANCE		1,000.00
	\$ 4,800.00	260-92000	TOTAL RECOMMENDED ORDINARY MAINTENANCE		\$ 4,800.00
	\$ 107,363.56		TOTAL RECOMMENDED TAX LEVY		\$ 107,363.56



GERARD A. DIO, FIRE CHIEF
CITY OF WORCESTER - RECOMMENDED APPROPRIATION FOR FISCAL 2006
WORCESTER FIRE DEPARTMENT - DEPARTMENT #2608 SCBA RESPONSE UNIT

FY 05 TOTAL POSITIONS	APPROVED FY 05 AMOUNT	PAY GRADE	TITLE - PAY GRADE	FY 06 TOTAL POSITIONS	RECOMMENDED FY 06 AMOUNT
1	\$ 56,147.36	90	FIREFIGHTER	1	\$ 56,147.36
1	\$ 56,147.36		REGULAR SALARIES	1	\$ 56,147.36
	\$ 250.00		DEFIBRILLATOR STIPENDS		\$ 250.00
	2,911.00		HOLIDAY PAY		2,911.00
	3,161.00		CONTRACTUAL OBLIGATIONS		3,161.00
1	\$ 59,308.36		REGULAR SALARIES	1	\$ 59,308.36
	\$ 59,308.36		TOTAL RECOMMENDED SALARIES		\$ 59,308.36
	\$ 2,600.00		TOTAL RECOMMENDED OVERTIME		\$ 2,600.00
1	\$ 61,908.36	260-91000	TOTAL RECOMMENDED PERSONAL SERVICES	1	\$ 61,908.36
	\$ 31,200.00		SCBA RESPONSE UNIT ORDINARY MAINTENANCE		\$ 31,200.00
	1,000.00		SCBA RESPONSE UNIT CLOTHING ALLOWANCE		1,000.00
	\$ 32,200.00	260-92000	TOTAL RECOMMENDED ORDINARY MAINTENANCE		\$ 32,200.00
	\$ 94,108.36		TOTAL RECOMMENDED TAX LEVY		\$ 94,108.36



GERARD A. DIO, FIRE CHIEF
CITY OF WORCESTER - RECOMMENDED APPROPRIATION FOR FISCAL 2006
WORCESTER FIRE DEPARTMENT - DEPARTMENT #2610 EMERGENCY MANAGEMENT

FY 05 TOTAL POSITIONS	APPROVED FY 05 AMOUNT	PAY GRADE	TITLE - PAY GRADE	FY 06 TOTAL POSITIONS	RECOMMENDED FY 06 AMOUNT
0	-	91	LIEUTENANT - FIRE DEPARTMENT	1	\$ 65,684.30
0	\$ -		REGULAR SALARIES	1	\$ 65,684.30
	\$ -		DEFIBRILLATOR STIPENDS		\$ 250.00
	-		HOLIDAY PAY		3,396.00
	-		CONTRACTUAL OBLIGATIONS		3,646.00
0	\$ -		REGULAR SALARIES	1	\$ 69,330.30
	\$ -		TOTAL RECOMMENDED SALARIES		\$ 69,330.30
	\$ -		TOTAL RECOMMENDED OVERTIME		\$ 3,200.00
0	\$ -	260-91000	TOTAL RECOMMENDED PERSONAL SERVICES	1	\$ 72,530.30
	\$ -		EMERGENCY MANAGEMENT ORDINARY MAINTENANCE		\$ 17,900.00
	-		EMERGENCY MANAGEMENT CLOTHING ALLOWANCE		1,000.00
	\$ -	260-92000	TOTAL RECOMMENDED ORDINARY MAINTENANCE		\$ 18,900.00
	\$ -		TOTAL RECOMMENDED TAX LEVY		\$ 91,430.30

6.3.6 Worcester Training Department: Kevin Maloney

Interview with Worcester Training Department:

Kevin Maloney

Training Captain

Interview conducted on Wednesday 2/22/2006

Beth Higgins

David Laramee

Tatiana Winey

RECRUIT TRAINING

- Have their own academy to produce “Worcester firefighters”
 - Train to Firefighter I and II and also their own special needs
 - Focus on issues particular to Worcester (ex. triple-decker homes)
 - Massachusetts fire academy is geared toward smaller towns and any city smaller than Worcester
 - The academy is a 15 week program
- Firefighters must be able to function immediately due to smaller crew sizes
 - In past, could be trained on the job after 2 weeks of recruit training
- Most cities this size have their own academy (ex. Springfield, Boston, Providence etc)
 - Some areas have regional academies
- Would like to do recruit training every 12-18 months with 24-30 new recruits at a time to keep up manpower

PROFICIENCY TRAINING

- Department Training
 - Training staff decides among themselves what to train on
 - Get input from officers and firefighters
 - Develop their own courses in accordance with the NFPA standards
 - Use firefighter essentialS book as their general manual
 - Modify it to their own needs
 - Ex book has 4 in crew, Worcester has 3
 - Worcester has lots of triple-deckers
 - Department pays for own training (in budget)
 - State fire academy is free and firefighters can go take a class there if they want
 - Federal fire academy has grants available for anyone to take a class
 - All training done in house
 - Sometimes they go to other towns as instructors, but not usually
 - Send their schedule to Auburn and Shrewsbury who sometimes attend their classes
 - Sometimes they bring in other in other instructors, but not usually
- 2 training periods a year
 - Spring: January-June
 - Fall: September-January
 - No summer training session since people are often on vacation in the summer months
- Mandatory Training
 - Hazmat: once a year
 - First responder: 8 hrs/yr
 - Officer school: 3 times/yr
 - Executive officer training: 2-3 times/yr

Relationship between staffing, training and safety of fire departments

- Company Training (proficiency training)
 - Officer is required to do 8 drills a month on various subjects
 - Ex. Review how to take a hydrant up to WMDs
 - One drill is mandatory per month by training dept
 - Other drills are determined by the officer based on his company's performance etc.
 - Drills are usually 15-30 minutes long and are discussion or hands-on
 - Drills are done in order to make them more smooth & efficient at operations (automatic)
- After 1999
 - Before, training was more focused on EMS and HAZMAT
 - State mandated training
 - Now they train more on fires etc
 - Committee formed
 - Conduct seminar
 - Funds go to sending people to other seminars & memorial fund
 - Wont be doing seminar as a 4 day thing, but will be a one day
- Training Facilities
 - The department has their own burn building 2-3 years old (funds donated by the Leary Foundation)
 - Other towns can use it (even Boston does or Mass Academy when their building is being worked on or whatever)
 - Do not have easily accessible classroom space, so cannot do training as effectively as they would like
 - For example, they can't give a class followed by a practical, but instead must do a week in the class and then do the practical later
 - More classroom space will not be available for another 5-10 years when they build the new station (on Franklin street).
 - They are now using space at the Army Reserve across town or at Webster Square station which has no parking
 - Liability increases when firefighters must travel in their own vehicles. (No way to transport them)
- Upcoming training
 - Technical Rescue Task Force
 - Just starting with District 7 (towns west & south)
 - Tanker Shuttle Training
 - When water main goes and parts of town have no water bring in pools and water from other towns with their tanker pumper trucks
- Standards
 - NFPA is the only standard, but it is advisory, not law

Relationship between staffing, training and safety of fire departments

- They are not regulated outside of themselves
- Special Needs
 - Companies etc in Worcester will have the fire department to their facility and give them a tour of what hazardous materials or special hazards exist and what possible issues might arise there
 - Ex. go to WPI every year to train on Nuclear Reactor
 - Ex. new facilities, like LNG (natural gas filling station)
 - First responding companies get this training for all four shifts
 - Consult with experts during Hazmat events usually also
- Staffing
 - Larger stations must send firefighters to the smaller stations to ensure 3 per company
 - Running 3 per truck, usually 2 firefighters and an officer, but sometimes the officer is a senior firefighter (who gets out-of-grade pay)
 - Median age right now is 46 or 47, but if they had the manpower they should it would be mid to high 30s (lack of turnaround)
 - Injuries have probably gone up since 1999 because staffing has decreased, even if training has increased
 - Capt. Maloney believes that if the staffing level had not decreased, injuries would have decreased with the increased training
- Budgeting
 - Vacancy factor keeps being increased (less staff)
 - Impacts training because crews are not kept together (firefighters sent out to cover at other stations) and never become a cohesive team (no continuity)
- Books
 - <http://www.firebooks.com/catalog>
 - FSP books in Hudson
 - NIMS: Principles and Practice
 - Discusses need for credentialing for all public safety people
 - A lot is based on NFPA standards
 - Trying to come up with national standards
 - Dr. Donald Walsh et al.
 - Jones&Bartlett publisher in Sudbury, MA
 - ISBN 0-7637-3079-3
 - Essentials of Firefighting
 - Use it for firefighter I & II training
 - International Fire Service Training Association
 - ISBN 087939149-9