

***GREAT BARRINGTON FIRE
DEPARTMENT OPERATIONAL
STUDY FY18***

TOWN OF GREAT BARRINGTON,
GREAT BARRINGTON, MASSACHUSETTS

November 2018

FINAL REPORT



Town of Great
Barrington
334 Main Street
Great Barrington,
Massachusetts
01230

Submitted by:

**MANITOU
INCORPORATED**

www.manitouinc.com

FINAL REPORT

Town of Great Barrington

Great Barrington Fire Department Operational Study FY18

Prepared for

Town of Great Barrington
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Great Barrington, Massachusetts 01230



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Executive Summary

The Great Barrington Fire Department delivers a comprehensive set of services to the residents and many visitors to the Town. It has a long and proud history of service delivery based primarily on paid-call membership. Over the years, the Department has been recognized for its strength of response, quality of service, equipment, and professionalism.

Its service delivery model is now almost completely dependent on paid-call personnel, with only two career staff – the Chief and, since 2017, a fire inspector. The administrative demands of running a progressive fire department are significant. Relying on existing membership to perform tasks on an “as-available” basis is both time consuming and inefficient. In addition, there is no depth of coverage for vacations, work-related travel, or other reasons. The current system essentially relies on one person working a *de facto* 24/7 schedule to keep the Department running.

However, the Department’s ability to recruit additional members is constrained by multiple social and demographic factors and trends in the industry generally. The Town has an absolute decline in the age group that most commonly forms the core of the Department’s membership. The part-year residents moving into the Town (considered a positive benefit) are often unavailable and may be uninterested in the intensive community service requirements of fire department membership. Many current members are self-employed or hold multiple jobs, making them less available to respond to alarms. Finally, training requirements and standards are rising across all aspects of the fire and emergency service industry. The “good old days” where a new member could apply, be voted in, and shortly begin attending calls is long past.

The Department’s existing call members appear to be highly motivated and professional in their attitude toward service delivery. Their contributions on a daily basis should be recognized by the Town and encouraged.

The dialogue around the fire department is polarized. There are those who recognize an immediate need for adding career staff, and those who bemoan its fiscal and potentially off-putting effect on volunteers. This study examined the available data and makes several recommendations to position the Town to prepare for the future.

There is a clear and undeniable need for added administrative support. The Chief is doing a good job in maintaining and advancing the Department but, because he responds to nearly every alarm, faces an overwhelming set of demands. Additional administrative support will relieve members of the time commitment required for non-critical tasks, and enable them to spend their available hours on service delivery and training, rather than administrative work.

We recommend that the Department use its existing data to track and report on membership activity and response times as part of its annual reporting. This is an essential function to enable the public to better understand the needs of the Department and its ability to provide services at a level expected by the public. We also recommend that the Department begin using National Fire Protection Association Standard 1720, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public*

by *Volunteer Fire Departments* as a basis for ongoing self-evaluation. At present, the Department does not generally meet the deployment-related requirements of this standard, which specifies personnel, apparatus, and time requirements for alarms.

The addition of a new career firefighter working a day shift is appropriate. This position will be an important support for daytime responses, and will also provide administrative support for the Chief.

We recommend that several approaches be pursued concurrently:

1. Begin monitoring and publishing response times and personnel turnout for alarms.
2. Engage with the Town Manager and Selectboard to better understand the challenges facing the Department and determine a desired service level.
3. Engage in a Town-supported recruitment campaign for additional members that would include both outreach to the public, and an evaluation of a strategy to encourage Town employees to join the fire department (with the understanding that Town employees would be released for attendance at alarms).
4. Based on the foregoing, plan to add more career staff or evaluate alternative staffing measures to ensure the ability to sustain locally-acceptable response times.

The current and likely future volume of calls and workload will require a viable call force both now and in the future. The Town must recognize that this is not an “either-or” choice. The GBFD could not fiscally support an entirely career fire and emergency service force. The Town must realistically begin to weigh the need to invest in additional response resources to maintain or improve service levels.

The study also examined other areas of the Department’s operations. These are fully detailed in the report, but major findings include:

- The types and level of services provided appear to be well-matched to the hazards facing the Town.
- Emergency Medical Services is an area of potential challenge and opportunity for the Department. Possible benefits of greater participation must be assessed in coordination with the Southern Berkshire Ambulance Squad and should reflect the capacity of the GBFD to handle the additional workload.
- While practices appear to be good, a comprehensive set of policies needs to be developed, and we recommend that NFPA 1720 be used as guide for prioritizing these.
- The Department’s use of technology is exemplary for an organization of its size and composition. The ability of the GBFD to capture and produce data is excellent, and utilization of these tools should continue. The use of the iamresponding® platform and Emergency Reporting® are particularly important.

The GBFD is beginning from a position of strength, but the staffing of the Department needs to

be closely monitored, in conjunction with creation of a process to set realistic expectations for service delivery. Fortunately, the Chief has assembled the data infrastructure and systems to enable this effort to be pursued using quantitative data.

1. Acknowledgments

First, we would like to thank the members of the Great Barrington Fire Department for their candor and time spent in providing data for the study. We would like to thank Town staff and Selectboard members who dedicated their time in support of the study.

We would like to thank Chief Charles Burger and Town Manager Jennifer Tabakin for their assistance and support throughout the project. In particular, Chief Burger provided detailed records to support nearly every inquiry we made. The recordkeeping by the Great Barrington Fire Department is exemplary, particularly for an organization of its size.

We would also like to recognize the Fire Chiefs of neighboring municipalities for meeting with us and sharing their perceptions and concerns.

We spoke with numerous individuals over the course of the study. In addition to the firefighters and officers we spoke with during focus groups, we also had numerous individual interviews with both current and retired members of the Department, as well as concerned members of the community.

We would particularly like to recognize the assistance we received from the following individuals representing various organizations (affiliations current as of June 2018):

Karen Fink, Treasurer/Tax Collector, Town of Great Barrington

Bill Flynn, Berkshire County Retirement System

William Hathaway, Southern Berkshire Volunteer Ambulance Squad, Inc.

Edwin May, Building Inspector, Town of Great Barrington

Amy Pulver, Town of Great Barrington

Christopher Rembold, Town Planner, Town of Great Barrington

William Walsh, Great Barrington Police Department

We would also like to recognize the members of the Town of Great Barrington Selectboard:

Stephen Bannon, Chair

Edward Abrams, Vice Chair

Daniel Bailly, Member

Bill Cooke, Member

Kate F. Burke, Member

Most importantly, we dedicate this report to the firefighters and officers who faithfully devote their time to the delivery of quality services to the residents of Great Barrington. Their

professionalism and dedication is apparent. The pride they take in serving the community is evident. Their openness and concerns for the responsible delivery of service was very helpful.

While we made several recommendations, they are intended to strengthen and support the paid-call system within the Town, and assure a sustainable fire and rescue service in the future.

Project Staff

Manitou, Inc. would like to acknowledge the staff that performed this analysis and contributed to the report.

Charles Jennings, PhD, FIFireE, CFO -- Project Manager

Tom Vaughan, MS -- Geographic Information System and Data Analyst

John Cochran, MIFireE – Analyst and Insurance Rating Analysis

Erik Gaull, MS , CEM -- EMS Cost Analysis

2. Scope and Limitations

The Town of Great Barrington issued a Request for Proposals (RFP) for a *Fire Department Operational Study* in early 2018. Manitou, Inc., a fire service management consulting company, was selected in March 2018. The contract was executed in April 2018. The project was originally proposed to follow a five-month schedule.

2.1 Scope

This study was primarily designed as a comprehensive operational study of the Great Barrington Fire Department. The GBFD is a paid-call fire department, with a full-time Chief and a full-time Fire Inspector/Firefighter. The specific areas to be addressed by the study include:

Gather Information:

1. Identify the fire, safety, and emergency hazards within the department's district, and participate in a tour of Great Barrington.
2. Review current operations of the Fire Department including, but not limited to: the department's mission; policies and operational procedures; communication policy and procedures; and officer qualifications and responsibilities.
3. Interview stakeholders of the department to assess the current quality of service, efficiency of operation, and current and long term challenges. Stakeholders must include the Town Manager, Fire Chief, a Selectboard member, and other department officers and firefighters who request an interview. Stakeholders may also include other elected officials, business owners, emergency service providers, and community members.

Evaluate:

4. Assess the department's delivery of emergency services to the public.
5. Evaluate the degree to which the goals, objectives, and operations of the fire department relate to the expectations of the Board of Selectmen, Town Manager, and the public.
6. Evaluate the fire prevention program, including code enforcement and safety education.
7. Evaluate the number and locations of stations, type and quantity of apparatus and equipment, and service needs.
8. Evaluate the organizational structure, staffing, and training.

Recommendations:

9. Provide recommendations of the types and levels of services which should be offered, based on comparable communities, national standards, and the community's expectations.
10. Role the fire department should play in providing EMS services to the town.

11. Identify any policies, practices, or procedures that are needed or do not comply with professional standards, or would improve operations and efficiencies.
12. Identify technology and/or methods which could be employed to increase effectiveness and efficiency.
13. Determine appropriate and desirable staffing levels of full-time and call firefighters for current and projected community needs.
14. Offer any other recommendations for developing a long-term strategic plan to provide fire, rescue, and EMS services to the Town of Great Barrington.
15. Provide cost estimates of recommendations.

2.2 Limitations

The study, while comprehensive, was based primarily on interviews, review of documents, and analysis of records provided primarily by the Great Barrington Fire Department administration. We had limited opportunity to observe actual field operations. However, we had a consistent set of observations and viewpoints that emerged from our interviews.

A survey of members and interviews with members and interested community members were designed to gain an understanding of perceptions and concerns around service delivery. Where deficiencies or concerns were raised, we attempted to validate any statements made to us with further evidence, as necessary.

Further, Manitou, Inc. can only indicate generally the impact of proposed changes on the Insurance Services Office, Fire Suppression Rating Schedule's Public Protection Classification (PPC). ISO uses proprietary assessment methodologies, and reserves the sole right to apply its rating schedule.

3. Current System: Town of Great Barrington

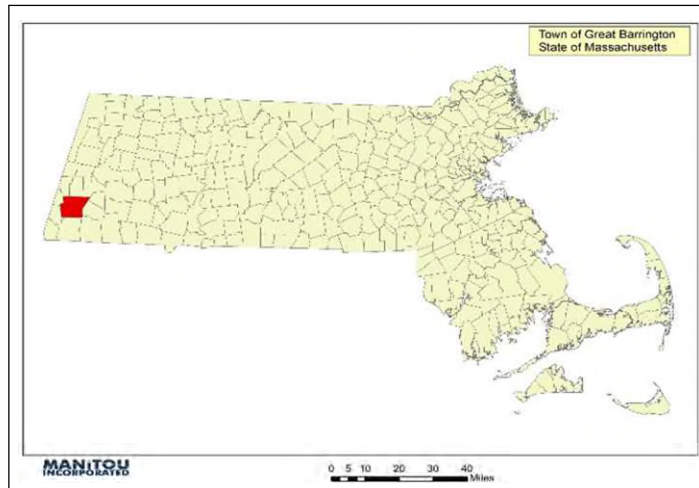
This Section discusses the general geography, setting, and demographic risks of the study area. In addition, specific risks as they relate to the provision of fire and emergency services are also examined.

3.1 Description of Service Area

Community Boundaries

The Town of Great Barrington is in Berkshire County on the western edge of the State of Massachusetts (Figure 3.1). According to the United States Census Bureau, the town has a total area of 45.8 square miles, of which 44.8 square miles is land and 0.97 square miles, or 2.09%, is water. Great Barrington is bordered by the towns of West Stockbridge, Stockbridge, and Lee to the north; Tyringham to the northeast, Monterey to the east; New Marlborough to the southeast; Sheffield to the south; Egremont to the southwest; and Alford to the northwest (figure 3.2).

Figure 3.1: Great Barrington in the State



Great Barrington is located within the valley of the Housatonic River. The town is basically divided by the river. The Williams River, Green River, and several brooks also flow through the valley into the Housatonic. To the east of the river, several mountains of the Berkshires rise, including East Mountain (site of the Ski Butternut resort and a state forest), Beartown Mountain (and the majority of Beartown State Forest), and Monument Mountain. The Appalachian Trail crosses through East Mountain State Forest in the southeast corner of town. The southwest corner of town is the site of several country clubs and a fairground.¹

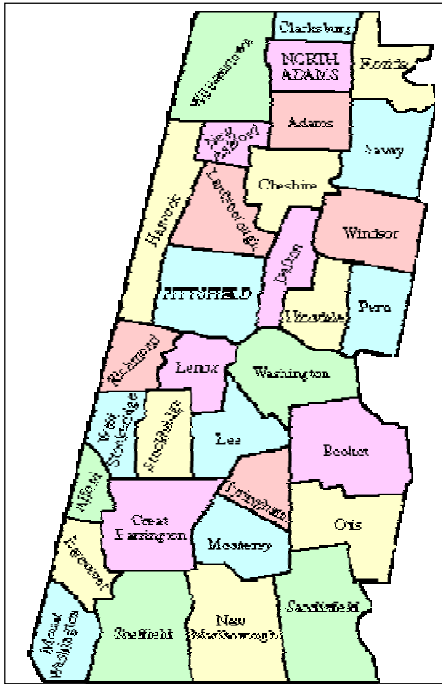
There are 2,879 occupied housing units, resulting in a household size of 2.5 people per household (U.S. Census Bureau). The predominant land uses in town are forests (72.8%), agriculture (10.1%), residential (6.4 %) and commercial/industrial (1.1 %) (MassGIS, 2010).

The town belongs to the Berkshire Hills Regional School District. The elementary (Muddy Brook), middle (Monument Valley), and high (Monument Mountain) schools are all in Great Barrington.²

¹ https://en.wikipedia.org/wiki/Great_Barrington,_Massachusetts accessed on 8/14/18

² Berkshire County Hazard Mitigation Plan, November 2012 Report accessed from BCRC website http://berkshireplanning.org/images/uploads/documents/Berkshire_County_Hazard_Mitigation_Plan_2012.pdf on 9/1/18.

Figure 3.2: Berkshire County Minor Civil Divisions



Population, Income and other Statistics

Berkshire County’s population has declined from a high of 149,402 in 1970. The 2010 Census reported 131,219 in total population. The decline is a result of a slower birth rate and an out-migration of 20 to 30-year old residents over time. The town of Great Barrington reflects the County’s overall trend. The high point for the population was 1990 (Figure 3.3); since then, the town had a 2.6% decline in 2000, a 5.6% decrease by 2010, and a -3.5% decrease at the time of the current 2017 American Community Survey (ACS).

Figure 3.3: Population Change Over Time

Great Barrington Population Change over time			
Year	Total	Change	Pop/SqMi
1950	6,712		150
1960	6,624	-1.3%	148
1970	7,537	13.8%	168
1980	7,405	-1.8%	165
1990	7,725	4.3%	172
2000	7,527	-2.6%	168
2010	7,104	-5.6%	159
2017	6,855	-3.5%	153

The *per capita* income of the Town is \$34,585; the median household income is \$48,561; the median family income is \$73,369; and the total population is 7,131, with 2,792 Households.³

Residential Population Projections

The Study Team expects resident population growth to reflect the pace experienced over the last several decades. The Berkshire Regional Planning Commission (BRPC) is the regional planning agency for Berkshire County, the westernmost county in Massachusetts. BRPC assists the 32 Berkshire cities and the Town of Barrington in a diverse set of topics including: community and economic development; community planning; data and information services; emergency preparedness planning; environmental and energy planning; regional services; public health planning and services; and transportation. One of the planning tools that BRPC supports is the projection of population change in the County. The County has experienced lower birth rates over time and steady deaths that result in a natural decrease in population. In addition, the net migration into the County also shows a downward trend.⁴

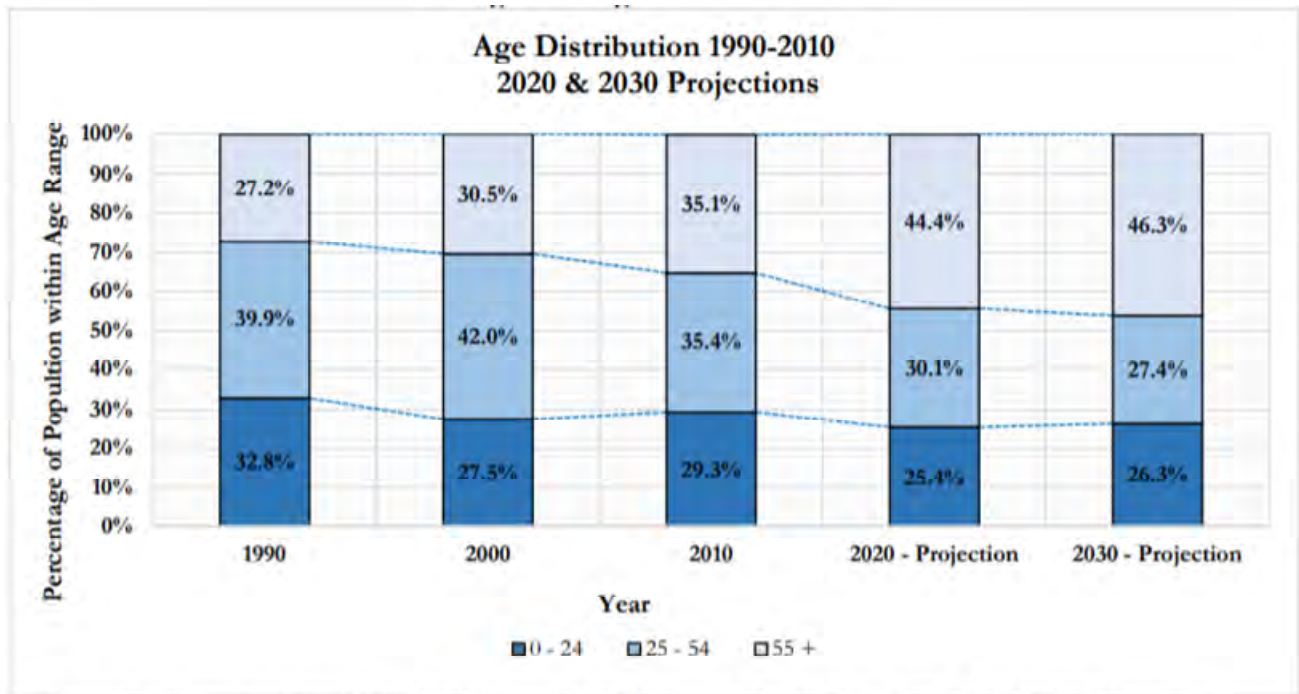
While the Town population is expected to decline slightly over time, this does not reflect the localized growth in the Great Barrington Town center area. The Town's planning policies target revitalizing underused and vacant parcels already served by infrastructure, and there are multiple projects underway that will add apartments. A hotel project and new commercial and retail space expansion is currently underway, and a 7-acre site is subject to future development.

The age distribution of population is also important to consider. Great Barrington's population is aging, and the share of population in the prime age group for firefighters (25 to 54), is expected to decline from a modern peak of 43 percent in 2000, to just over 27 percent by 2030 (Figure 3.4). The decrease is especially striking given the expected decline in overall population.

³ https://en.wikipedia.org/wiki/Berkshire_County,_Massachusetts#Demographic_breakdown_by_town accessed 8/14/18

⁴ The Berkshire County Regional Planning Commission's report on population is from September of 2014 and was accessed from <http://berkshireplanning.org/> on 9/1/18

Figure 3.4: Age Distribution of Population 1990-2030 (projected)



Source: U.S. Census: 1980, 1990, 2000 Census, 2010 Demographic Profile Data, & 2020-2030 Projections
 Courtesy of the UMass Donahue Institute

Street Network

The Town of Great Barrington has no limited access interstate highways within its boundaries.

U.S. Route 7, running north and south through the town, is the major highway route for both the City of Great Barrington and the Village of Housatonic. State highways MA 23 and 41 are also located within the Town.

3.2 Community Risk Analysis

During the project team’s initial onsite visit, an assessment was made of the town’s fire and related risks. The assessment was meant to provide the team with the most complete view of the Great Barrington community, its physical makeup, and the unique challenges faced when managing and operating fire and rescue programs and services. The following provides an overview of their findings.

Local Conditions

As part of the study, we identified the local conditions that are considered unique to the Great Barrington community in relation to the fire department’s capabilities. Approximately a quarter of the town is comprised of urban and suburban developments with the remaining being rural.

Rural areas are a combination of land and some remaining small farms. Other rural areas are either private woodland, state forest, or park land. The team identified the following conditions.

Terrain – Within the town boundaries are a variety of terrain configurations that directly impact the type of emergency responses for which the department must be prepared. As with much of western Massachusetts, the town is comprised of a variety of terrain that makes up the Berkshire Mountain range, including valleys, hills, and mountain peaks, some of which have steep elevation changes. Much of the urbanized areas were developed along the Housatonic River, primarily due to the textile industry that at one time served as a major employer in the villages of Great Barrington and Housatonic. The river valley divides the town north to south between two mountain ranges, the most notable being Monument Mountain in the northeastern region of the town, with an elevation of over 1,400 feet. Other high elevations that surround the two villages include the range along the western edge of the town and East Rock, Warner, and Beartown Mountains, all with an elevation in excess of 1,500 feet.

The varying terrain, including steep grades, create challenges for the fire department in terms of response time and access due to limited direct cross-town roadways and hazardous driving conditions during winter months. Also, the river and its many tributaries can flood during times of heavy rain and late winter thaws, reducing the department's access to specific areas of the town. In and around the park lands are many miles of hiking trails that are likely to involve low slope and high angle rescues. Examples include trails on the Monument Mountain Reservation, the Appalachian Trail, which runs for five miles through the town, and other parks and trails.

Structural Congestion – Much of the town's older neighborhoods are congested and considered of the pre-war vintage, meaning construction was prior to 1940. The inventory of commercial and residential buildings consists of older wood-frame, brick-and-joist, or heavy timber construction. Many of these structures' original construction occurred prior to the development and adoption of modern building and fire codes. Often, the features of these structures were designed and constructed with open stairwells and without fire doors or built-in protection, including automatic fire sprinkler systems. Coupled with aging building systems such as electrical components, this often leads to a higher frequency of accidental fires and rapid fire spread.

Within the rural areas are very large single family dwellings that at times can be inaccessible.

The Great Barrington downtown area is seeing significant development, including multifamily housing. While these projects will increase density, the demands on the fire service are mainly in the form of response to alarm system activations and added medical responses. These new properties are equipped with modern fire protection features which are designed to control or extinguish structural fires.

Obstructions – From a response perspective, the town has several obstructions that cause obstacles for adequate response times. These include limited street connectivity due to at grade railway crossing, low clearance and weight-limit bridges, and natural terrain such as steep hills and ravines.

Climate – The region of western Massachusetts can be affected by severe winter conditions, including periods of long cold spells, often with large snowfalls. During the winter months the town can be exposed to a high volume of snowfall, averaging 58 inches per year compared to the national average of 26 inches. Winter temperatures generally range from the low teens to low thirties. In the past, the region has experience long bouts of large snow accumulations; this greatly hampered the fire department’s ability to respond to emergencies within expected timeframes. During these conditions many neighborhoods and outlying areas are made difficult to access primarily due to narrowing of roadways and private drives caused by snow piles, parked or stranded cars, and other obstructions. At times, neighboring automatic aid departments are delayed due to these conditions. Summer months can bring dry spells that often lead to fires in wooded and remote areas of the Town.

The Town and immediate area have been subject to tornados as well. The National Weather Service reports eight tornados in Berkshire County since 1995. The most severe was a 1995 category F4 tornado that struck the Town on May 29, 1995, damaged numerous structures resulting in 3 fatalities and 24 injuries.⁵

Transportation – The town is served by several means of transportation, with highways and secondary roads and rail service being the two primary methods of transport. Tractor trailers carrying daily goods and services travel these roadways, including those that contain hazardous materials that are considered risks to life and property. U.S. Route 7 travels through the center of the town, connecting Great Barrington with the nearby towns of Stockbridge and Sheffield. Likewise, from the Town center, Highways 41 and 183 travel north to Housatonic village and, like Route 7, intersect with the Massachusetts Turnpike, the nearest interstate highway. On an east to west direction, Route 23 passes through the center of Town.

The Housatonic Rail Road Company operates freight service which passes through the downtown. Improvements are currently underway to the rails to enable faster speeds. These improvements will bring more freight, including hazardous materials, through the Town. Although a precise timetable is uncertain, plans are in process to restore passenger rail service through Great Barrington, with service stretching north to Pittsfield and south through Connecticut, connecting ultimately with New York City.⁶ The latest timing for this is uncertain, but could be as early as within five years. This potential improvement in connectivity is expected to bring a major increase in tourism, with greatly enhanced convenience of travel.

Fire Flow – Fire flow is the calculation of the amount of water, measured in gallons per minute, needed for the suppression of a specific floor or similar area within a structure that is fully involved with fire over a set period of time. Fire flow calculations are sometimes calculated for the whole structure and nearby structures that are in danger of immediate exposure to radiant heat or direct flame contact. Generally, fire flow calculations are made of individual structures or property complexes, as well as regions or a community as a whole, by both fire code officials

⁵ National Oceanic and Atmospheric Administration, National Centers for Environmental Information Storm Events Database. <https://www.ncdc.noaa.gov/stormevents/>

⁶ Massachusetts Department of Transportation. *MassDOT Berkshire Rail Line Purchase*. <http://blog.mass.gov/transportation/massdot-rail-transit/massdot-berkshire-rail-line-purchase/> July 17, 2014.

and the ISO.

It was beyond the scope of the study to identify needed fire flows within the community; however, the topic is worth mentioning due to its correlation to the fire severity within the town. This includes exposed properties, number and concentration of fire stations, and the level of firefighters needed to quickly and adequately hold fires in check in the city's older neighborhoods and business areas, where occupant safety and the exposure of nearby structures is extreme (Figure 3.5).

To some extent, we learned of the abilities and condition of the town's two main water systems; the Housatonic Water Works Company (HWWC) and the Great Barrington Water Department (GBWD). Water supply for structural fire protection beyond the service area of either company is provided by fire department pumpers and tankers with portable dump tanks, in conjunction with static water sources such as lakes and ponds. Generally, insured properties beyond 1,000 feet from a fire hydrant or a water system receive higher insurance rates than those that are within the boundaries of a recognized system that meets certain performance criteria.

Based on interviews of fire department personnel, it was determined the GBWD provides ample service in terms of water pressures and upkeep of fire hydrants, a significant ingredient to effectively suppressing structure fires. On the other hand, it was explained to us that, in some cases, the HWWC does not perform as well due to insufficient water pressure and volume, along with substandard hydrant upkeep, all of which can greatly hamper structural firefighting operations. This is particularly concerning if conditions exist where insured properties within the service area receive credit for fire protection infrastructure that does not meet the minimum performance criteria. The issue may warrant further study that is beyond the scope of this report.

There are significant portions of the service area that do not have fire hydrants. This requires that the GBFD bring water to the scene using water tankers and large water capacity engines. The GBFD typically works with neighboring fire departments to implement a tanker shuttle when fires occur in these areas.

The data for fire and property risk (Tables 3.1 and 3.2) was pulled from the Standard Assessor's layer from MASS GIS.⁷ The data were developed through a competitive procurement funded by MassGIS. Each community in the Commonwealth was bid on by one or more vendors and the unit of work awarded was a city or town. The specification for this work was Level 3 of the MassGIS [Digital Parcel Standard](#). Great Barrington was last updated in 2017. The following statistics and fields were used to generate the maps (Figures 3.5 and 3.6) provided in this document.

⁷ The site accessed on 8/14/18 is at https://docs.digital.mass.gov/dataset/massgis-data-standardized-assessors-parcels?_ga=2.82466783.877715461.1535203258-1192506148.1534476972

Table 3.1: Life Risk Summary

Risk life	Zoning Category	Count	Average Building Value	Percent of Total
High	Residential	2729	\$389,581	65.3%
Medium	Business	512	\$525,438	12.2%
Medium	Industrial	137	\$244,716	3.2%
Low	Residential, no buildings	799	-	19.1%
	Total:	4,177		100%

Table 3.2: Fire Risk - Property

Risk Property	Count	Zoning Category	Percent of Total
High	649	B & I & HVC & BPD	15.5%
Medium	2729	R with Building	65.3%
Low	799	R with no Building	19.1%
Total	4,177		100%

Figure 3.5: Fire Risk – Life

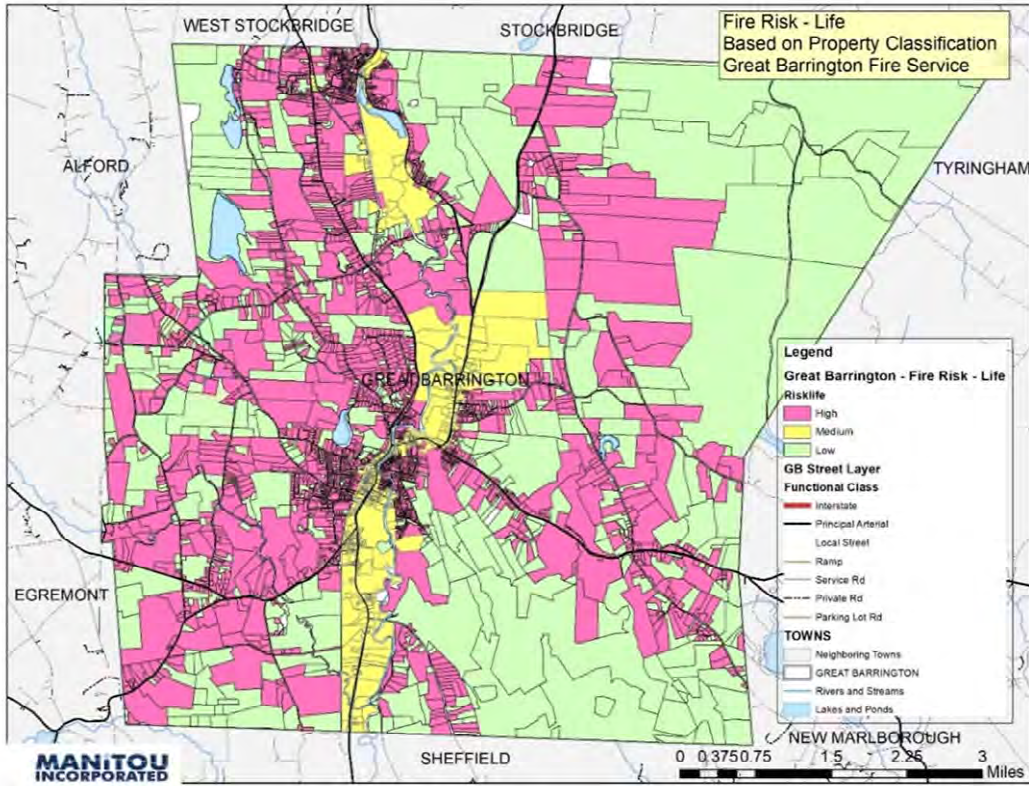
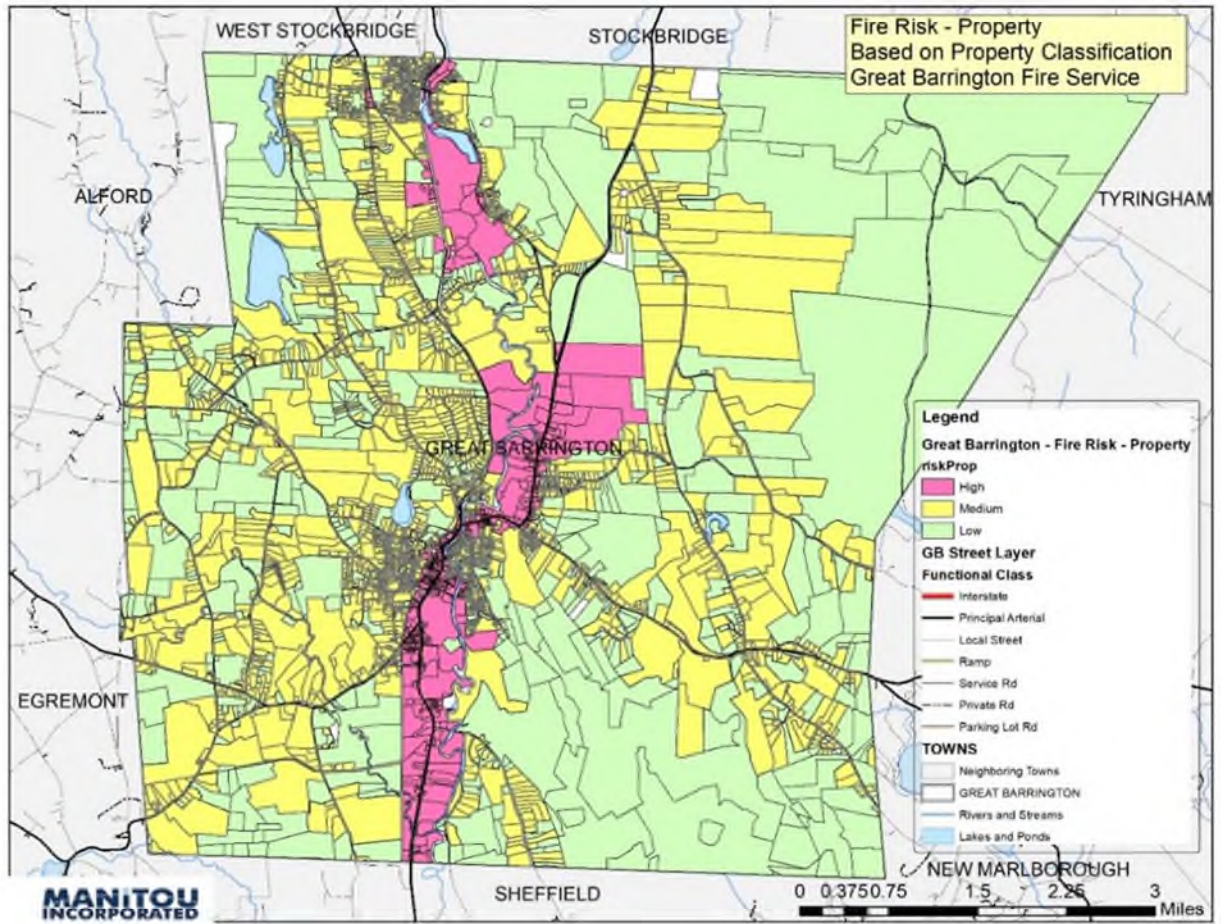


Figure 3.6: Property Risk

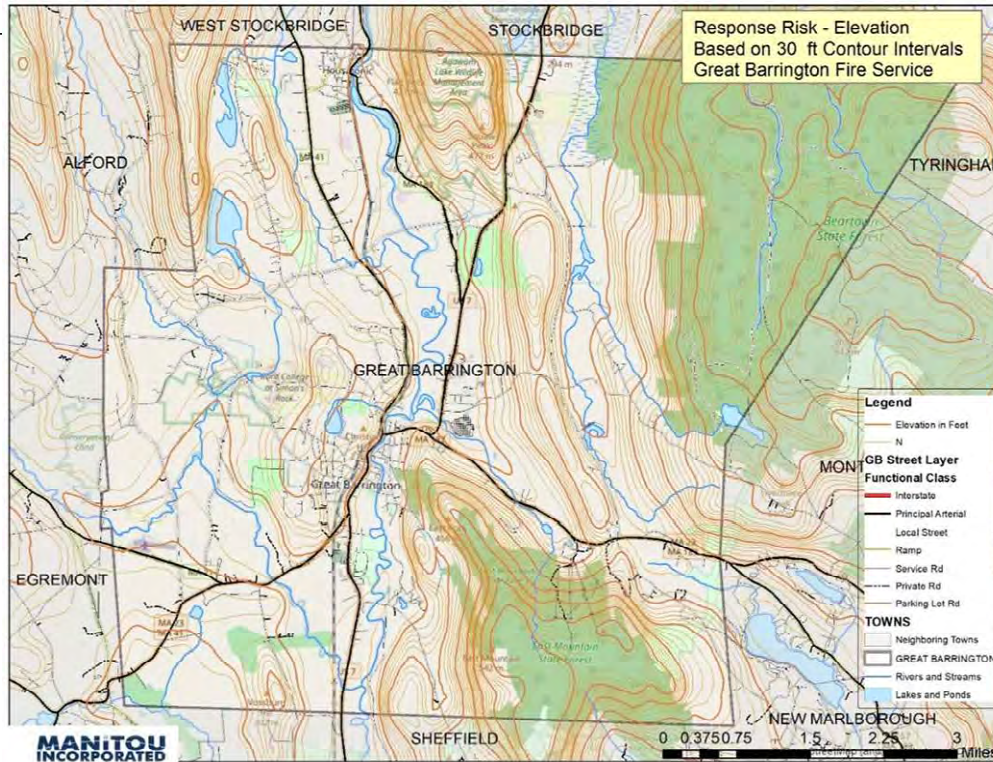


For the high risk category, the residential parcels were queried for parcels that had building value greater than zero. At this time, it is not certain that all buildings identified with value have full-time or seasonal persons living in them. However, the fact that the zoning is residential and there is at least one building, if not multiple, would make this a high life risk. For medium risk, the Business and Commercial parcels are considered medium risk for life due to the daytime presence of staff and patrons. For low risk, the residential parcels that have no land value are assumed to be in development or are state forest land or parks and currently have no regular residential presence.

Fire Risk – Elevation

Portions of the Berkshire Mountain range are within the town of Great Barrington, making responses to certain areas a challenge due to the steep rise in certain roads. Most of the elevation changes, as shown in Figure 3.7 below, are in areas between the major roads.

Figure 3.7: Elevations within Great Barrington



This is true predominantly to the north, between Park St. and Stockbridge Rd.; to the west between the Williams River and the Alford Town boundary; to the north east to Beartown State Forest; and to the south east between US 7 and MA 23 where East Rock and East Mountains reach over 1600 feet in elevation.

These mountainous areas, particularly Monument Mountain, are popular with hikers, drawing over 20,000 visitors per year⁹. As a consequence, these recreational activities are a source of service calls for falls from heights, brush fires, and general medical assistance calls.

Natural Hazards - Flooding

Lake Mansfield Road acts as a dam for Lake Mansfield. If the Lake overflows, the road could be obstructed and cause flooding downstream. The Green River crosses under Seekonk Road and periodically initiates problems. The road will occasionally wash out and cause some localized flooding. This area also periodically floods due to ice jams, as was the case during the December 2008 ice storm. Round Hill Road crosses a small stream and has had periodic problems, including the ice storm in December 2008. The stream bed is steep and can easily back up if the crossing is obstructed. The town has found that there are several stormwater outlets that cross

⁹ “About Monument Mountain” <http://thetrustees.org/places-to-visit/berkshires/monument-mountain.html>

under mill buildings, causing periodic basement flooding. The town has conducted a stormwater master plan for the Housatonic Village and Castle Hill drainage areas, which have been identified as problem areas. The bridge on Locust Hill Road is a concern as the Green River backs up into Egremont. Raising the bridge has helped prevent flooding; however, it could be a concern in the future.

Target Hazards

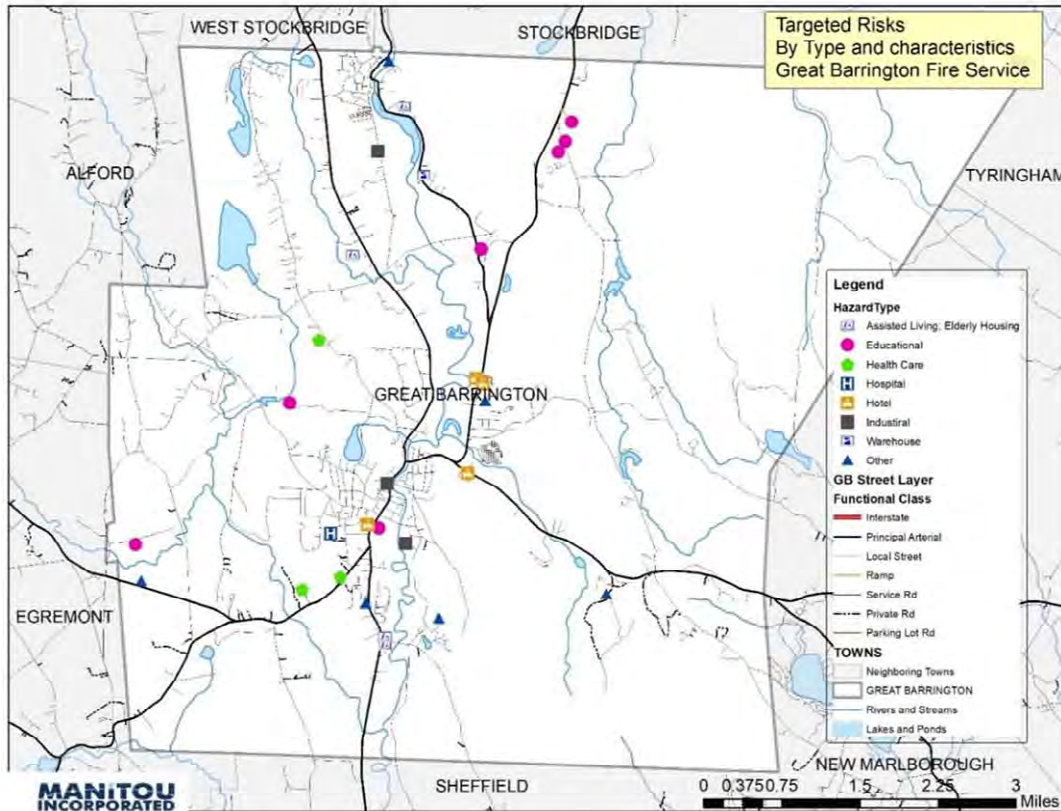
Target hazards are commonly referred to as those that would require specialized equipment or techniques, as well as having potential for very large fires or high life risk. The GBFD has assembled the following list of target hazards (Table 3.3). Such hazards require special attention and planning to ensure that members are familiar with hazards, and appropriate levels of resources are summoned in the event of a confirmed incident.

Table 3.3: Target Hazards

ADDRESS	Title	Hazard Type
29 Lewis Ave	Great Barrington Healthcare	Hospital
600 Stockbridge Rd	Monument Mountain High School	Educational
5 Ramsdell Rd	Hillcrest Educational Center	Educational
53 Brookside Rd	Camp Eisner	Summer Camp
380 State Rd	Ski Butternut	Ski Resort
899 Main St	Bostwick Gardens	Elderly Housing
909 Main St	909 Main St Apartments	Elderly Housing
2 Bernard Gibbons Dr	Flag Rock Village	Elderly Housing
84 Alford Rd	Simon's Rock College	Educational
294 Park St	Rising Paper	Warehouse
174 Front St	Monument Mills	Mixed Use
148 Maple Ave	Fairview Hospital	Health Care
100 Bently Rd	Great Barrington Sewer Plant	Industrial
300 Stockbridge Rd	Barrington Plaza	Shopping Center
700 Main St	Big Y Plaza	Shopping Center
69 Van Deusenville Rd	Amerigas	Industrial
168 Main St	Kimball Fuel	Industrial
70 Egremont Plain Rd	Great Barrington Airport	Transportation
372 Main St	Days Inn	Hotel
400 Stockbridge Rd	Travelodge	Hotel
415 Stockbridge Rd	Holiday Inn	Hotel
249 Stockbridge Rd	Fairfield Inn	Hotel
320 Maple Ave	Timberlyn Heights	Health Care
151 Christian Hill Rd	Fairview Commons Nursing & Rehab	Health Care
249 N. Plain Rd	Berkshire Meadows	Assisted Living
35 West Plain Rd	Rudolph Steiner School	Educational
389 Main St	John Dewey Academy	Boarding School
318 Monument Valley Rd	Muddy Brook Elementary School	Educational
313 Monument valley Rd	Muddy Brook Middle School	Educational

In addition to the risks identified above, the Great Barrington Fire Service also has specific areas of concern: multiple story buildings; educational or health care facilities where daytime population is present; evacuation of certain targeted populations (senior assisted living, hospitals, schools, etc.); age and size of buildings; and non -sprinkler locations or lack of adequate hydrant supply, which creates larger risks if a fire or hazardous situation would occur at these locations. The map (figure 3.8) shows the location of these locations and the above Table (3.3) show the issues associated with each.

Figure 3.8: Target Hazards



To summarize, given the unusual diversity and magnitude of risks within the Town, it is paramount to recognize the need for adequate and reliable emergency response staffing and resources. As in most communities, the Town’s fire department serves as the primary first responder to these emergencies. The community’s firefighters have served countless hours, in some cases days on end, responding to and mitigating emergencies with a “can-do” attitude.

Whether it is responding to injured people trapped at the scene of a motor vehicle accident, an apartment fire on an upper floor of a downtown building, or rescuing stranded groups of hikers through the icy waters of the Housatonic River, the fire department is required to be prepared to respond to a vast array of emergencies or full scale disasters. To perform these duties correctly and safely, adequate support in the way of allocating equipment, training, and associated operating costs should not be overlooked. An adequate number of pumper and ladder trucks whose specifications match local fire risks are essential to mitigating potential losses. All-terrain vehicles, rescue boats, and rappelling equipment are just some of the examples of specialized equipment needed to carryout rescue duties. To ensure a response force that is prepared to safely respond to the community’s various risks, there must be sufficient funding and time for training and acquiring any necessary certification.

4. Fire Department

The Great Barrington Fire Department is a paid-call fire department serving the Town of Great Barrington. It is headed by a full-time Chief and a full-time fire inspector. Both employees work a traditional weekday schedule, but are subject to recall for response to alarms. At the time of the study, the GBFD had 27 members.

4.1 History

The department has a rich history that spans more than 160 years. The first record of an organized fire department was in 1854. With the slogan “strong arms and willing hearts”, the Hope Fire Company was established and soon procured a Button hand operated pumper. The company’s creation was in conjunction with the organization of the Great Barrington Fire District. The district was organized to supply water for the village from a reservoir located near East Mountain. A fire house was constructed on the south side of Castle Street near Main Street. In 1889 the village of Housatonic saw the creation of the Housatonic Hose Company. For almost fifty years the company remained independent from town governance and was responsible for the procurement of its fire apparatus.

Over the years the department experienced improvements in service, including upgrades in facilities and equipment. The year 1976 saw a major reorganization of fire protection in Great Barrington when the district sold its fire protection properties, including the Castle Street fire house and apparatus, to the Town. At the same time, the Hope and Housatonic fire companies were consolidated into the Great Barrington Fire Department under the direction of one fire chief. The social arm of the two former companies remains through the creation of the Great Barrington Firefighters Association.

The GBFD has a long history of reliance on career (paid) personnel to provide service. The GBFD traditionally has one firefighter staffed on a 24/7 basis. The Great Barrington station was traditionally staffed by one person who was responsible for station upkeep, equipment maintenance, maintaining records, and dispatching when needed. This was accomplished with a combination of part and full-time personnel. There were also several part-time fire inspectors. In the early 1980s, two positions were laid off, and by 1990, the remaining daytime position was eliminated. Subsequent to this, a full-time position was created to perform inspections and maintain equipment and apparatus. The only addition of personnel since then was the creation of the full-time inspector/firefighter position in 2017.

In 2009 the department improved its capabilities when it replaced its Great Barrington station and moved into a modern 18,000 square foot fire station. The facility greatly improved the department’s ability to deliver its programs and services to the community.

4.2 Current Description

The Great Barrington Fire Department protects a diverse area with a substantial downtown, densely populated neighborhoods, large mills, rural areas with little available water supply, mountains, fields, rivers, and lakes. Each provides its own set of challenges, which the

department is prepared to meet with a full-time chief, full-time inspector, and 25 dedicated call firefighters. Firefighters are trained in all types of fire suppression, emergency medical care, motor vehicle extrication, and hazardous materials response. Firefighters also operate a rescue team trained in mountain, high angle, ice water, and confined space rescue. The department responds out of two stations to approximately 600 incidents annually, utilizing three engines, a tower ladder, rescue pumper, light rescue, and brush truck.

Fire prevention is another important service provided. Substantial time is dedicated to reviewing construction plans, issuing permits, and performing inspections. Additionally, firefighters enjoy teaching fire safety in the schools and at community functions.

4.3 Legal Organization

The Town of Great Barrington Fire Department is organized in accordance with Massachusetts General Law c. 48, §§ 42 through 44, inclusive (table 4.1).

The legislative history of the fire department is fairly concise. Of greatest import is the 1976 creation of the fire district, unifying the Great Barrington and Housatonic Fire Departments.

Table 4.1: Summary of Local Laws on Fire Department

Year Accepted	Reference	Subject
1865	Ch. 198, Acts of 1865	Great Barrington Fire District established
1908	Ch. 290, Acts of 1908	Forest fires
1923	Ch. 341, Acts of 1923	Housatonic Fire and Water District
1928	Ch. 282, Acts of 1928	Streetlighting; Great Barrington Fire District
1938	Ch. 126, Acts of 1938	Fire District
1938	MGL c. 48, §§ 42-44	Establishment of Fire Department
1964	Ch. 127, Acts of 1964	Certain members of Fire Department exempt from Civil Service laws and rules
1973	MGL c. 220, § 8G	Mutual aid
1976	Ch. 136, Acts of 1975	Fire District
1977	MGL c. 40, § 21(14)	For prohibiting or regulating the leaving of vehicles unattended within the limits of private ways furnishing means of access for fire apparatus to any building
2012	Ch. <u>1</u> , Acts of 2012	Authorizing the Town to continue the employment of the Chief and Deputy Chief of the Fire Department

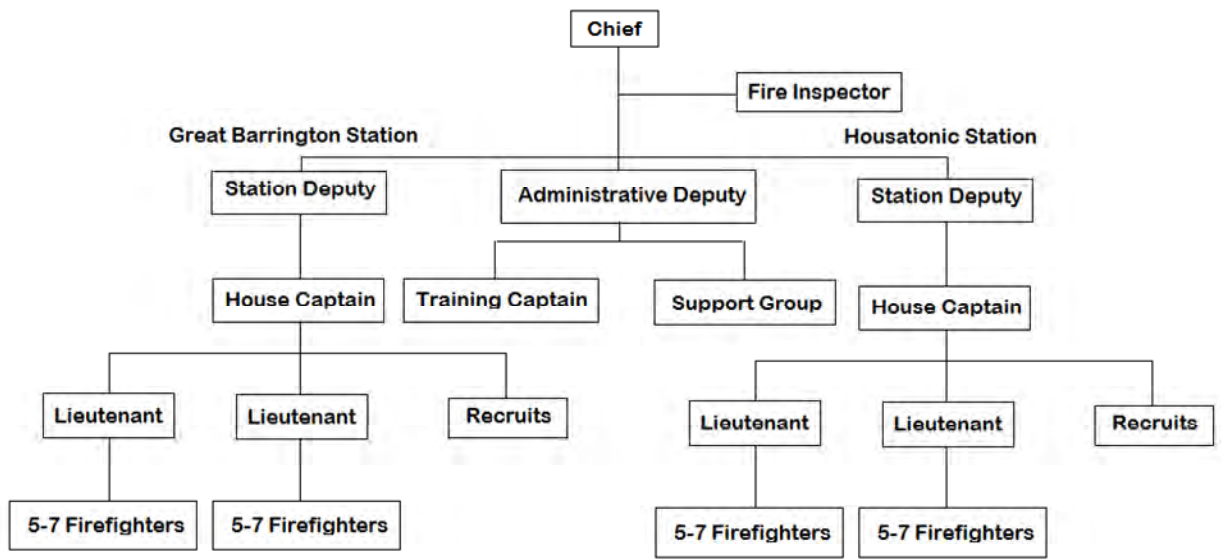
The GBFD also falls under State regulations, mainly concerning treatment and status of firefighters, and working conditions for career firefighters.

4.4 Rank Structure and positions

The organization chart for the GBFD is shown in Figure 4.1, below. The organization chart shows the idealized configuration and staffing of the Department.

At present, there are several vacancies in the officer ranks. The Training Captain, Great Barrington House Captain, and the Administrative Deputy Chief positions are currently vacant.

Figure 4.1: GBFD Organization Chart



4.5 Promotional process

The department utilizes a formal process for appointments and promotions and is considered in line with best practices of a modern fire department. The purpose of the process is to govern department promotions through a competitive evaluation process. When an officer’s position becomes vacant the Chief has 60 days to post an exam, but may approve lateral transfers among deputies and captains without a test. The posting consists of the following information:

- Posting date
- Position to be filled
- Job description
- Qualifications
- Application instruction
- Application deadline
- All necessary details on the evaluation process, including study materials and exam dates

If at expiration date of the posting there are no eligible applicants, the rank or years of service requirements may be modified, or the position left vacant at the discretion of the Chief. Eligible

applications must be submitted to the chief on an approved form, prior to the application deadline. Evaluation of each candidate is broken down into the following sections, with each assigned a weighted point value:

- Written Exam (60 Points)
- Oral Interview (20 Points)
- Fire Problem Scenario (20 Points)
- Attendance of incidents and training (15 Points)
- Certificate Training (10 Points)

Upon the completion of the above sections, an eligibility list based on total scores is established. In order to be eligible, a candidate must earn a minimum of a seventy (70) points on the exam (written, oral interview, and fire problem combined). The Chief then makes a written recommendation to the Town Manager within seven days of completion of the evaluation process. The final appointment is made by the Town Manager. An appeal can be filed with the Town Manager by any candidate within seven days of an appointment. The appeals process is in accordance to town policy.

4.6 Great Barrington Firefighters Association

The Great Barrington Firefighters Association is the labor association and in-house social organization for the members of the GBFD. The group functions as the representative of the paid-call firefighters in dealings with the Town. The group is a State-registered non-profit corporation. The Association also raises funds for training, scholarships, and other civic endeavors.

The GBFD has come to rely on these funds, and the training facilitated by their use is an important component of the Department's training program. In recent years, funds raised by this group have been used to fund nationally-known outside instructors for training classes within the Department, and to purchase training props and equipment. These important contributions are an additional uncompensated activity undertaken by many within the membership.

4.7 Great Barrington Firefighters Support Group

The Great Barrington Firefighters Support Group is a benevolent group that provides food and hydration at incident scenes. The group raises funds from the community, and is composed of interested community members.

5. Budget and Policies

The Town of Great Barrington funds its operations primarily through local property taxes, revenues from enterprise funds, local revenue (local fees and taxes), and state aid. Its taxing ability is limited by State law, including Proposition 2 ½, which limits the size of any increase in the tax levy.

For FY2019, the Town’s proposed operating budget was \$11.3 million. This sum does not include the school budget.

The Town’s strategic priorities identify “Ensure public safety” as the first priority. Of the \$2.3 million in Public Safety expenditures, \$1.6 million goes to the Great Barrington Police. Other components of public safety include Animal Control, Building Inspection, Communications/ Emergency Management, and small programmatic amounts for Parking and Weights and Measures.

The Town has a relatively small payroll. The Town’s full-time employees are distributed as follows:

Animal Control/ Conservation Agent	1
Board of Health	2
Building	3
Council on Aging	2
Public Works	18
Fire	2
Libraries	8
Police	18
Town Clerk	2
Town Manager	3
Treasurer/Collector	2
Wastewater	6

It should be noted that the Fire Department, with two employees in FY2018, is exceeded by all Departments aside from Animal Control, Council on Aging, Town Clerk, and the Treasurer/Collector.

5.1 Budget Process and Review

In accordance with municipal law and Town of Great Barrington policy, the budget is the product of a nine-step process. Of course, the Fire Chief works closely with the Town Manager to develop an initial budget request. The Selectboard and Finance Committee work to develop the budget before it is presented to the Town Meeting for approval.

Figure 5.1 shows the GBFD’s budget trend from FY2013 through FY2018 (approved). Total operating costs are \$513,000 for FY2018, which reflects an increase of \$29,000 from the previous years approved amount. In recent years, the GBFD has tended to spend \$30-40,000 less than the approved amount of funding.

Table 5.1 shows the FY2019 budget and includes an increase to account for the second full-time firefighter. That the FY2019 budget actually decreased, due to utilities being consolidated under the Town’s DPW budget. It should be noted that the GBFD has roughly \$100,000 in their annual budget allocated for fire hydrant costs. This charge is 20 percent of the Department’s operating budget.

For Capital expenditures, shown on Table 5.1, the most recent purchase was a new Engine at a cost of \$600,000 in FY2017. A purchase of self-contained breathing apparatus was enabled from a FIRE Act grant. This competitive grant program is administered by the Federal Emergency Management Agency (FEMA).

Figure 5.1: GBFD Operating Budgets

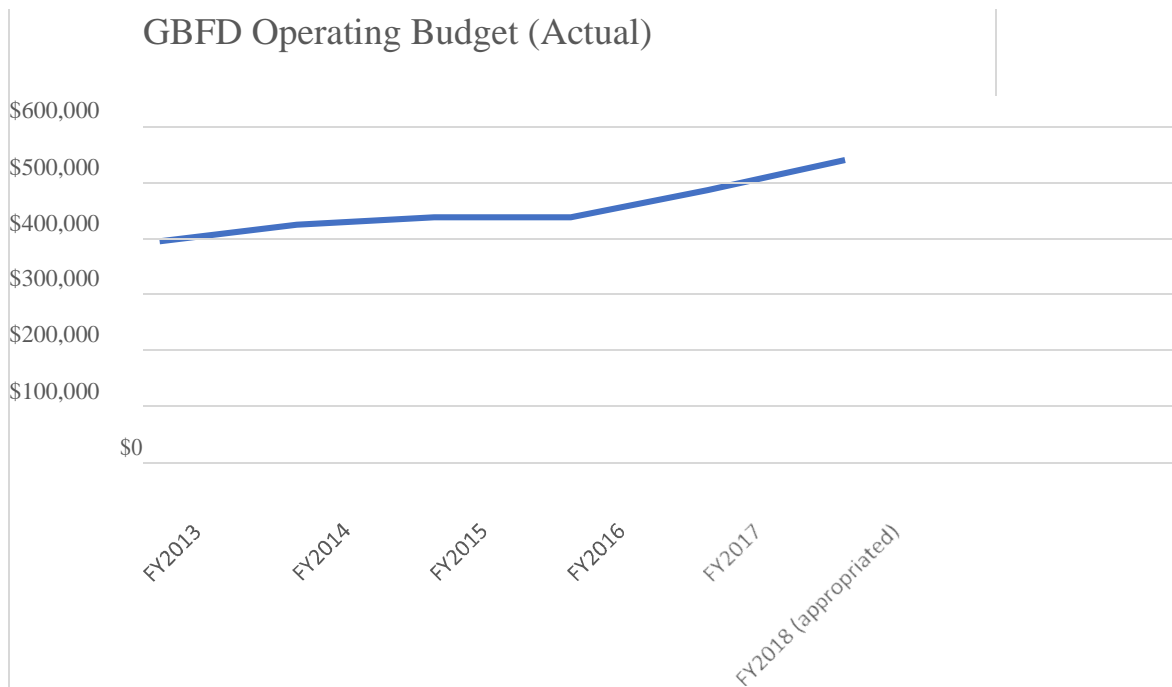


Table 5.1: GBFD Budgets

Line Title	FY 2013		FY 2014		FY 2015		FY 2016		FY 2017		FY 2018		FY 2019
	Appropriated	Expended	Appropriated	Expended	Appropriated	Expended	Appropriated	Expended	Appropriated	Expended	Appropriated	Expended	Appropriated
Firefighters (Call Stipends)	75,000	53,310	75,000	53,020	125,000	100,631	125,000	89,920	125,000	97,232	135,000	100,584	95,000
Fire Inspectors/Maintenance	23,894	23,876	23,894	24,394	24,965	24,965	25,689	25,238	75,000	64,350	75,000	76,031	120,358
Fire Chief	71,745	64,638	71,745	68,627	71,788	70,727	72,495	71,495	76,120	76,120	80,580	80,580	82,595
Longevity	300	300	300	-	-	-	-	-	-	-	200	200	200
Oil/gas	16,600	11,657	16,600	14,844	16,600	13,373	16,600	7,761	16,600	12,880	16,600	11,077	-
Water/Sewer	3,200	2,385	3,200	2,413	3,000	2,224	3,000	2,429	3,000	2,329	3,000	2,642	-
R/M Equipment	46,180	49,980	46,180	46,180	46,180	46,180	49,000	59,882	45,000	50,109	40,000	42,039	44,000
Hydrant Rentals	96,050	92,163	96,050	92,279	93,000	92,279	98,500	92,279	105,000	97,152	105,000	101,166	105,000
Office supplies	1,600	1,589	1,600	1,580	1,600	1,582	1,600	1,543	1,600	1,582	1,600	1,069	1,400
Firefighting supplies	30,000	29,877	30,000	23,453	30,000	30,000	30,000	20,565	30,000	39,493	30,000	29,959	30,000
Dues/memberships	1,525	1,520	1,525	1,117	1,525	1,306	1,525	1,511	1,525	1,025	1,500	1,458	1,500
Fire Prevention	800	799	800	776	800	792	800	772	1,000	967	1,000	999	1,000
Additional Equipment	5,000	3,865	5,000	5,000	5,000	5,000	15,000	15,533	5,000	4,880	5,000	5,000	2,500
Travel/Training											5,500	4,320	7,000
FD Study											15,000	4,861	-
Operating	\$ 371,894	\$ 335,959	\$ 371,894	\$ 333,683	\$ 419,458	\$ 389,059	\$ 439,209	\$ 388,928	\$ 484,845	\$ 448,119	\$ 514,980	\$ 461,986	\$ 490,553
Replace L-1			1,100,000	35,875		1,063,880							
Replace C-1							40,000	39,998					
SCBA Replacement (\$160,477 AFG Grant Funded)									45,000	44,003			
New E-4 (Includes Equipment)									600,000	599,790			
Capital													

To better understand Great Barrington’s expenditures for fire protection in the context of other similar municipalities, we used data from The State of Massachusetts, Division of Local Services, and Municipal Databank’s Community Comparison Reports.¹⁰

Extracting data from communities with populations between 5,000 and 15,000 residents, we analyzed per capita expenditures for fire protection. We found that among these 119 communities, the average per capita expenditures for fire were \$113/person. For Great Barrington, costs were \$56/person. At this gross level of analysis, it would appear that Great Barrington’s expenditures are well below their peers on a per capita basis.¹¹

If we restrict this analysis to the four counties of western Massachusetts (Berkshire, Franklin, Hampshire, and Hampden), we identified 19 municipalities. The general fund budgets ranged from a low of \$80,000 in Hampden, to a high of \$1.8 million in Wilbraham, with an average per capita cost for fire protection of \$44/person, compared to Great Barrington at \$56/person. If we omit communities with total fire protection costs of less than \$10,000 (possibly reflecting fire districts), we have an average of \$64.79. A similar conclusion is reached – Great Barrington is spending comparatively less than many of their peers. A comparison of municipal budget data undertaken by the GBFD also showed that Great Barrington was spending in the lowest 20 percent of agencies.

For a more direct comparison of fire department funding, the GBFD compiled comparative staffing data from Massachusetts fire departments serving populations of 5,000 to 10,000 in January 2018. Among the 64 communities surveyed, there was an average of eight full-time staff, with median staffing of six personnel.

Many of these departments have taken on an EMS transport role, which requires additional staff but also brings in revenues that can offset the cost of personnel or even provide a subsidy. A complete list of other fire department staffing is provided in an appendix.

5.2 SOPs and SOGs

The policies, procedures, and standard operating guidelines are managed through the department’s Operations Manual. The manual is quite thorough and addresses department administration, management and operations. The manual contains minimum requirements for positions, and duties.

¹⁰ Massachusetts Department of Revenue. “At-A-Glance and Community Comparison Reports.” <https://www.mass.gov/service-details/at-a-glance-and-community-comparison-reports>

¹¹ These statistics do not necessarily include communities with Special Districts, which would lower expenditures. We attempted to avoid this issue by omitting those with costs of less than \$10,000. These statistics also do not reflect offsets in revenue for those departments that may operate emergency medical services transport.

Currently, much of the manual is undergoing a review and, where necessary, revisions. Numerous policies have been identified, but need to be developed. Sections of the manual include:

1. General
2. Organization and Administration
3. Occupational Health, Wellness, and Safety
4. Prevention, Planning, and Education
5. Training
6. Station and Equipment
7. Driving/Operating Apparatus
8. Incident Operations—General
9. Incident Operations—Specific
10. Incident Operations—Specific Tasks

The Fire Chief has the sole authority in setting department policies and establishing operating guidelines, as long as they comply with all laws, regulations, and town policies, and may issue special or temporary policies and orders. Revisions are developed using the following procedure:

- Officers are allowed time to review policies and provide feedback prior to issuing or changing policies.
- When necessary, consultation is made with specialists in particular fields, both inside and outside the department, when developing or revising policies and guidelines.
- Reasonable implementation dates are determined to allow familiarization and department training when needed.

The Chief works on developing policies in between other tasks. Completion of the policy and procedure manual is important, and we would prioritize those policies relating to 1) health and safety (Chapter 3); 2) Incident Operations (Chapter 8); and 3) completion of Chapter 2 on “Organization and Administration.” The completion of this manual is an example of the administrative overload on the Chief’s position.

5.3 Management Information Systems

The Great Barrington Fire Department has extremely well-organized records. Requests that normally take weeks, multiple inquiries, and hand assembled documents were able to be produced quickly by the Department. The GBFD uses several software systems for recordkeeping. The decision to invest in and maintain these systems was a great aid to this study.

This section is not intended to enumerate every records system in use by the GBFD, but to highlight those most important in our project. There are legacy information systems that continue

to be used, and the full capabilities of new systems are still being realized as data is entered.

Iamresponding.com® software is a mobile phone app that enables members to indicate that they are responding to an alarm. Fire apparatus is equipped with Automatic Vehicle Location. The system gives real-time awareness of staffing levels, and the data is shared by end users, Chiefs, and dispatch to make decisions about adequacy of resources, specify apparatus to respond, and more quickly recognize the need for mutual aid. The system also has database functionality that allows hazards and information on fire hydrants to be seen as well.

Approximately 80 percent of members use the system, and displays in the firehouse allow members to see information about alarms while they are in progress.

Emergency Reporting™ is a cloud-based software package designed for National Fire Incident Reporting System compliance, and also incorporates multiple modules that can be used for community risk reduction, fire inspections, training records, and general recordkeeping. The GBFD acquired this system recently, and is already leveraging it for training, NFIRS, and member activity and apparatus reporting.

6. Prevention and Mitigation

Fire prevention is a critical function for any fire department. For Great Barrington, with its dependence on a call firefighting force, an older building stock, and a geographically dispersed service area, it is essential. Fire prevention is commonly used to reflect to distinct areas of activity:

Fire inspections – Fire inspections refers to the gamut of activities ranging from review of plans for new constructions, inspection of buildings and fire protection systems during construction, to ongoing maintenance inspections of occupancies recognized as hazards by the fire prevention code. Another key area is inspection of hazardous process machinery or equipment and requirements for issuance of permits for certain activities.

Public fire education – Public fire education refers to efforts to inform and motivate the public of fire safety behaviors, the need to assure the safety of their homes and businesses, and increase and promote preparedness for emergencies. This is especially important in those properties that are not touched by code requirements for regular inspections. It is important to note that public fire education is generally not mandated by codes or ordinances, meaning that it is an elective activity.

New commercial and industrial buildings are equipped with fire detection and suppression systems consistent with code requirements, which greatly mitigate their risk. Sprinklers are a highly-effective means of controlling or extinguishing fires in buildings. However, under State law, localities are not permitted to enact local code requirements more restrictive than those of the State. This remains a contentious issue within Massachusetts, with home builders and advocacy groups decrying the added costs of such systems and their impact on housing affordability.¹² This means that the GBFD will continue to protect a significant stock of buildings that do not have sprinkler systems. Coupled with disused mill or industrial sites, these properties will continue to pose a challenge for the Department.

The practical implication of the above discussion is that the GBFD must continue its fire prevention program as an important tool to reduce both the incidence and severity of fire emergencies. New one- and two-family homes are not required to have sprinklers or alarm systems that would initiate a report of fire.

Of course, these programs have only limited impact on the many non-fire emergencies responded to by the GBFD. These non-fire emergencies include emergency medical services incidents and

¹² The National Fire Protection Association's Fire Sprinkler Initiative summarizes the State's sprinkler requirements as follows: "*Uses the 2009 International Residential Code [since updated to 2015 edition]. Fire sprinklers for new townhouses shall be designed and installed in accordance with NFPA 13, 13R, or 13D, as applicable. Only one- and two- family dwellings having an aggregate area greater than 14,400 square feet shall have fire sprinklers installed in accordance with NFPA 13D. Aggregate areas shall include basements but not garages and unfinished attics. Additions to such sprinklered dwellings shall have automatic sprinklers installed in accordance with NFPA 13D.*" <https://www.nfpa.org/Public-Education/Campaigns/Fire-Sprinkler-Initiative/Legislation-and-adoption/Sprinkler-requirements>.

rescue calls.

6.1 Fire Inspection

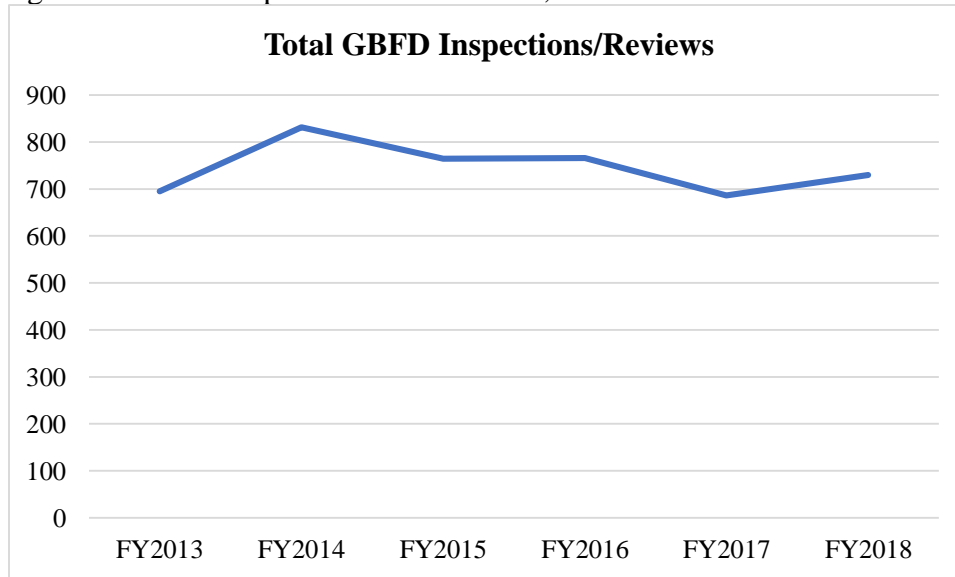
For many years, fire prevention inspections have been carried out by the Chief. More recently, a part-time fire inspector position was created, and was converted into a full-time inspector/firefighter position in 2017.

Table 6.1 lists the inspectional activity of the GBFD for FY2013-2017. Figure 6.1 shows the trend in total inspections and plan reviews, which have averaged about 750 per year. Some of this activity is driven by new construction, while others are required based on business establishments or other economic activities.

Table 6.1: Inspections and Plan Reviews FY2013-2017

	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018
Periodic Safety	250	343	348	345	311	290
Liquor License	41	52	48	44	42	39
Smoke & CO Detectors	133	112	98	109	100	127
Final for C of O			34	40	50	43
Fire Suppression Systems	15	9	4	4	11	17
Fire Alarm Systems		15	11	9	2	11
Blasting/Fireworks	3	7	8	3	6	1
Tank Removal	7	17	14	15	11	12
Tank Trucks	13	3				
Oil Furnaces	26	32	20	19	4	27
Propane Tanks	63	36	48	62	48	45
Plan Reviews	65	80	83	51	62	52
Complaints/Consultations			14	11	29	55
Other	79	125	35	54	10	11

Figure 6.1: Total Inspections and Reviews, GBFD



Some caution should be used in interpreting these figures, as categories for classifying activity may have changed during the time period shown here. More importantly, the complexity of inspections is increasing, with larger projects and more sophisticated protection systems being installed in projects. For large projects, preventive activity may begin at the conceptual stage with inquiries from developers, answering code-related questions, and supporting appeals or disagreements on interpretation of codes. These concerns can include site plan review to assure separation of buildings, and assuring access for fire vehicles.

Under Massachusetts General Law Chapter 148, and *527 CMR 1.00 Massachusetts Comprehensive Fire Safety Code*, numerous requirements are imposed on localities for inspectional duties. As recently as this year, an expansion of required inspections and/or issuance of permits took place with addition of hot works (cutting, burning, and torch work) in buildings or construction sites. The GBFD is unable to meet all State-required inspections.

The Town has a robust building department, and the relationship between the GBFD and their integration into the building safety program appears to be excellent. This good relationship should continue.

6.2 Public Fire Education

The GBFD distributes fire safety information via its Facebook page. This information includes smoke and carbon monoxide detector information, fire safety tips, and awareness information. The Department, in recent years, has made presentations at local schools during Fire Prevention Week in October. They also attend “Safety Day” programs in the spring, usually with other agencies such as the Police Department.

Public fire education has come to be known as “Community Risk Reduction” which

encompasses the broader involvement in injury-prevention and other non-fire messages to the community. It also reflects an expectation that educational programs will be designed with an eye toward targeting specific groups, with tailored messaging and evaluation of results.

Community risk reduction remains aspirational for most fire services. The GBFD does not have staff resources to expand their current offerings.

6.3 False Alarm Ordinance

Fire alarm systems are very important because they can give early notice of a fire or abnormal condition, enabling occupants to be alerted, and summoning the fire department. Several fires have been reported to the GBFD via alarm system over the years, which reduce loss and damage. However, the presence of alarm systems creates the need to respond to alarm activations. The need to respond to these calls for service comes with the territory, and is regarded as a worthwhile tradeoff. The need to respond to alarm activations increases the GBFD workload and can strain the staff resources, particularly for alarm activations in the middle of the night.

“False alarms” can be caused by many factors. In most cases, we are referring to an unintended activation of an alarm caused by an environmental condition (burnt food); steam from a shower, or other problem. In other cases, defects in the system or transient problems may activate an alarm and require a response. Intentional false alarms are thankfully fairly infrequent. Table 6.2 shows the trend in false alarms of various types for the GBFD.

We can see that in 2017, nearly 300 alarms annually are false. Of these, just over half are deemed “malfunctions” and the remainder are “unintentional.” These alarms are a major portion of the workload for the GBFD. As such, they should be tracked carefully and efforts made to avoid excess alarms.

Table 6.2: False Alarms, GBFD 2012-2017

INCIDENT_TYPE_DESCRIPTION	2012	2013	2014	2015	2016	2017	Pct of Tot
Malicious false alarm	6	6	14	16	11	2	4.7%
False Alarm due to malfunction	16	45	85	116	86	149	42.9%
False Alarm, unintentional	154	121	58	72	67	135	52.4%
TOTAL	176	172	157	204	164	286^a	100.0%

^a A change in classification of “burnt food” calls resulted in an increase. There was a corresponding reduction in the “fire” category as a result.

The next Table (6.3) shows the highest number of incidents that recurred from 2012-2017. The majority of these are either in a downtown commercial mixed-use area, shopping area, or at a major senior center, college, or other similarly active location. While all of these incidents were not false alarms, they clearly indicate which properties should receive attention for alarm reduction, as well as pre-fire planning.

Table 6.3: Top 10 Addresses with highest False Alarm Incidents, 2012-2017

Rank	Address	Location	Count
1	2 BERNARD GIBBONS DR	Great Barrington Housing Authority	256
2	84 ALFORD RD	Simon's Rock College	215
3	909 MAIN ST	Brookside Manor	93
4	400 STOCKBRIDGE RD	Travelodge Motel	81
5	284 MAIN ST	Barrington House	79
6	249 NORTH PLAIN RD	Berkshire Meadows	77
7	302 STOCKBRIDGE RD	McDonalds/Barrington Plaza	72
8	29 WYANTENUCK ST	Single Family home	71
9	5 RAMSDELL RD	Brookside School	54
10	53 BROOKSIDE RD	Camp Eisner	53

The Town has a local bylaw addressing alarm systems. The bylaw addresses both fire and burglar alarms. Chapter 48 of the Great Barrington bylaws requires registration of alarm systems, and regulates the manner in which they can notify the Town. Registration costs \$15 annually, and a first offense for a false alarm is \$50. Additional offenses are charged at \$100 each.

This is a good step. However, considerations should be given to creating an escalating fee schedule, particularly for commercial or institutional buildings. A \$100 fee might not be sufficient to motivate a property owner to have their system serviced or address any operating or maintenance issues that affect the frequency of false alarms.

The GBFD informally monitors alarm activations and works with property owners to address maintenance or operational issues. Some premises, by their nature, will be a source of multiple calls for service.

Recommendation: Further study false alarm issue, and consider implementing an escalating fee schedule for commercial properties. Continue to work collaboratively with major properties with the most false alarms to reduce them.

6.4 Pre-Fire Planning

The GBFD has the ability to record pre-fire planning information within their software systems. Although they do not have a formal program, significant information, such as location of fire hydrants and water supplies, are recorded and maintained. Pre-fire planning is an important activity, recognized by the Insurance Services Office, and shown in studies of major incidents to be beneficial to incident management and controlling losses.

At present, the GBFD staff expands coverage of this information when time is available. Such efforts should be encouraged, perhaps by training a call member who could perform these inspections under direction of the Fire Inspector. Given current staff availability, it is difficult to

envision a considerable expansion of the program without added support.

6.5 Emergency Management

The Fire Chief plays an important role in support of the emergency management program for the Town. These duties include assisting with development of the emergency operations plan, and activities related to liaison with institutional and large business representatives. These duties are an important part of the Chief's duties.

During an emergency the Chief must split his time between fire department duties and responding to a potential disaster or large-scale emergency.

7 Current Deployment and Demand Analysis

This section will review the historical information related to Fire Service in the Town of Great Barrington; the type and frequency of calls for service; the performance of these services; their alignment to national standards; and the trends in meeting those standards. The section will also review the stations; the apparatus at each of those stations; the relationship to neighboring communities; and the ability to meet the needs of the community.

7.1 Calls for Service

The major source for information regarding calls for service is maintained in the format of the National Fire Incident Reporting System (NFIRS). This voluntary national record keeping system requires that fires services maintain information regarding calls for service, incident type, and response information, including dispatch operations, individual apparatus responses, and number of staff attending with each apparatus. The system also records situation found, actions taken, damages to the structures, as well as false alarms, service calls, and other miscellaneous Fire Service activities.

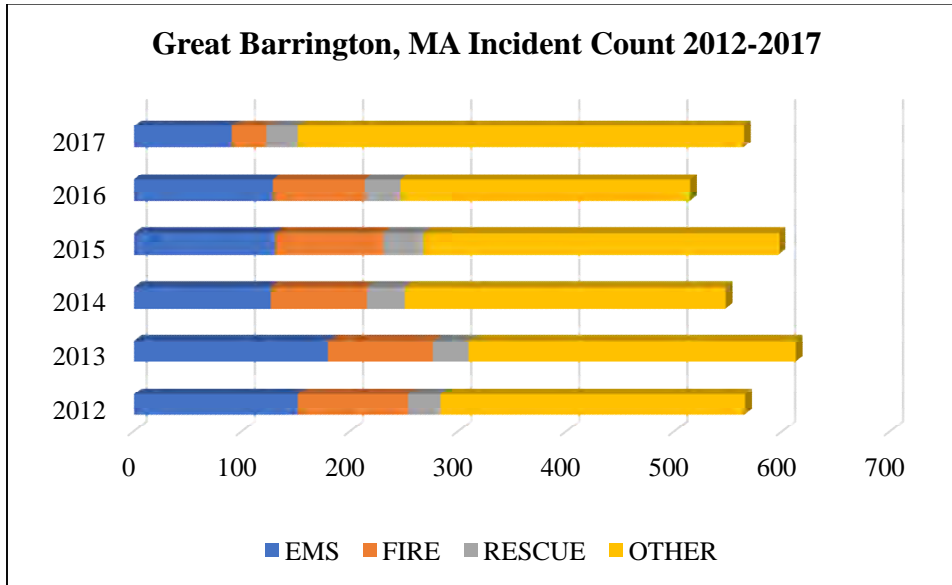
The Town provided NFIRS records from 2012 through March 2018 for this report. The majority of tables presented here do not include the 2018 data. The following set of graphs highlight the volume, type of calls, and the timing of Fire Department responses. Table 7.1 shows the annual number of incidents in the Town. The average of these six years is 566 incidents per year. Figure 7.1 shows the calls by major category. The major categories in the NFIRS reporting system are divided into nine groups. For this study results the following categories are assembled:

- EMS: responses requiring basic or advanced life support services. For the tables throughout this report, only the 311 and 320 incident types are categorized as EMS.
- Rescue: also considered emergency incidents for this study and is the remainder of the 300 Incident type categories.
- Fire: includes structure fires as well as other fire occurrences (wildfire, outdoor cooking fire, etc.) that do not involve a structure.
- Other: includes calls responding to good intent calls, hazardous calls, false alarms, and other miscellaneous responses.

Table 7.1: Great Barrington Fire Department - NFIRS Summary

Year	2012	2013	2014	2015	2016	2017	Average
TOTAL	565	612	547	596	514	564	566

Figure 7.1: GBFD Incidents by Major Category



The next set of tables outlines the incidents by month. These tables are broken out by the major category to show some of the variability in calls across the year. In Table 7.2 for EMS calls, the average numbers of calls over the course of the year peak in the summer months as visitors come into the area. This category includes motor vehicle responses. There are several months that bring that average up, including July 2013 and August 2016.

Table 7.2: EMS Incidents by Month

Type	Month	2012	2013	2014	2015	2016	2017	Average
EMS	01	5	16	13	6	12	6	10
EMS	02	14	13	9	9	3	6	9
EMS	03	10	17	8	12	12	8	11
EMS	04	6	14	8	13	13	10	11
EMS	05	8	21	13	6	5	5	10
EMS	06	17	17	20	10	12	9	14
EMS	07	16	23	8	14	8	6	13
EMS	08	19	13	10	16	24	7	15
EMS	09	8	14	3	15	11	12	11
EMS	10	18	12	12	8	9	6	11
EMS	11	12	11	10	11	13	9	11
EMS	12	18	8	12	10	6	6	10
	Total	151	179	126	130	128	90	134

The remainder of the rescue and EMS incident category is classified as rescue for this study. As shown in Table 7.3, the numbers for rescue are only one-fourth of the EMS calls and are relatively consistent across the years.

Table 7.3: Rescue Incidents by Month

Type	Month	2012	2013	2014	2015	2016	2017	Average
RESCUE	01	2	2	4	4	1	2	3
RESCUE	02	3	2		7	2		4
RESCUE	03	2	3	1	1	3	2	2
RESCUE	04	1	1	3	5	2	2	2
RESCUE	05	3	3	2	2	3	2	3
RESCUE	06	2	2	5	3	5	3	3
RESCUE	07	2	5	2	4	3	6	4
RESCUE	08	1	3	4	2	9	2	4
RESCUE	09	4	4		2			3
RESCUE	10	2	4	7	1	2	5	4
RESCUE	11	4	4	6	4	3	2	4
RESCUE	12	4		1	2		3	3
	Total	30	33	35	37	33	29	33

The next Table (7.4) shows incident by type of fire (100 – 199). These numbers are the smallest category but involve the use of the most department resources. In this case, on average, the summer months reflect the lowest number of incidents, whereas fall and winter months are higher. There are several periods within the six years that had sustained higher numbers, including February through April 2014 and March through May 2015.

Table 7.4: Fire Incidents by Month

Type	Month	2012	2013	2014	2015	2016	2017	Average
FIRE	01	13	7	9	7	7	4	8
FIRE	02	9	9	10	7	7		8
FIRE	03	10	9	10	10	14	3	9
FIRE	04	10	15	10	18	6	6	11
FIRE	05	4	6	5	16	3		7
FIRE	06	2	8	7	3	3	1	4
FIRE	07	8	7	9	5	5	3	6
FIRE	08	10	5	6	5	5	6	6
FIRE	09	9	7	7	8	5	3	7
FIRE	10	13	11	1	8	11	1	8
FIRE	11	6	10	10	6	5	3	7
FIRE	12	8	3	4	7	14	2	6
	Total	102	97	88	100	85	32	84

The remaining category of calls consists of all other categories, as explained in the beginning of this section. Here, the activity is much more consistent over the span of months, with several periods being higher. (Table 7.5).

Table 7.5: “Other” Incidents by Month

Type	Month	2012	2013	2014	2015	2016	2017	Average
OTHER	01	20	29	33	26	25	13	24
OTHER	02	20	12	24	29	31	28	24
OTHER	03	14	16	23	29	19	41	24
OTHER	04	19	17	28	25	21	39	25
OTHER	05	22	22	22	31	17	31	24
OTHER	06	23	26	24	26	22	30	25
OTHER	07	32	43	30	32	24	39	33
OTHER	08	27	25	19	26	31	56	31
OTHER	09	28	28	21	29	19	34	27
OTHER	10	33	35	18	31	22	48	31
OTHER	11	20	19	29	19	22	31	23
OTHER	12	24	31	27	26	15	23	24
	Total	282	303	298	329	268	413	316

The highest number of incidents in 2012 was 33 calls in a month. In contrast, the 2017 numbers show that only 5 months had less than 31 calls in the month, with a high of 56 calls in August 2017. While not as resource intensive as fires, these calls also take up valuable resources and time to respond and process.

We next examined calls for service by the day of week. Table 7.6 and Figure 7.2 show that, on average, there are a slightly lower average number of calls on Saturdays and Mondays but, for the most part, there is almost no difference on the weekends. This puts consistent pressure on the resources to be available across the entire week and does not allow for a targeted staffing program.

Table 7.6: Calls by Day of Week

Day of Week	2012	2013	2014	2015	2016	2017	Average
Sunday	16.3%	15.3%	10.7%	12.8%	15.3%	15.4%	14.3%
Monday	12.9%	13.0%	14.6%	14.1%	14.8%	13.1%	13.7%
Tuesday	16.5%	15.8%	15.1%	14.9%	14.4%	15.8%	15.4%
Wednesday	13.8%	11.7%	15.1%	15.9%	15.1%	12.9%	14.1%
Thursday	12.0%	17.6%	15.1%	14.9%	14.0%	14.5%	14.7%
Friday	15.0%	14.1%	15.3%	14.4%	14.0%	16.0%	14.8%
Saturday	13.5%	12.5%	14.0%	12.9%	12.4%	12.2%	12.9%

Figure 7.2: Incidents by Day of Week 2012-217

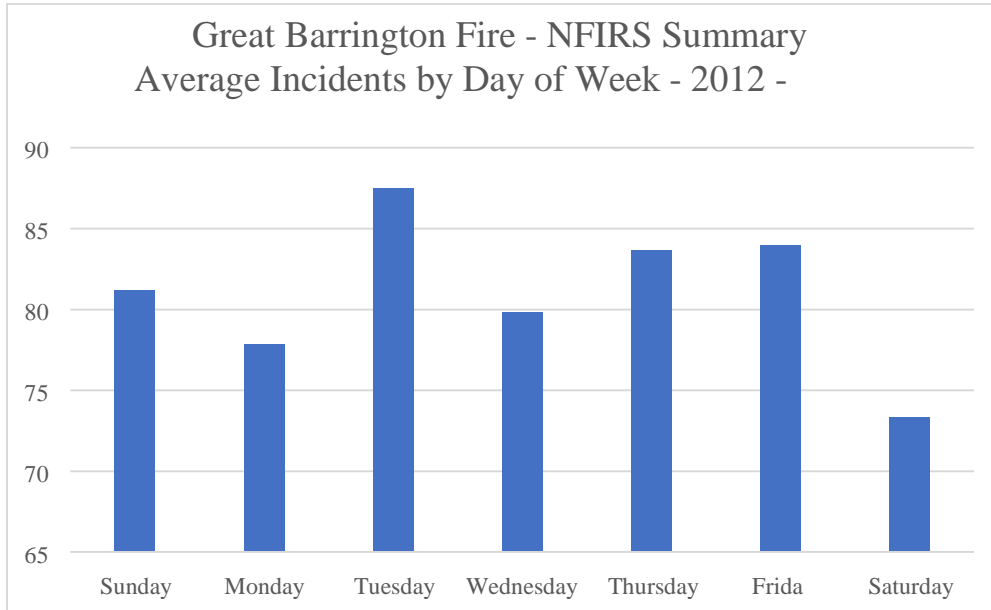


Table 7.7 reviews the incidents by the time of day. The definition of each shift is shown in the first column. As expected, the activity is the lowest during the night. However, there is little difference between the day shift, where most activities and other reoccurring incidents are happening, and the evening shift. Again, this distribution of calls requires the Department to spread their staffing assignments across two-thirds of the day and still requires that staff resources be available to meet the required standards of cover during night shift.

Table 7.7: GBFD Incidents by Time of Day, 2012-2017

Shift	2012	2013	2014	2015	2016	2017	Average
Day - 8AM - 4 PM	44.0%	47.6%	45.4%	41.1%	44.2%	47.0%	44.9%
Evening - 4PM to 12 AM	42.1%	39.3%	43.4%	41.8%	39.9%	35.2%	40.3%
Night - 12 AM to 8 AM	13.9%	13.0%	11.1%	17.1%	16.0%	17.8%	14.8%

7.2 Dispatching

Public safety dispatching services are provided by the Great Barrington Police Department (GBPD). The GBPD’s dispatch is the Public Safety Answering point for the Town, receiving all 9-1-1 calls. The Center is staffed with one dispatch-trained police officer on a 24/7 basis. The room is equipped with modern technology for call handling, including wireless caller location.

While this capability is important in any dispatch center, in this region it is indispensable due to the large area served by the Center, the presence of tourists who may be unfamiliar with their surroundings, and the prevalence of outdoor activities. The Center has radio linkages with Great Barrington and neighboring fire agencies. The Center is equipped with two dispatch positions,

which can be staffed during major events or long-duration incidents.

Staff appear conscientious, and the quality of dispatch is generally well-regarded by GBFD. The Fire Chief and Police Chief meet regularly, and any concerns appear to be addressed in a good faith process.

The GBFD utilizes iamresponding® software to help identify the number of members responding to the firehouse during alarms. A display showing this information is also available for the dispatcher, who can view activities in real time and advise the fire incident commander. Dispatchers are empowered to request additional mutual aid.

Figures 7.3 and 7.4 show an overview of the communications center, and a close-up of the displays available to the dispatcher.

Figure 7.3: Overview of GBPD Communications Center



Figure 7.4: Data Systems and Controls Available at Dispatch Position.



The GBPD staff is trained in emergency medical dispatch, which encompasses triaging calls for assistance and providing pre-arrival instructions. The staff report that they provide pre-arrival instructions, but with only one person on duty responsible for police and fire, there are undoubtedly times when the workload will limit this practice.

Dispatch of GBFD to medical calls is also an area for attention. The GBFD works with the dispatch center to improve the consistency of dispatch for ambulance calls. There is reported to be variation in practice among different employees. The current policy calls for members from the respective station areas to respond to Code 1 medical calls in their areas.

7.3 Daily Operations and Response

The GBFD's daily response is governed by Department policy. The GBFD has established response areas for each fire station, and defined the desired apparatus that should respond to emergencies of various types. They have also defined the aid from surrounding fire departments, which respond to large incidents or one occurring near a bordering department's service area.

Table 7.8 presents the apparatus listing for the GBFD. The Department operates four engines, one Rescue, one Ladder, one brush unit, one UTV, and two staff cars.

Table 7.8: Apparatus Listing and Description

Apparatus	Station	Make	Year	Pump (gpm)	Tank (gal)	Description
Ladder 1	Great Barrington	KME	2014	2000	300	100' mid mount tower ladder
Engine 2	Great Barrington	Pierce	2000	1500	1000	Also carries rope, water, and confined space rescue equipment
Engine 3	Great Barrington	KME	2009	2000	1000	Primary engine from the GB station
Engine 5	Great Barrington	Pierce	2000	1500	1000	Rescue engine, includes the jaws, struts, cribbing, and speedy dry and booms
Brush 545	Great Barrington	Ford F550	2002	250	400	Brush Truck
Car 8	Great Barrington	Ford Expedition	2009	N/A	N/A	EMS Response & Fire Inspector's car
UTV	Great Barrington	Can Am	2017	N/A	N/A	UTV with a rescue body on it for mountain rescues
Engine 4	Housatonic	KME	2017	N/A	N/A	Primary engine from the Housatonic station
Rescue 7	Housatonic	KME (International)	2011	N/A	N/A	Air truck and light rescue

Each station has its own response district (shown below) for which they would conceivably be the first to respond and arrive.

- **Great Barrington:** South of Division Street
- **Housatonic:** North of Division Street
- **Both:** Division Street, Old Stockbridge Road, and Route 7 North including the schools

In reality, despite these elaborate procedures, apparatus responds from either station depending on availability of personnel or the nature of the alarm. While multiple apparatus may be specified to respond, some units may fail to get a crew, or units may be recalled or held at the station depending on reports from personnel on scene.

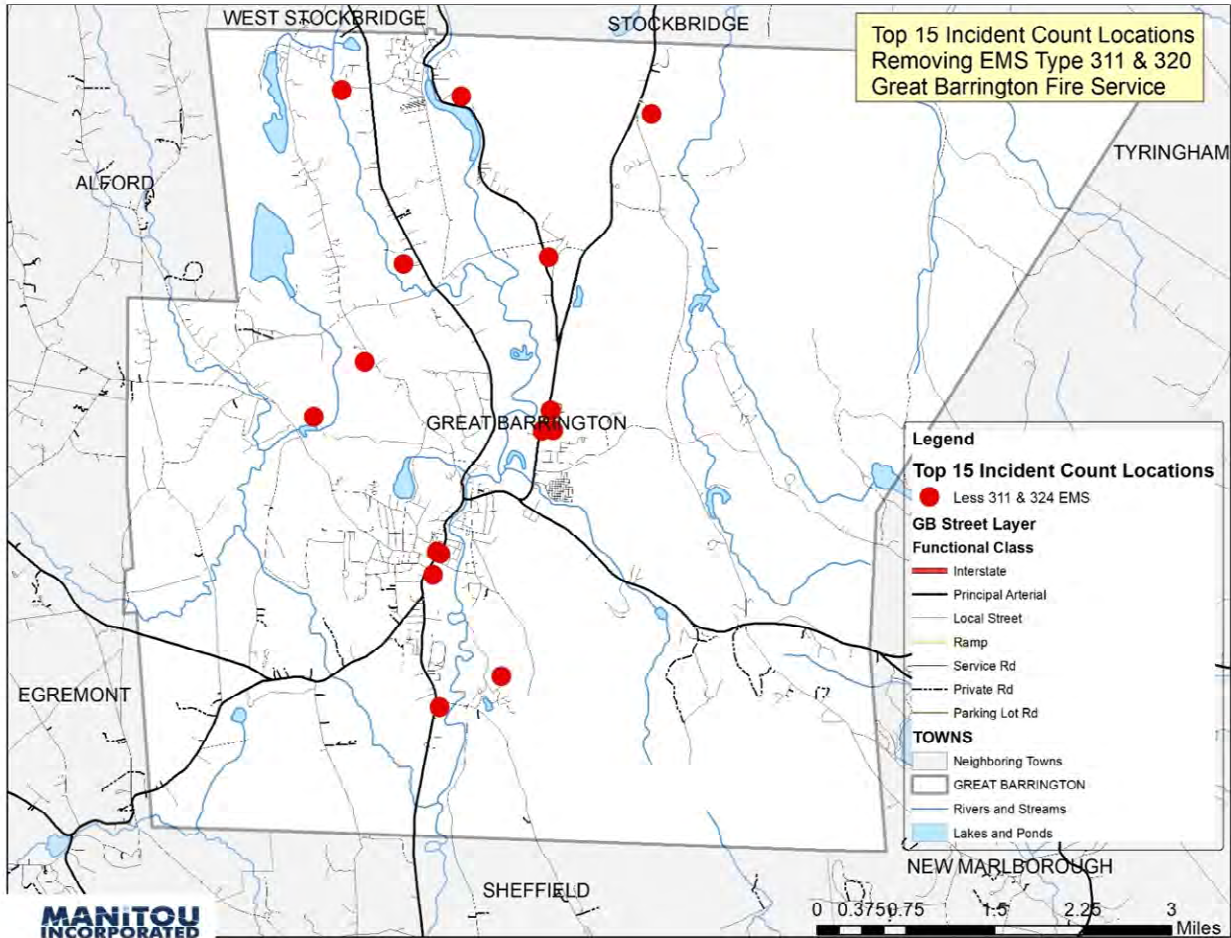
The GBFD has defined a standard response complement of apparatus depending on the reported or actual nature of an emergency. Members are aware of this response policy, and staff and apparatus respond as appropriate. In Table 7.9, the incident type is shown in the left column, and the location of the incident is shown under “District.” The remaining two columns show the apparatus assigned to each station scheduled to respond.

Table 7.9: GBFD Unit Response Order

Call Type	District	Great Barrington	Housatonic
Structure Fire/ Automatic Fire Alarm	All	E-3, L-1, E-2, E-5, C-8	E-4, R-7
Chimney Fire	All	E-3, L-1, E-2	E-4, R-7
Brush Fire	All	B-545, E-2, E-3, E-5	E-4
Car Fire	All	E-5, E-3	E-4
MVA (Extrication)	All	E-5, C-8, E-2	R-7, E-4
MVA (Other)	All	E-5, C-8	R-7
Medical	GB	C-8	
	Housatonic	C-8 (daytime)	R-7
CO	All	E-3	R-7
LNG or LP Leak	All	E-3, L-1, E-2	E-4, R-7
Flammable Liquid Spills	GB	E-5	
	Housatonic	E-5	R-7, E-4 (Additional units per command)
Hazmat	All	E-5, E-3, MDU, L-1, E-2	E-4, R-7
Search & Mountain Rescue	All	C-8 & UTV, E-2, E-3, L-1, E-5	R-7, E-4
Technical Rescues	All	E-2, E-5, L-1, C-8, E-3	R-7, E-4
Elevator Rescues	All	E-5	R-7
Cover Assignment	GB	E-2	
	Housatonic	E-2 (If E-4 does not have a crew)	E-4 (West Stockbridge)

Figure 7.5 shows the 15 most frequent response locations within the Town. These locations represent the total incidents from 2012 to 2018, with the two major EMS incidents removed (311 and 320 incident types). Most of these locations are institutional or residential complexes.

Figure 7.5: Fifteen Most Common Response Locations (Excluding most EMS calls)



7.4 ISO Review

Insurance Services Office Public Protection Classification (PPC) Program - The ISO is the oldest and perhaps the most familiar assessor of public fire defense known to municipal managers and administrators. Using the PPC measures, ISO evaluates a community’s public fire protection capability and assigns a protection class rating from 1 to 10. Class 1 represents exemplary fire protection; a Class 10 rating indicates that a community’s fire suppression program does not meet ISO’s minimum criteria. ISO evaluates all public elements of structural fire prevention and suppression in order to establish a rating. This consists of a review of a community’s water supply, call taking and dispatching resources and protocols, response unit staffing, firefighter training, response capacity and coverage, and other factors. A key element of coverage evaluation is the location of engine and ladder apparatus in relation to the development within the jurisdiction. The PPC was developed by the insurance industry and is used to set fire insurance premiums. It does not evaluate EMS capabilities or other emergency services a modern American fire department routinely provides.

It should be emphasized that for the typical homeowner's policy, fire is only one of many perils, and practices vary from insurer to insurer in terms of utilizing the PPC for insurance rate setting. Most insurers assign the same factor to multiple (or bands) of ratings, so a change of one grade may not have an immediate impact on insurance premiums. At least one major insurer does not rely on the ISO schedule. The schedule is more influential for commercial fire insurance, but these properties are individually rated.

Most Recent ISO Report Summary - The most recent ISO PPC report for Great Barrington was completed in August 2015. The community received a 4/4Y rating, which is considered a good rating given the geography of the community and its reliance on paid-call personnel. Highlights from the report are given below:

The basic fire flow for the community is 3,500 gpm. This fire flow is a determination of the quantity of water needed to fight a well-developed fire in a building representative of the hazards within a community. This corresponds to the desired pumping capacity of fire apparatus operated by the fire department.

Of the three areas of the community's fire defense system evaluated, the fire department received the least amount of credit. The sub-area of firefighter staffing received the least amount of credit with 3.96 out of 15, or 26 percent of available points.

The class 4 rating applies to properties within five road miles of a recognized fire station and within 1,000 feet of a fire hydrant or alternate water supply.

The 4Y rating applies to properties beyond 1,000 feet of a fire hydrant but within five road miles of a recognized fire station. Table 7.10 summarizes the ISO rating criteria for Great Barrington.

Table 7.10: ISO Overall Rating

Structural Fire Defense Element	Credit Available	Earned Credit	Percent of Credit
Emergency Communications			
Call processing and dispatch	3	1.5	50%
Telecommunicators	4	4.00	100%
Dispatch methods	3	2.10	70%
	10	7.60	76%
Fire Department			
Pumper apparatus	6	6.00	100%
Reserve pumper apparatus	0.50	0.50	100%
Pumper apparatus pump capacity	3	3.00	100%
Ladder and/or service truck apparatus	4	3.87	96%
Reserve ladder and/or service truck apparatus	0.50	0.15	30%
Number and placement of fire stations and apparatus	10	6.67	66%
Officer and firefighter staffing	15	3.96	26%
Firefighter training	9	3.30	36%
Operational considerations	2	2.00	100%
	50.0	29.45	58%
Water System			
System capability	30	22.57	75%
Fire hydrant placement	3	2.97	99%
Fire hydrant inspection and testing	7	5.50	78%
	40	31.14	77%
Community Risk Reductions			
Fire prevention and enforcement	2.2	1.86	84%
Public fire safety education	2.2	1.12	50%
Fire scene investigation	1.1	1.02	92%
	5.50	4.00	72%
Divergence		-3.78	
Total Credit		105.50	65%

Element Breakdown

Emergency Communications - Ten percent of the survey focuses on how the community's emergency communications center receives and processes fires and other emergencies. Specific elements reviewed include:

- Telephone circuits for public reporting emergencies
- 911 telephone service
- Computer-aided dispatch system
- Receiving and processing of emergency calls

- Telecommunicator training and certification
- Facility features and condition

The 911 telephone and dispatch equipment received only 50% of available credits. This is due to deficiencies in E911 wireless and voice over internet technologies, and the capabilities of the community's computer-aided dispatch system, including its geographic information system components.

Telecommunicator procedures and qualifications received 100% credit due to protocols for receiving, processing, and dispatching emergency calls, as well as their training and certification.

The method and equipment used for dispatching firefighters and their equipment to the scene of an emergency received 70% of available points.

Fire Department - Fifty percent of the survey includes a review of the fire department and its capabilities to prevent and mitigate structure fires. Primary elements include:

- The number and type of equipment carried on front-line and reserve pumper and ladder truck apparatus, in correlation to the size of the community and the severity of structure fire risks.
- Response capabilities to structure fires.
- Strategic location of fire stations and pumper and ladder truck apparatus.
- Number of firefighters available to respond to structure fires.
- Firefighter training and certification.

As a whole, the number and type of fire apparatus and capabilities in service, in correlation to local fire risks, received 96% of available credit. This is a reflection of the department's high number of modern and efficient fire apparatus. The element with the least credit was front-line and reserve ladder truck coverage, earning 89% of available credit.

The survey determined the community should have in service three pumper trucks with a combined pumping capability of 3,500 gpm, based on area served and fire severity. The department has four pumpers in service with a total pumping capacity in excess of 3,500 gpm, one of which is credited as reserve apparatus. The survey found a need for a minimum of one ladder truck to be in service close to the community's principal business district. The department received almost full credit for Ladder 1 located at Fire Station 1 on State Road. Only a small portion of the credit available was granted for reserve ladder or service trucks.

The strategic location of fire stations and apparatus received 66% of available credit. This is understandable due to much of the community being rural in nature. It should be noted that the department's two fire station are within an acceptable travel distance to the most populated and built-up areas of the community.

Officer and firefighter staffing was the element that received the least percentage of credit,

earning only 26% of available points. It is not unusual for smaller communities to receive a lower level of credit for staffing, particularly those that serve large rural geographic areas, such as Great Barrington, and are dependent solely on paid-call firefighters. The survey report indicated an average 19 members responding on the initial response to reported structure fires. This seems unusually high given the information received during interviews with department personnel and town officials. The credit earned could be substantially higher if the department has duty crews in place at Station 1, comprised of either career, call members, or a combination of both.

Firefighter training received only 36% of available credit. This is in spite of what appears to be a robust and active training program. Specific features where a low number of points were given include facilities and their use, recruit training, monthly training in structural firefighting strategy and tactics, officer and driver/operator certification, hazardous materials response, and preplanning of commercial properties and special risks. The low credit could be indicative of a lack of proper recording of training hours, a high frequency of training topics that are not focused on structure fires, or a combination of both (see Table 7.11).

Table 7.11: ISO Training Rating

Feature	Points Available	Points Credit	Percent of Points
Facilities and use	35	3.52	10%
Monthly training	25	15.63	62%
Officer certification	12	6.55	54%
Operator/driver certification	10	3.75	37%
Hazardous materials	1	.50	50%
Recruit training	5	3.75	75%
Pre-fire planning	12	3.00	25%

Special considerations under the fire department received 100% of available credit. Features consisted of the use of standard operating procedures and the use of an incident management system.

Water Supply - At 40%, water supply is the second highest fire defense element in terms of credit earned. The evaluation is divided into three features, consisting of the system’s capabilities to produce sufficient water pressures and volumes in comparison to the severity of structural fire risks, and fire hydrant type, location, and maintenance. In rural setting where no permanent water system is available, credit may be given for alternative delivery by water shuttle operations performed by tanker trucks, which deliver water to fire scenes through the use of drafting from static water sources such as ponds, lakes, etc.

The water system is evaluated to determine its capability to produce up to 3,500 gpm for a specific period of time in selected locations within the community. Reservoirs, pumps, and water main distribution are evaluated. The system received 75% of available credit. In spite of its performance during the ISO review, there are areas served by the Housatonic Water Works

system that suffer from low flows and/or pressures. Based on interviews with fire department members and town officials, the system also has performance issues with regard to fire hydrant reliability.

Fire hydrant types received nearly full credit due to most hydrants being connected to a six-inch or larger water main and equipped with a four-inch pumper outlet, with or without 2.5-inch hose connections. A total of 337 fire hydrants were recorded, with 97% meeting the criteria of this specification.

A credit of 3.20, or 77% of points available, was given for annual fire hydrant inspection and flow testing.

Community Risk Reduction - The survey also reviewed programs and services that proactively manage fire risks within the community. Areas within the reviewed programs included: fire inspection and code enforcement services, fire safety education, and fire scene investigation. Services in place at the time of the survey received 72% of available credit, with educational programs receiving the least number of points.

While the GBFD feels that, on balance, the most recent rating is a fair overall assessment, there are particular items that strike our team as being rated lower than is warranted. It may be worthwhile to evaluate asking for an updated rating form the ISO.

7.5 NFPA 1720

An essential part of the team's analysis of station location scenarios included measuring the department's response performance against established national response standards. In doing so, the team applied the following nationally recognized standard: National Fire Protection Association Standard (NFPA)1720 (2014), *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments*.

The NFPA is a trade association with approximately 65,000 members. The association develops and publishes fire protection related standards and codes for usage and adoption by local and other government entities. The NFPA develops its standards and codes through a consensus-based process utilizing national-level technical committees, whose memberships consist of end users, subject matter experts, manufacturers, and representatives of adopting bodies, such as local government. Standards are published and subject for adoption by government and private industry. The standards are subject to revision on an evolving three to five-year cycle.

The standards must be adopted by the Authority Having Jurisdiction (AHJ), usually an independent entity of government such as town, city, or fire district. If the standards are not adopted, then they have no force. However, they exist as "industry standards" that are used to assess level of service. We reference the above NFPA Standard here as a means to assess the service provided by the GBFD.

Addressed within the standard are strategic and system issues involving the organization,

operation, and deployment of a volunteer fire department; however, it does not address tactical operations at a specific emergency incident. Also not included are fire department initiatives related to fire prevention, community education, fire investigations, support services, personnel management, and budgeting.

The standard is organized into five chapters, two of which serve as the crux of the standard: chapter 4, organization, operations, staffing, and deployment; and chapter 5, systems within a volunteer fire department organization such as firefighter safety and health, incident management, training, communications, and pre-incident planning. It is a comprehensive standard. It is the focus of the study to apply chapter 4 to the fire department. The following are excerpts from the chapter that are relevant to the study.

Staffing and Deployment: Chapter 4 contains specific criteria for the staffing and deployment to structure fires that volunteer firefighters and their equipment may respond to within their community or district. The scenario for which resources should be organized is based on a 2,000 square foot single-family home without a basement, adjacent homes, or other exposure structures.

Demand zone: The fire department service area, or district, is divided into demand zones based on population density or severity of risk. Based on these criteria, the standard establishes the minimum level of staffing and response times. A zone can be a single building or a group of buildings. It is usually defined in terms of geographical boundaries, called fire management areas or fire management zones.

Turnout time: The time for firefighters to muster and prepare to respond with their equipment is considered turnout time. Where firefighters are assigned to a station, the standard allows for up to 90 seconds (from the initial dispatch to exiting the station) for fires and special operations and 60 seconds for emergency medical related responses.

Response time: The time firefighters spend driving their apparatus to an emergency scene is considered response time. Normally, response time is considered the travel time from the fire station to the initial arrival on the scene of the emergency.

Setup time: Set up is the time necessary, upon the fire department's arrival at a structure fire, to assemble the necessary resources for firefighting operations. The standard establishes a time of no more than two minutes for initial attack of 90 percent of structure fires.

The standard stipulates firefighters responding to fires and other emergencies are to be organized into company units or response teams, with appropriate apparatus and equipment. Response assignments should be standardized, with procedures including incident management, mutual aid response, and mutual aid agreements predetermined by the location and nature of the reported incident. Table 7.12 summarizes the response capabilities required under the standard.

Table 7.12: NFPA 1720 Response Criteria

Demand Zone ^a	Population Density	Minimum Staff to Respond ^b	Response Time (minutes) ^c	Meets Objective (%)
Urban area	Greater than 1000 people per sq. ml.	15	9	90
Suburban area	500–1000 people per sq. ml.	10	10	80
Rural area	Less than 500 people per sq. ml.	6	14	80
Remote area	Travel distance 8 ml. or greater	4	Directly dependent on travel distance	90
Special risks	Determined by AHJ	Determined by AHJ	Determined by AHJ	90

^a A jurisdiction can have more than one demand zone.

^b Minimum staffing includes members responding from the AHJs department and automatic aid

^c Response time begins upon completion of the dispatch notification and ends at the time interval shown in the table.

The standard specifies desired levels of service based upon the population density of the area served. As such, it is designed to be sensitive to the realities of protecting large, sparsely-populated areas, while recognizing the need for a higher level of service in urbanized centers.

Another important consideration is that hazards are not distributed consistently within population zones. Some properties that would be considered “special hazards” are located in rural areas. The standard makes accommodations for this, but for our analysis, we limited the discussion to urban, suburban, and rural zones.

NFPA 1720 Analysis

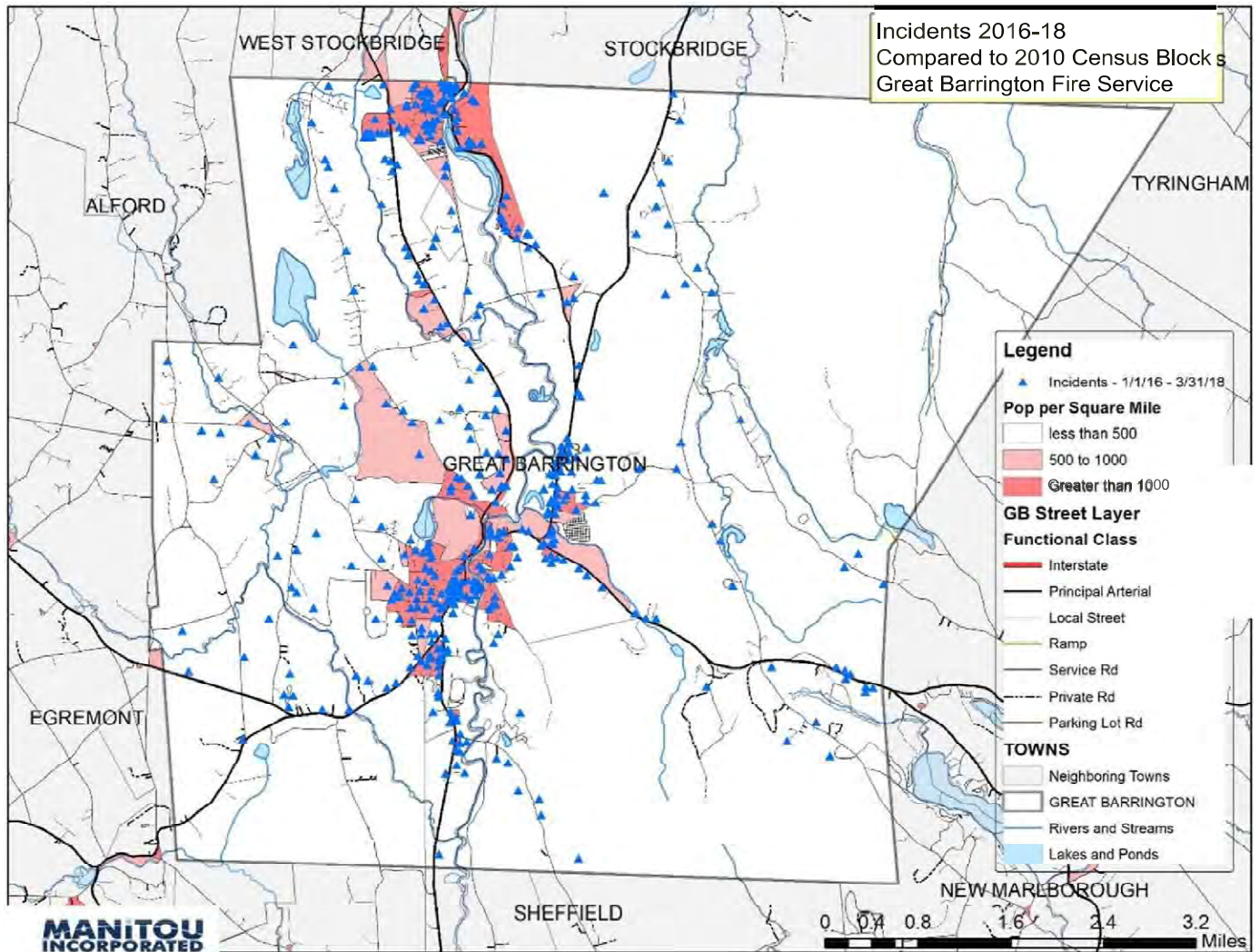
The following analysis reviews recent incidents against the 1720 standard in terms of response time and number of staff assembled. In interpreting these results, it is important to consider that many of the standard’s measurable requirements apply to structural fire response. Measuring compliance with the standard is complicated by numerous factors. First, the number of structure fire incidents is not large, meaning that they are likely not distributed uniformly, or in large enough numbers for statistical certainty. As an example, while a call may be dispatched as a structure fire, the first unit arriving on scene may stand other units down, meaning that the demanding requirements are seldom tested. Nonetheless, we carried out a deployment analysis consistent with NFPA 1720 as a means of assessing service levels and capabilities.

To determine population density, we reviewed the 2010 Census Block population data to develop a population per square mile. The 2010 census data was used since it has the most reliable numbers at the scale of incident locations. Although the 2017 American Community Survey (ACS) would be more recent, the sample size used in ACS and the margin of error did not

facilitate its use to develop the areas that aligned with the 1720 standard. The map (Figure 7.6) shows the three population levels of the standard: less than 500 per square mile; 500 to 1,000 per square mile; and over 1,000 per square mile.

Figure 7.6 displays the incidents with valid addresses and response times against those densities to allow the review of the performance against the standard. Only the incidents since 2016 were used, as the previous years had inconsistent personnel attendance in the NFIRS data. A further examination of the data could provide a larger sample to review against the standard.

Figure 7.6: GBFD Incidents and Population Densities



The following Table (7.13) was created to summarize the incidents and other select statistics by including each of the density groupings (rural, suburban, and urban) and the incidents contained in those groups. The table presents summary statistics on distribution of incidents using NFPA 1720 criteria over a roughly 2.5 year period.

Table 7.13 NFPA 1720 Incident Distribution Summary

Area Type	Number of Census Blocks	Total 2010 Population	Total 2010 Housing Units	Total Square Miles	Number of Incidents
Urban	98	3,133	1,676	1.26	226
Suburban	17	975	357	1.30	78
Rural	298	2,996	1,433	43.22	375
Total	413	7,104	3,466	45.77	679

The methodology used for this analysis was fairly involved. Incidents with valid response times were joined with the State address point file to identify a location in addition to the fire response data. These locations were spatially joined with the Census Block geography that identified that an area was urban, suburban, or rural (1720 demand zone). This data was then queried based on each incident (Structure Fire, All Fires, and EMS) to deliver a listing of the units that responded and how many staff were on each vehicle. The data, from January 1, 2016 to July 31, 2018, was gathered from the Emergency Reporting software output.

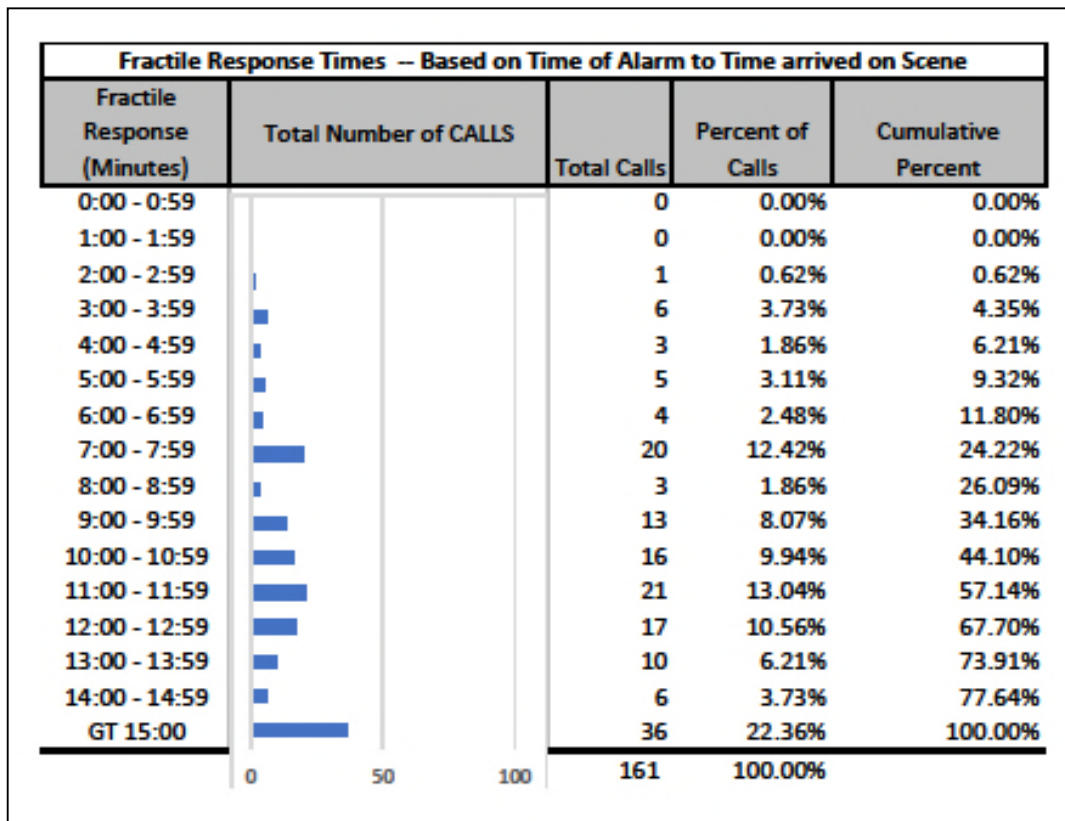
Another query was created to report on the maximum staff at the last time reported by a responding unit. This query gave the answer on how the department met the criteria in 1720 if the last unit responded within the standard’s time frame. However, if a unit(s) arrived after the standard response time for the demand zone, they did not count toward meeting the standard.

For this effort, the comparison was done manually by printing the initial listing from the first arrival and walking through the records to find if and when the staffing was reached. If units arrived after the time required it did not meet the standard. The analysis of the 1720 standard does not necessarily accurately reflect the total staff responding, only the staff “on scene” at the requirement time.

NFPA 1720 calls for response times to be expressed as fractiles; that is, as a percent of incidents reached in a given time category. Averages are not ideal for measuring response times, because they are subject to influence from extremely small or large values, and they do not necessarily provide a measure of consistency.

Next, the three areas of population density were reviewed individually (Table 7.14). Each column shows, for each one-minute increment, the number of calls, percent covered in each time interval, and cumulative percentage of calls covered. These times reflect the arrival of the first engine (not a Chief officer in a car). These analyses were based on Emergency Reporting® data that included individual unit response times.

Table 7.14: NFIRS Urban First Due (Fire Suppression Unit) Response Time by Incident 1/1/16—7/1/18

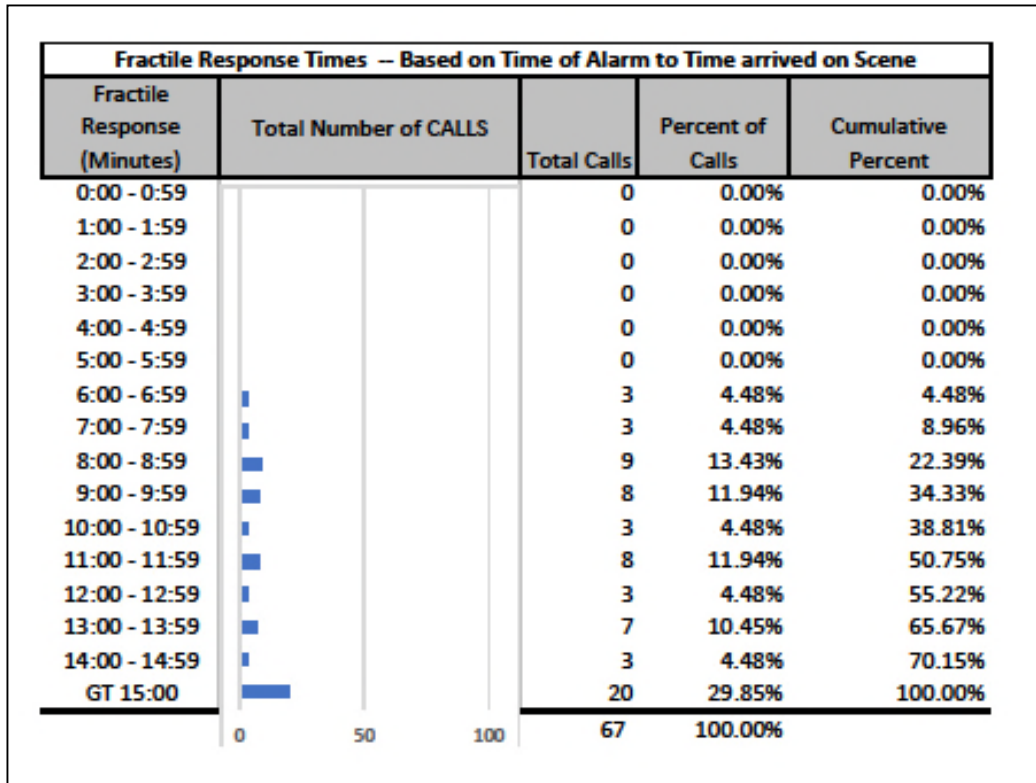


The Urban performance standard requires having a minimum of 15 responders within nine minutes for 90% of the time. The above chart shows that the GBFD only reached 34 percent of incidents within this time frame. Again, these are relatively small numbers of incidents.

This may be a result of the overall distribution of incident type that is captured in this analysis. Further review of the sample used here against the full incident list may reveal further results.

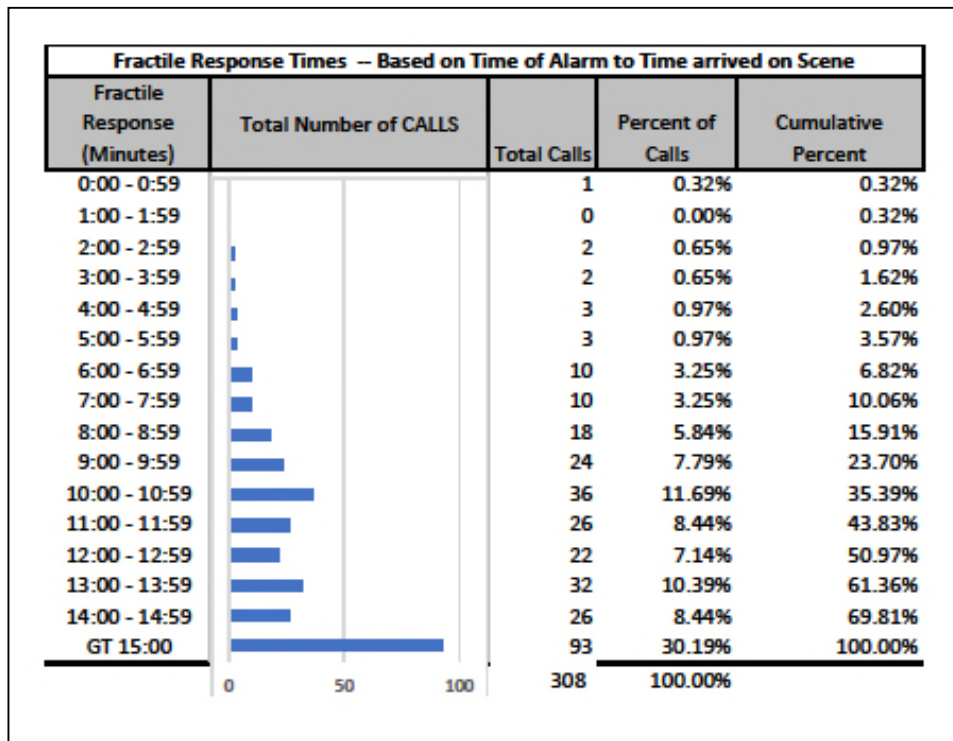
In the suburban category (Table 7.15), the standard calls for 10 staff responding within 10 minutes over 80% of the time. The GBFD responds to roughly 39 percent of incidents within this time frame.

Table 7.15: NFIRS Suburban First Due (Fire Suppression Unit) Response Time by Incident 1/1/16—7/1/18



The final grouping is the rural chart (Table 7.16). This is by far the largest share of the Town’s land area and has the largest number of incidents.

Table 7.16: NFIRS Rural First Due (Fire Suppression Unit) Response Time by Incident 1/1/16—7/1/18



In this analysis, the performance is a minimum of six staff within 14 minutes at least 80% of the time. The GBFD is reaching roughly 70 percent of incidents in the rural zone within 10 minutes.

To summarize, the GBFD does not meet the response time component of the NFPA 1720 standard based on arrival of the first piece of fire apparatus.

Next, we examine the staffing component of NFPA 1720. The number of incidents is smaller for this analysis, because we can only include those incidents for which sufficient staff and apparatus attend. For example, while an incident may be reported as a structure fire, the first arriving unit may announce that the situation is under control, and additional apparatus may not respond. Table 7.17 summarizes compliance with deployment aspects of NFPA1720 for fire and structure fire incidents. These times represent a first-arriving piece of fire apparatus (not a Chief's car).

We can see that the GBFD complies with NFPA 1720 standards for 43 percent of rural structure fires, and 30 percent of all fires. It did not meet NFPA 1720 criteria for fires in the suburban or urban areas (with more demanding response time requirements).

Table 7.17: NFPA 1720 Deployment Compliance Summary

Demand Zone	Incident Type	Number of Incidents Tested	Number Meeting Criteria	Percent of Incidents meeting Criteria
Rural	Structure Fires (no Cars)	7	3	43%
Urban	Structure Fires (no Cars)	7	0	0%
Rural	All Fires (no Cars)	23	7	30%
Suburban	All Fires (no Cars)	1	0	0%
Urban	All Fires (no Cars)	12	0	0%

7.6 Service Levels and Operational Effectiveness

The critical effectiveness measure for the fire service is the time it takes to notify response units, assemble a crew, and respond to the scene of an incident. Irrespective of national standards or external benchmarks, the Town and its citizens have become accustomed to a level of service from the GBFD. Measuring and maintaining this service is a primary objective of the Department’s management.

7.7 Station Locations and Capabilities

The Town of Great Barrington has two existing stations. The Headquarters is in Great Barrington, located at 37 State Road (Figure 7.7). It was completed in 2009, and is a 6-bay facility, which includes meeting space, a training room, and administrative offices. The station also features a sizeable display area accessible to the public. The Housatonic station, built in 1968, is located at 172 Front Street. The Housatonic station (Figure 7.8) has only three bays, none of which can accommodate a ladder company or two of the engines from Great Barrington. Existing apparatus is a tight fit. The station houses an engine and a rescue unit. The facility has a modest meeting room. There is no public space, nor is there any area for outside usage of apparatus or equipment for training.

Figure 7.7: Great Barrington Fire Station



© Google Maps, July 2017

Figure 7.8: Housatonic Fire Station



Figures 7.9 and 7.10 are exhibits of 1.5 mile and 2.5 mile driving distances from each station, showing coverage. These distances are drawn from ISO requirements, but correspond roughly to three and five- minute drive times, based on a 30mph travel speed. Remember that these times do not include the time for personnel to assemble a crew at the station before the apparatus can leave.

Figure 7.9: ISO 1.5 Mile Engine Company Coverage

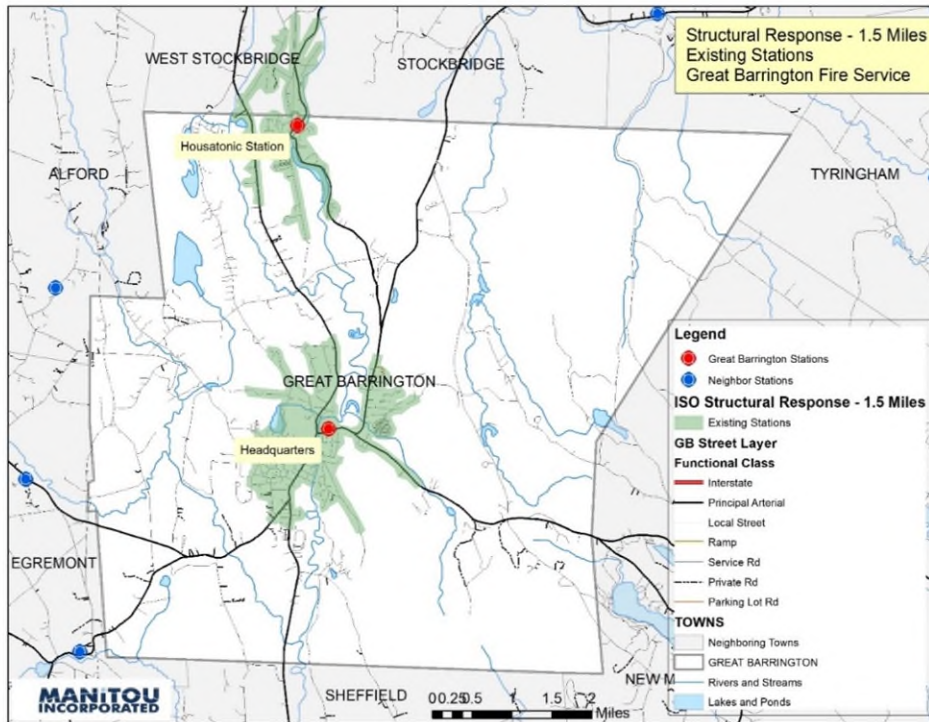
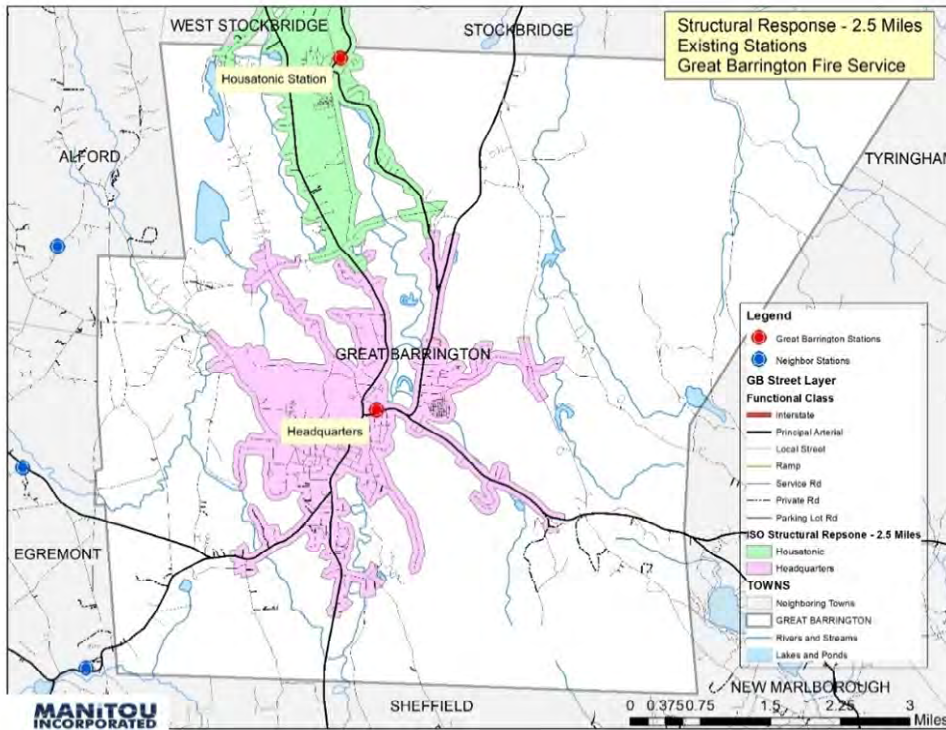


Figure 7.10: 2.5 Mile Coverage



7.7.1 Response Times

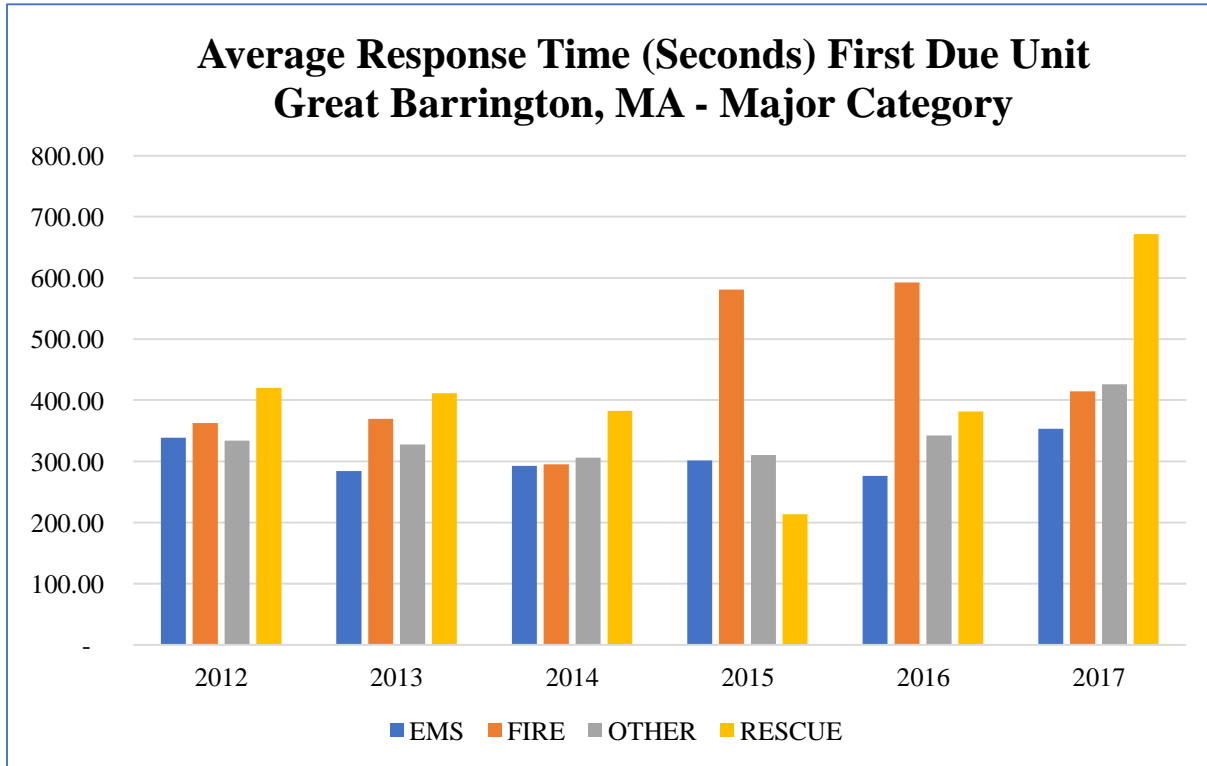
Average response times by incident type are shown in Table 7.18. There is not a consistent pattern in response times from year to year. However, Figure 7.11 shows that response times tend to be increasing in the past few years. The GBFD notes that times recorded prior to 2015 were not as accurate, and could be misleading.¹³

Table 7.18 - GBFD Response Time in Minutes by Major Category

Category	2012	2013	2014	2015	2016	2017
EMS	05:38	04:44	04:52	05:01	04:36	05:53
FIRE	06:02	06:09	04:55	09:41	09:53	06:54
OTHER	05:34	05:28	05:06	05:10	05:42	07:06
RESCUE	07:00	06:51	06:22	03:33	06:21	11:12

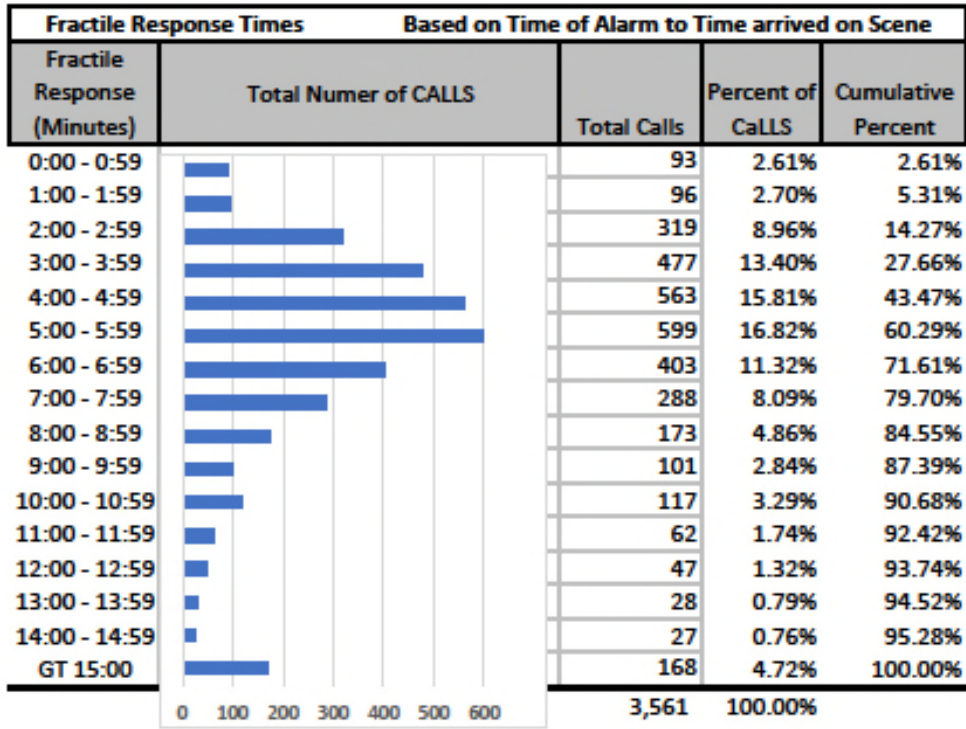
¹³ These data may also include mutual aid incidents that

Figure 7.11: Average Response Times by Major Category



In Table 7.19, we next examine the first-due response times for all incidents from 2012-2017. We see that the GBFD responded to 90 percent of all incidents in less than 11 minutes.

Table 7.19: NFIRS First Due Response Time by Incident



The number of personnel responding by detailed type of incident is shown in Table 7.20. We see that the largest number of personnel respond on reported fire incidents. More importantly, we see that numbers of personnel responding is trending downward – particularly for service, good intent, and false alarm calls.

Table 7.20: Total Firefighters per General Incident Type Great Barrington Fire Service – Emergency Software Data - 2016 to 7/31/18

General Incident Type	2016	2017	2018
1 -Fire	9.3	9.3	8.6
2 - Overpressure Rupture, Explosion, Overheat (no fire)	7.0	14.0	6.0
3 - Rescue & Emergency Medical Service Incident	5.6	3.8	3.9
4 - Hazardous Condition (No Fire)	8.5	5.5	4.9
5 - Service Call	5.6	5.2	3.5
6 - Good Intent Call	7.4	4.5	4.6
7 - False Alarm & False Call	7.4	4.2	4.3
8 - Severe Weather & Natural Disaster	12.5	6.0	
9 - Special Incident Type	10.0		

When we aggregate the incident types to the four broad categories of Fire, EMS, Rescue, and Other, the results are shown in Table 7.21. Again, there is a similar downward trend.

Table 7.21: Average Total Firefighters per Incident – Emergency Reporting Software Data - 1/1/16 to 7/31/18

GENERAL_CODE	2016	2017	2018
EMS	4.4	3.3	3.4
FIRE	9.3	9.3	8.6
OTHER	7.3	4.5	4.4
RESCUE	10.3	5.4	6.4

We next examine the numbers of personnel responding on each piece of apparatus. Table 7.22 shows the average number of firefighters responding on each piece of apparatus for 2016-7/31/2018.

Table 7.22: Average Firefighters per apparatus, Emergency Reporting Software Data 1/16—7/31/18

APPARATUS	2016	2017	2018
B-545	2.6	2.6	2.2
C-1	1.0	1.0	1.1
C-2	1.0	1.0	
C-3	1.0	1.0	1.0
C-4	1.0	1.0	1.0
C-8	2.0	1.9	1.8
E-2	4.4	4.0	3.6
E-3	4.5	4.2	3.4
E-4	2.5	2.6	2.6
E-5	4.4	4.1	4.7
L-1	3.8	3.5	3.1
R-7	1.5	1.4	1.6

We next examine the number of personnel on each apparatus based on the type of incident (Table 7.23). Major apparatus (engines and ladders) respond with the largest crews. Crew sizes are fairly consistent across incident types, but the average staffing on the ladder company has declined from over 4 to 3.4 personnel, while Engine Company staffing was more stable.

Table 7.23: Average Firefighters per apparatus by General Incident Type Great Barrington Fire Service - 2016 to 7/31/18

UNIT ID	EMS			RESCUE			FIRE			OTHER		
	2016	2017	2018	2016	2017	2018	2016	2017	2018	2016	2017	2018
B-545	3.0		2.0	2.0	3.0		2.6	2.8	2.3	2.5	2.0	2.0
C-8	2.1	2.0	1.8	2.2	2.3	1.7	1.0	1.0		1.4	1.6	1.8
E-2	6.0		2.0	4.0	3.3	1.5	4.0	4.3	4.1	4.8	4.0	3.7
E-3	6.0		3.0	5.0	3.0	2.0	4.6	4.5	3.1	4.5	4.2	3.5
E-4	3.0			2.0	2.0	2.0	2.3	3.6	2.8	2.6	2.3	2.5
E-5				4.8	3.7	4.9	4.2	4.7	6.0	4.2	4.1	4.2
L-1	4.5			4.9			4.1	3.9	3.4	3.3	3.4	3.0
R-7	1.5	1.3	1.6	1.9	2.0	1.7	1.6	1.0	1.5	1.2	1.5	1.6

7.7.2 Apparatus Utilization

Table 7.24 below documents the apparatus and how often they have been used since 2012. The unit workloads are greater than the number of incidents because multiple units may respond to an incident. Over the past seven years, the busiest unit (aside from the Chief’s vehicle) was C-4, followed by Engine 3, C-3 and C-2. The reduction in responses for C-1 is attributable to the Chief’s practice of responding on apparatus if he is at or near a station.

We can see that overall unit movements are at a low in 2017, with over 400 fewer responses than the next lowest year. If we look only at heavy apparatus (engines and ladders), the trend is not as pronounced; however, 2017 is again the lowest year for responses, with 407 responses.

Table 7.24: Great Barrington Unit Workloads

Unit ID	Apparatus Type	2012	2013	2014	2015	2016	2017	TOTAL
B-545	Brush Truck	17	22	25	16	21	9	110
C-1	Chief, Officer Car	390	531	448	356	297	242	2,264
C-2	Personal Vehicle	216	140	132	133	45	4	670
C-3	Personal Vehicle	222	167	134	161	129	111	924
C-4	Personal Vehicle	278	229	238	283	252	213	1,493
C-8	Medical, Other	133	115	86	95	76	70	575
E-2	Engine	39	33	60	29	24	41	226
E-3	Engine	273	198	191	258	233	220	1,373
E-4	Engine	185	101	82	77	73	61	579
E-5	Engine	52	45	43	39	39	39	257
E-6	Engine	10	3	9	9	1	1	33
L-1	Ladder	74	27	34	76	57	45	313
R-7	Rescue Unit	135	130	105	125	99	65	659
	TOTAL	2,037	1,762	1,610	1,758	1,428	1,194	9,789

7.8 Mutual and Automatic Aid

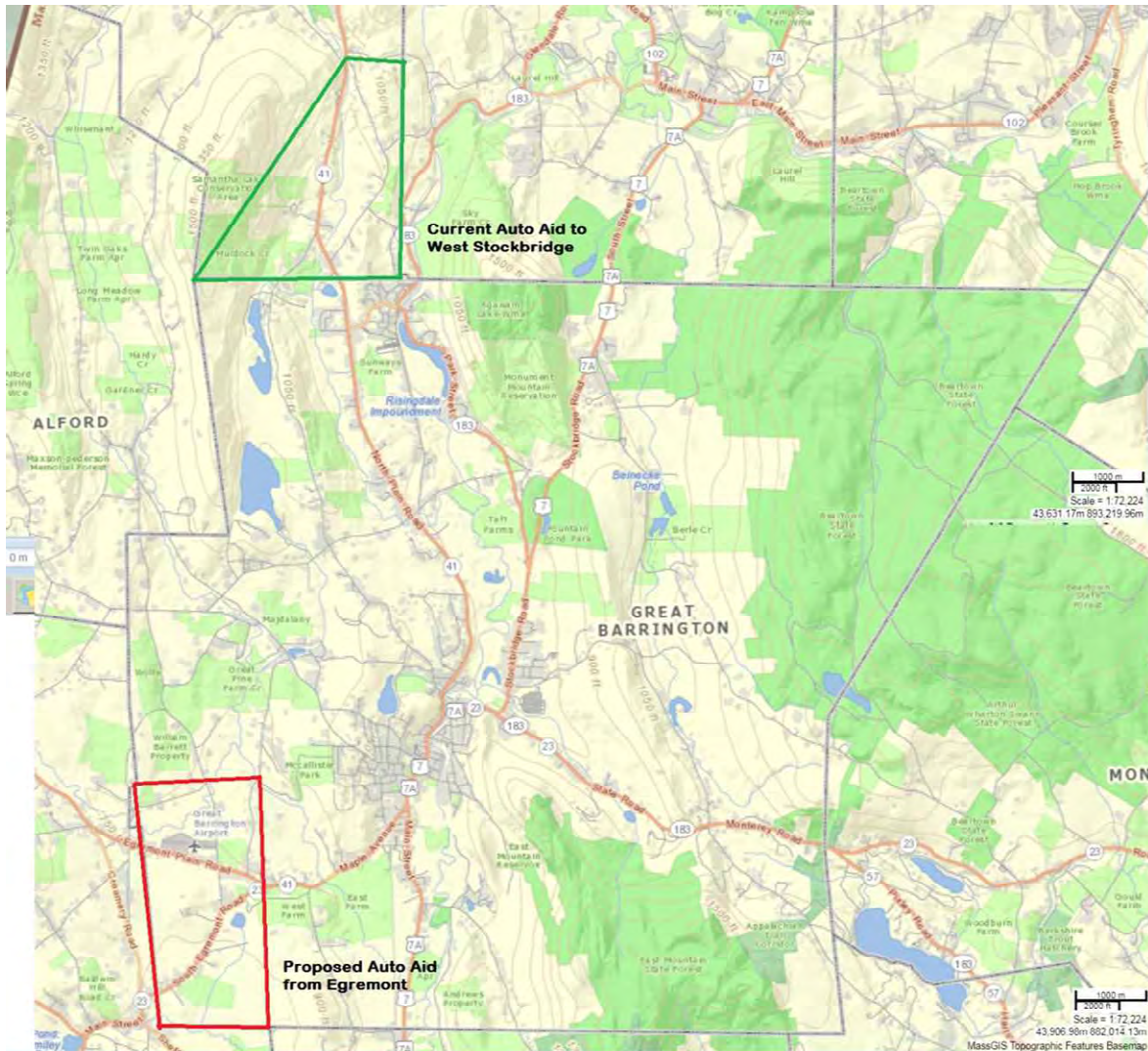
The “run card” for the GBFD is shown in Table 7.25. This listing shows the units that are assigned to respond to differing types of emergencies. Mutual aid units are selected based on the location of the incident, presence of specialized apparatus or equipment, and staff capabilities of the surrounding agencies.

Table 7.25: GBFD Run Card

Structure Fire				
1st Alarm	2nd Alarm	3rd Alarm	4th Alarm	5th Alarm
GBFD	Monterey Truck 172	Sheffield E-1	New Marlborough E-1	Lee E-3
Lenox E-6--RIT	Sheffield E-2	Monterey E-7	West Stockbridge E-1	Richmond E-1
	Stockbridge E-1	Stockbridge E-2	Alford E-2	Canaan (CT) Ladder-1
	Egremont E-1	Egremont E-4	Lee E-2	Lenox E-1
		Lenox Truck-5		
Coverage				
GB: Sheffield E-2	GB: Sheffield E-1	GB: Alford E-2	GB: Lee E-3	GB: Canaan (CT) E-16
Brush Fire				Tanker Task Force
GBFD	Egremont E-2 & T-5	New Marlboro B- 6 & T-2		Egremont T-5 & E-4
	Sheffield E-3 & T-4	W. Stockbridge E-1 & R-3		Monterey E-7
	Monterey B-4 & E-7	Lee B-1, T-4, & Trailer		New Marlborough T-2
	Alford E-1 & E-2			Richmond T-3
	Stockbridge E-1 & E-3			

Figure 7.12 shows the current and proposed areas of the Town where there is an automatic response.

Figure 7.12: Current and Proposed Automatic Aid and Joint Response Areas



8 Volunteer Staffing Analysis

The Call staff is the essential component of the Department. In this section of the report we review membership qualifications, requirements, and activity level. We also review entry requirements for members.

8.1 Current Membership Activity

At present, the GBFD has a total of 29 Paid Call members. Nine of these members are assigned to the Housatonic station, and 19 are assigned to the Great Barrington station. Of these members, three are on personal or medical leave. Figures 8.1 and 8.2 illustrate the approximate residence locations of the membership at the time of the study.

Figure 8.1: Member Residence Locations – Great Barrington

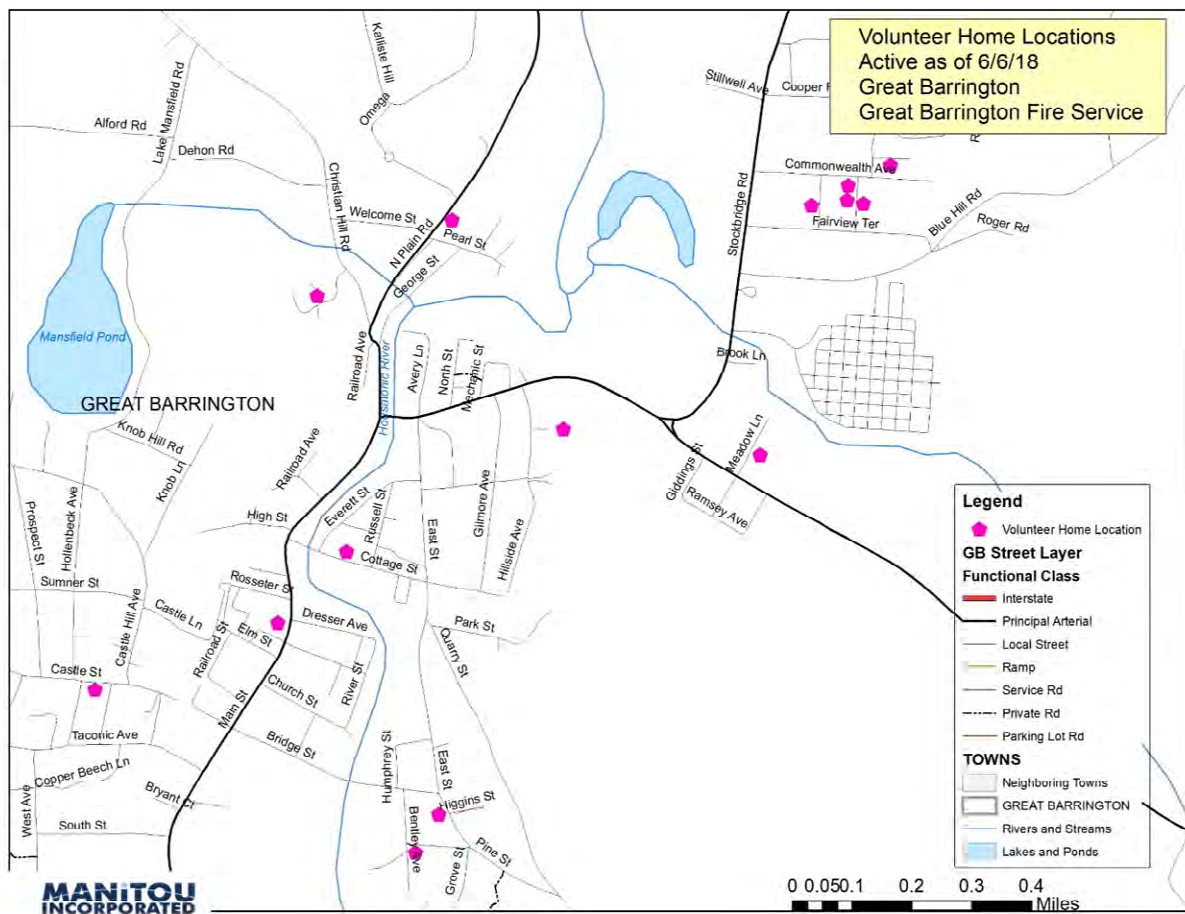
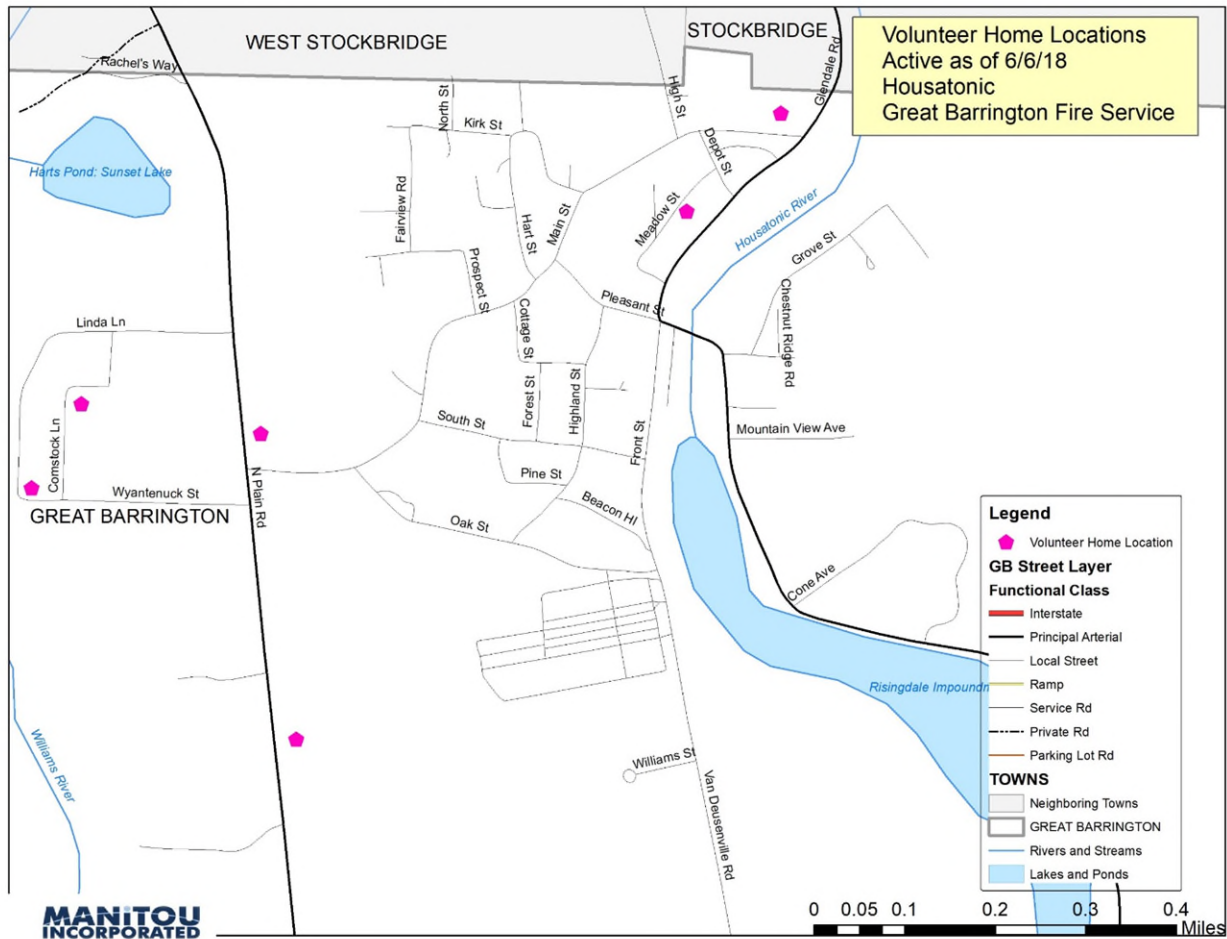


Figure 8.2: Member Residence Locations – Housatonic

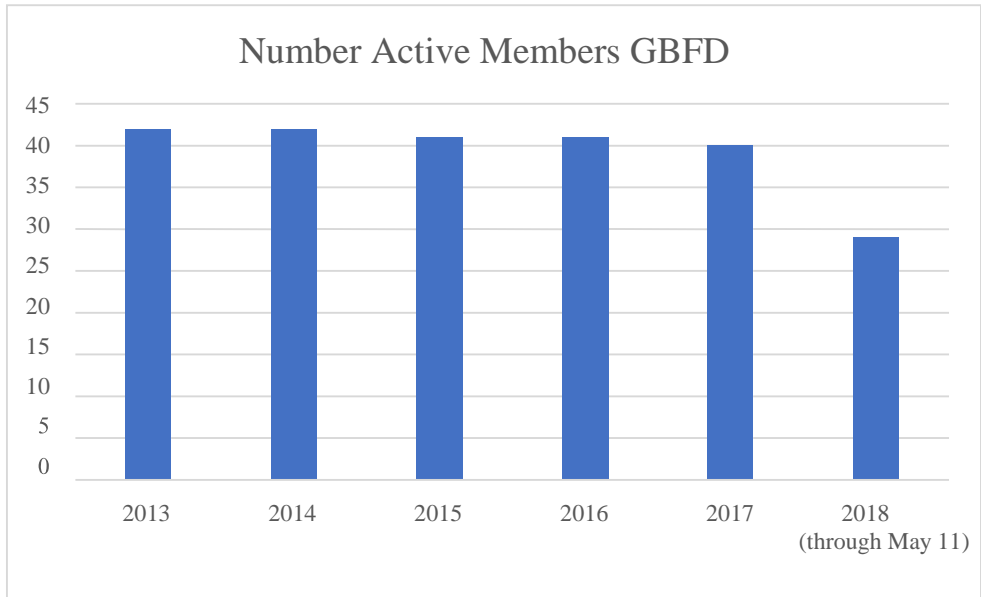


8.1.1 Membership Activity Trends

We reviewed and analyzed GBFD records to try to discern trends in membership and activity. We begin with membership.

The number of paid call members from 2013-present are shown in Figure 8.3. Since 2013, there has been a decrease in members, declining from 42 members to the current 29. While there was a slow decline through 2017, there was a significant drop in 2018. The reasons for this drop should be explored further.

Figure 8.3: Member Trends GBFD 2013-present



Merely being on the membership rolls is only one measure of the health of the paid call cadre. We understand that some of the drop-off from 2017 to 2018 is due in part to a cleanup of the member roster, which eliminated largely inactive members who incidentally attended a call or drill. Another contributing factor may be that we had less than five months of data for 2018.

To get another measure of the stability of the roster, we examined the numbers of incidents responded to by members over the 2013-2017 time period. This data (Figure 8.4) is the sum of all incidents responded to by all the members. The number of total incident responses declined markedly from 2015 to 2016. They remained fairly steady from 2016 to 2017.

Figure 8.4: Member Responses 2013-2017

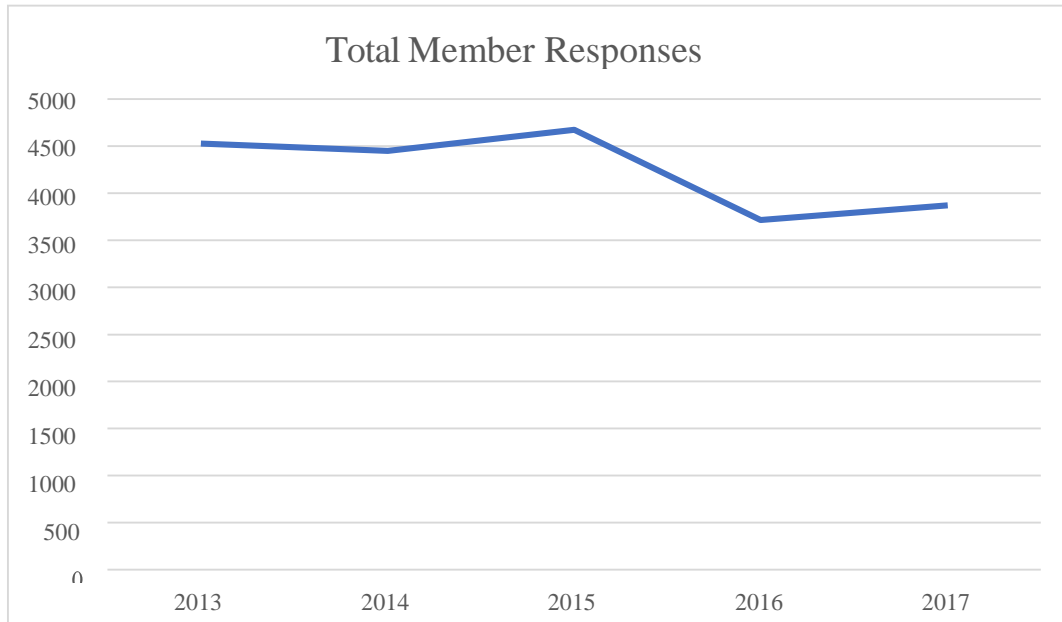


Table 8.1 presents multiple measures of member incident response activity. This table shows the number of incidents, member responses/incident, number of active members, and the annualized total member responses.

Table 8.1: Member Response Activity 2013-2018 (part year)

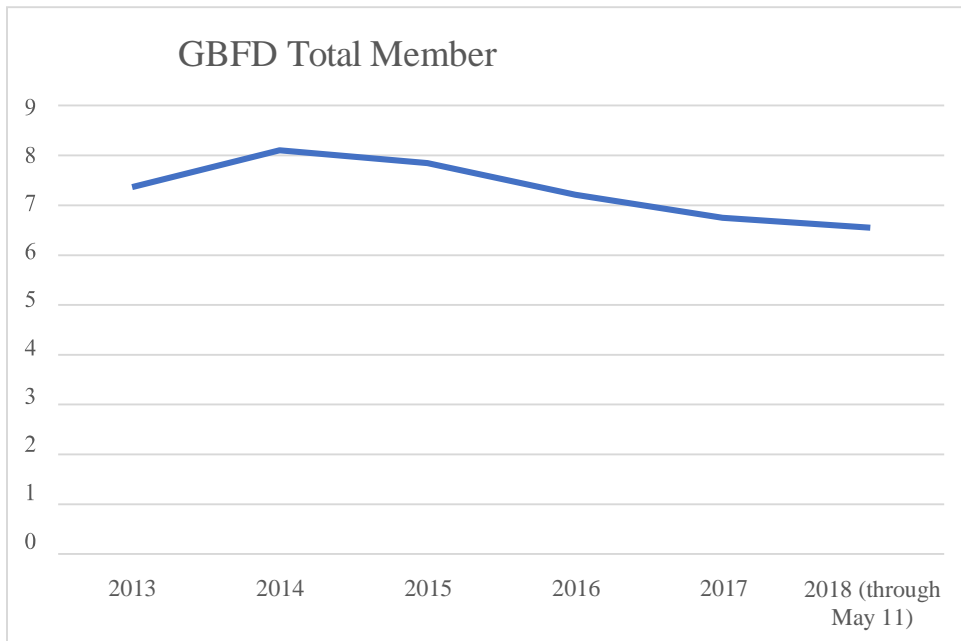
Category	2013	2014	2015	2016	2017	2018 part
Total number of incidents:	615	549	596	515	574	181
Total member responses	4526	4449	4676	3713	3874	1185
Responses/incident	7.36	8.10	7.85	7.21	6.75	6.55
Number active	42	42	41	41	40	29
Total member responses (annualized)	4526	4449	4676	3713	3874	2844

The number of members responding per incident has fluctuated, with a downward trend for the last two years. An average of 7.30 members responded per incident over this period. 2013-2015 were all above this average, while 2016 -2018 YTD saw declines to a low of 6.55 members per

response in 2018 YTD.

We annualized the data for 2018 by extrapolating the part-year results through the entire year. On that basis, we would expect that the total number of member response would decrease by almost 1,000 person-responses in 2018. This is a function of both fewer members and an expected decrease in incidents based on the early year trend for 2018 (Figure 8.5). This is a clear sign of declining activity, but the members who remain are maintaining their activity.

Figure 8.5: Member Responses per Incident 2013-2018YTD



While incident response is a critical measure of activity, we also examined records on compensation of paid-call members. The compensation reflects hours worked at alarms, training, and approved work details. This is another measure of activity. It is imperfect, because hours spent at recruit training are also included. However, it is a useful measure.

Figure 8.6 shows the trend in total hours worked from 2013-2017. The hours declined slightly over the period, but increased in 2017 to just above the previous high number of hours in 2013.

Figure 8.6: Total Hours of Paid-Call Compensation 2013-2017

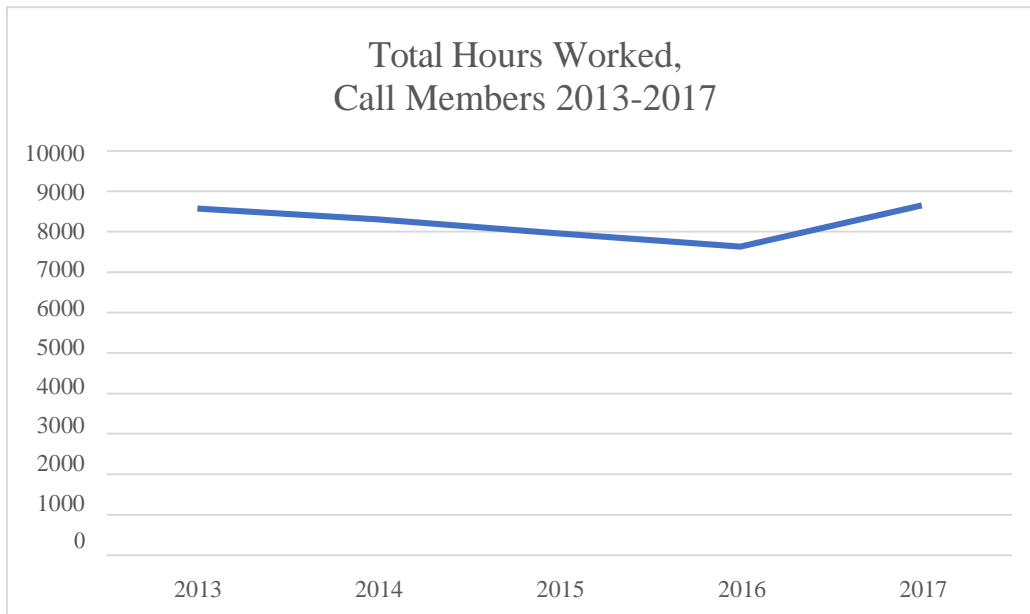
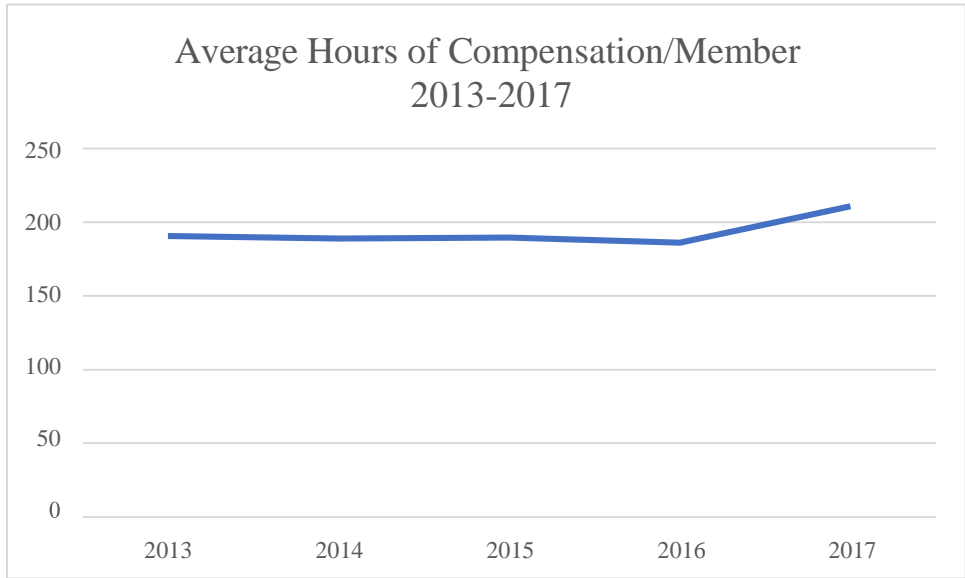


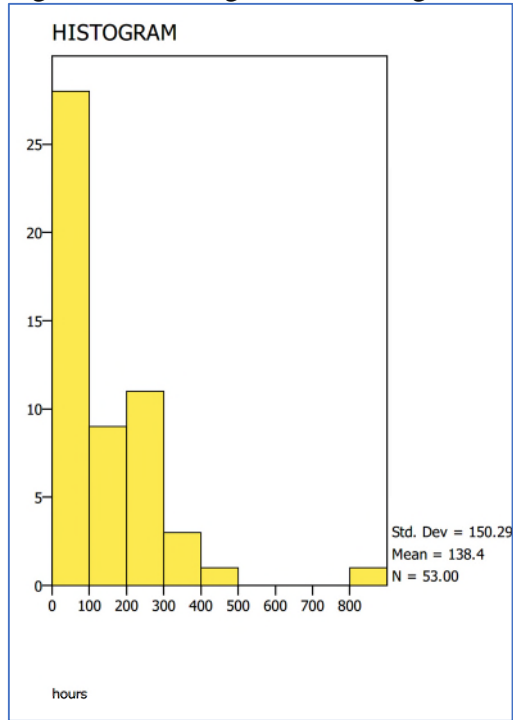
Figure 8.7 shows the average hours worked per member over the same period. We can see that while there are fewer members, the average hours worked per member is rising in the most recent full year of data. This indicates that while there are fewer members, they are committing more hours to the Department.

Figure 8.7: Average Hours Worked per Member 2013-2017



To gauge the distribution of compensation, we display a histogram of average compensation/member from 2013-2017. The histogram (Figure 8.8) allows us to see the frequency with which members were paid in various amounts of hours. This allows us to gauge the intensity of activity by the number of members. While the average number of hours annually was 138 for all members, the most frequent hours of compensation was less than 100 hours annually. All but one member had less than 500 hours on average annually, while one member (the Chief of Department) had 800 hours.

Figure 8.8: Histogram of Average Hours of Compensation 2013-2017



8.2 Member Survey

As part of the study, an online survey was distributed to members using the Department email list. Survey invitations were distributed via email, with a link provided for each member. A follow up message was sent via the Department to verify that members had received the survey invitation, and this yielded a few members who did not receive the survey invitation. Individual invitations were sent to these members, enabling them to complete the survey.

The survey was anonymous, and only Manitou could see the results and was not able to link results to any individual. The survey received 24 responses, which is a very high participation rate (nearly 100%). This means that responses are representative of the entire Department's membership.

This effort was supplemented by group and individual interviews conducted in multiple sessions in Spring 2018. Members were informed that they could share information and any comments with the Manitou team confidentially. Subsequent phone interviews took place by request throughout the study.

The results of the survey are intended to convey perceptions and beliefs of the members. As such, there may be factual errors within responses, and where possible, we relied in other more definitive data sources for drawing conclusions. Nonetheless, the impressions of the membership are important, particularly given the GBFD's reliance on paid-call members.

Seventy-six percent of the respondents indicated that they were active members, with an additional two respondents indicating they were new members still undergoing training, and

three indicated they were active, but had not attended calls in the past year. All respondents indicated that they were male.

The survey was completed by seven officers, and 18 firefighters (Table 8.2). Seventy-five percent of respondents indicated that they were affiliated with the Great Barrington station, with the remaining being from Housatonic (Table 8.3).

Table 8.2: Rank of Respondents

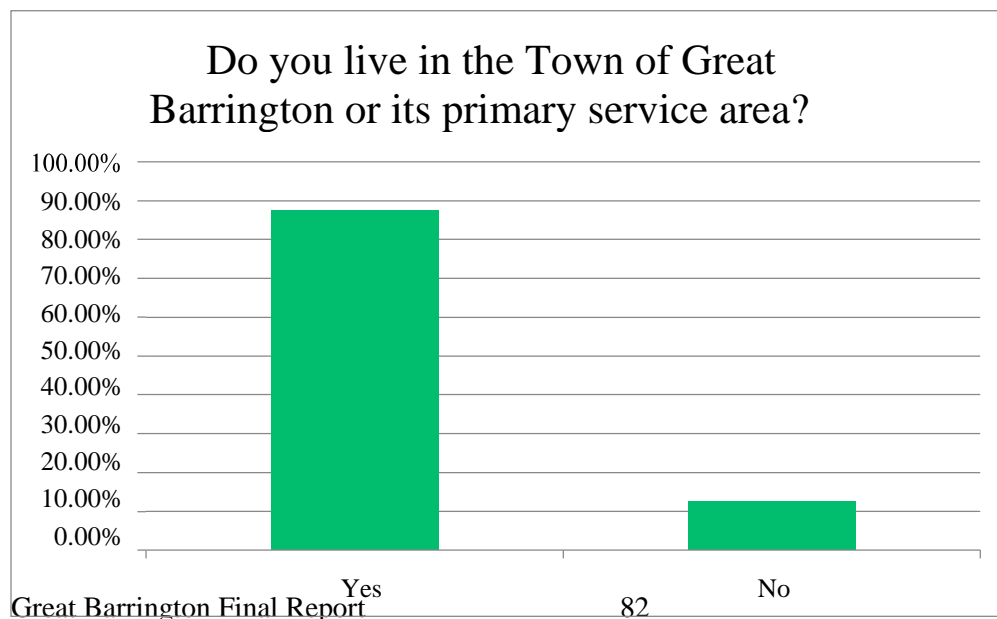
ANSWER CHOICES	RESPONSES	
Firefighter	72.00%	18
Officer	28.00%	7
TOTAL		25

Table: 8.3 Station Affiliations

ANSWER CHOICES	RESPONSES	
Housatonic	25.00%	6
Great Barrington	75.00%	18
TOTAL		24

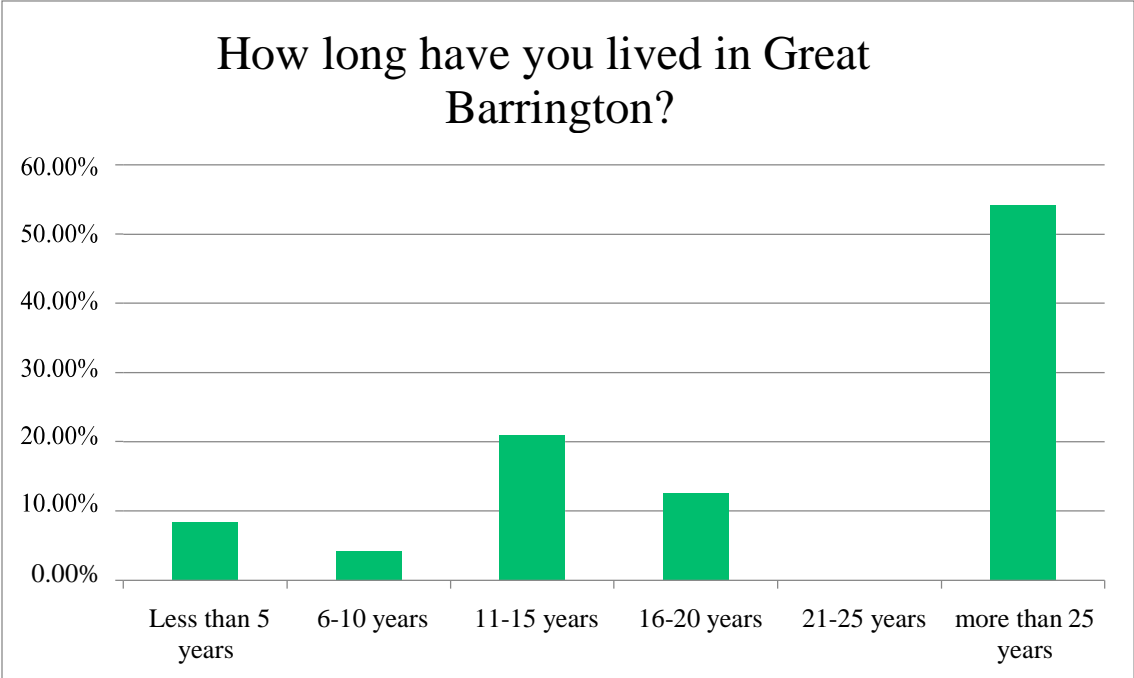
Eighty seven percent (21) of members reported living within the Town, while the remaining three indicated that they did not (Figure 8.9).

Figure 8.9: Residence of Members



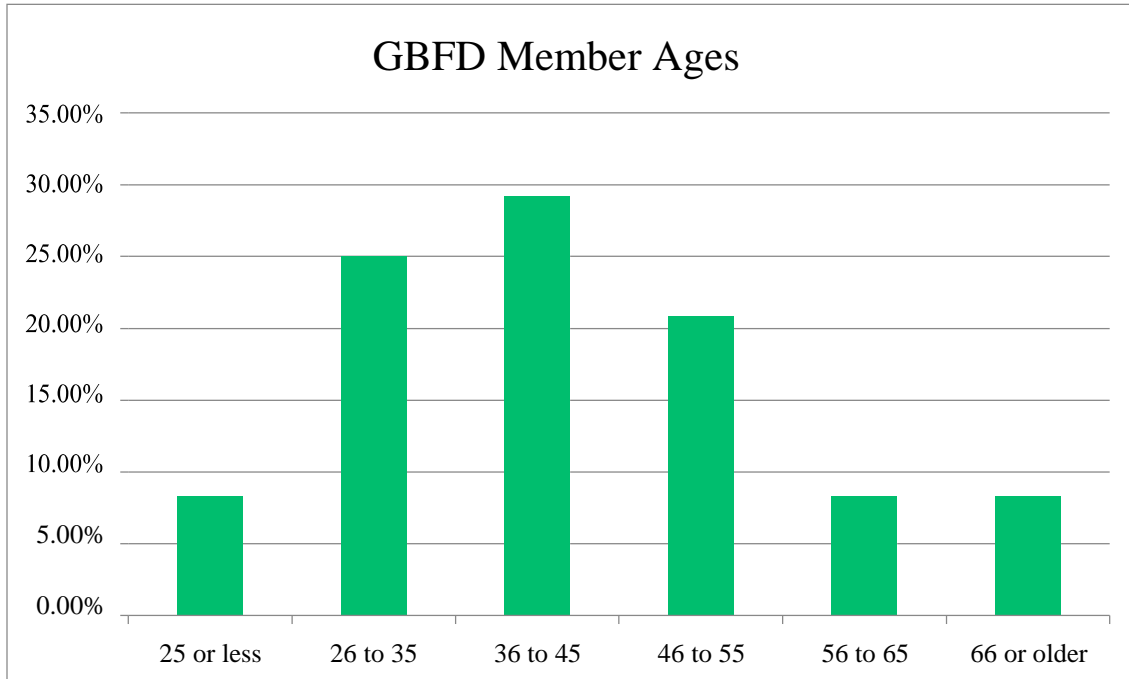
Members tend to be long-time residents, with over half indicating that they have lived in the Town for over 25 years (Figure 8.10).

Figure 8.10: Longevity in the Town



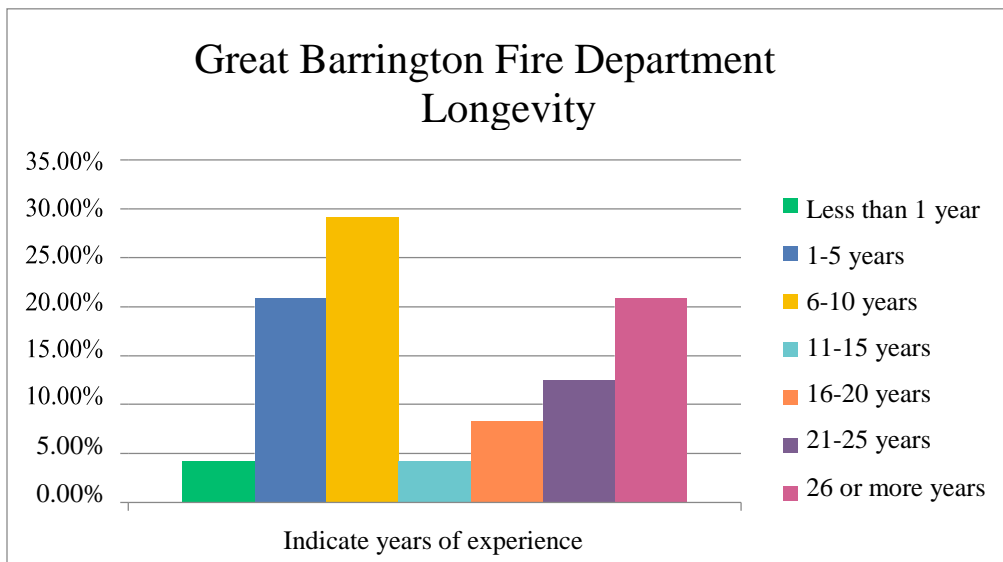
With regard to age, members are fairly evenly distributed, with the largest group of members being in the 36-45 age group (Figure 8.11). Only four active members (16%) are over 55. Only two members are under 25 years of age.

Figure 8.11: Member Age



We asked the respondents about years of experience in the GBFD, and found that the most common number of years' experience was 6-10 years (Figure 8.12). Interestingly, there were only one member with 11-15 years of experience, indicating a period of low recruitment or retention from 2002-2007. Some twenty percent (5 members) had 26 or more years with the GBFD.

Figure 8.12: Years of Experience



A very high percentage of the GBFD is employed, with only one respondent indicating they were retired (Table 8.4). This is unusual for many departments that rely on paid-call members. The implication is that GBFD members are inherently limited in their availability. Over 20 percent of the respondents are self-employed, meaning that while they may have more flexibility in responding to calls, they clearly sacrifice earnings when they leave their employment.

Table 8.4: Employment Status

What is your primary employment status? (not including GBFD)

Answer Choices	Responses	
Employed	70.83%	17
Self-employed	20.83%	5
Retired	4.17%	1
Seeking employment	4.17%	1

We then asked about ability of members to respond to calls from work. Because of the relatively large number of self-employed members, we asked this question separately for employed and self-employed members. Table 8.5 shows these data, which indicate that self-employed members do indeed have greater ability to attend alarms, with 50 percent indicating “always” versus only 17.7 percent for regular employees. Taking the “always” and “sometimes” categories, both employed and self-employed members are able to respond roughly 75 percent of the time.¹⁴

Table 8.5: Employment Status and Response

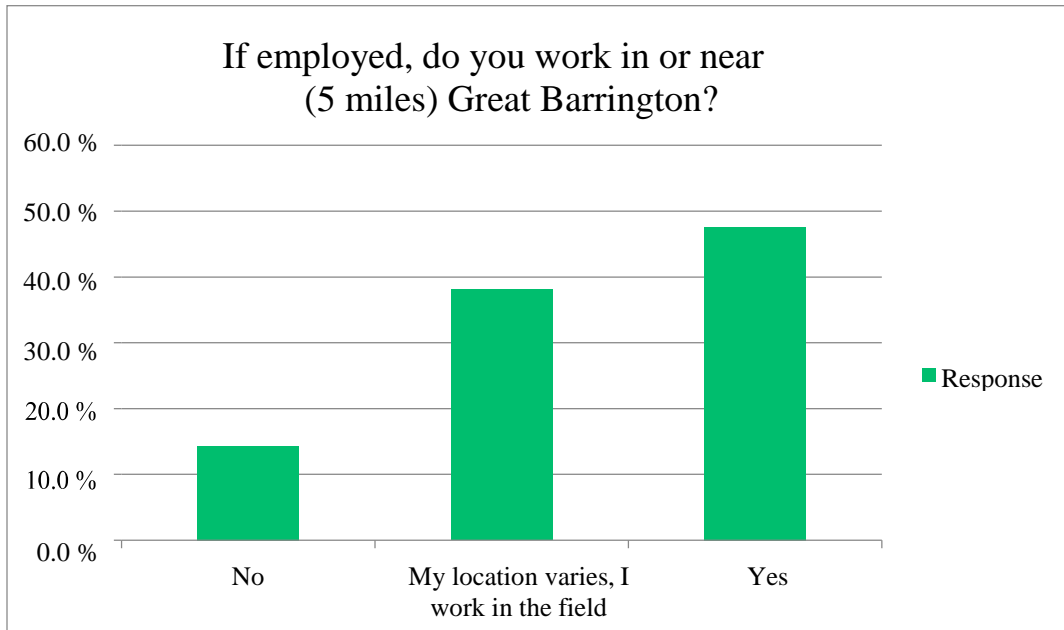
	Employed		Self-Employed	
	Number	Percent	Number	Percent
Always	3	17.7	2	50
Sometimes	12	70.6	1	25
Never	2	11.8	1	25
Total	17		4	

We also asked about the location of members’ employment. Of those answering the question, the

¹⁴ The Chief (and our analysis of records) points out that participation is actually much lower. It is possible that members are answering with regard to responding to a confirmed fire, versus responding on other calls for service.

majority worked within the Town (or within 5 miles), although nearly half indicated that they either worked out of town consistently, or had a mobile work location, that may take them outside the Town (Figure 8.13).

Figure 8.13: Member Employment Location



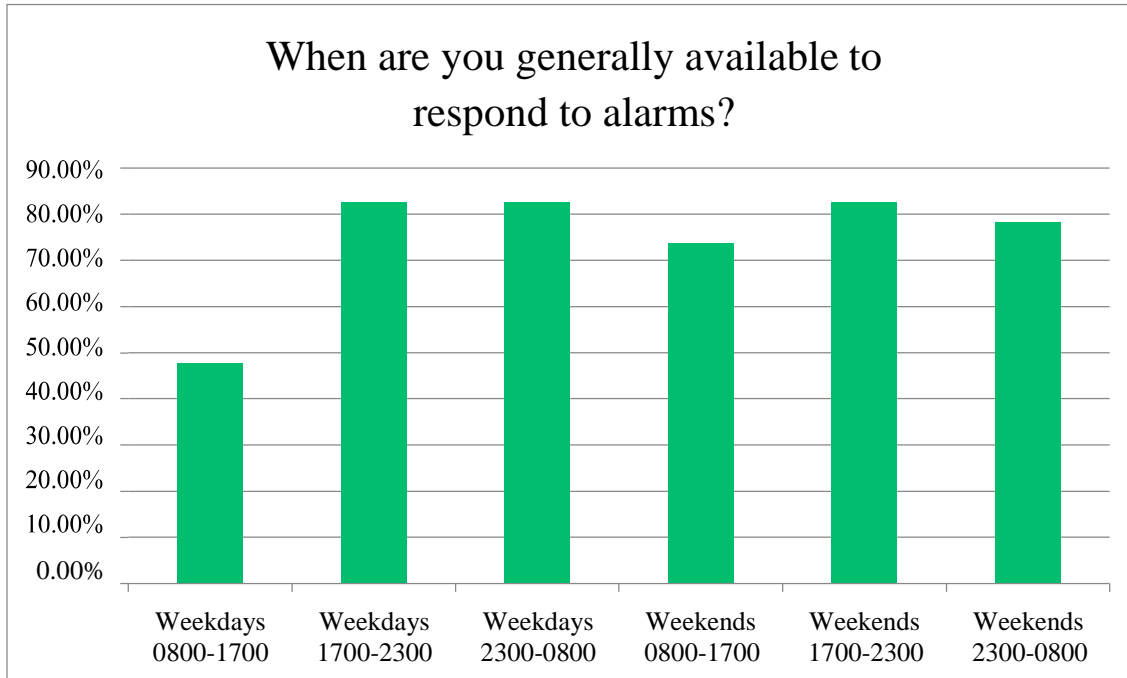
We asked about employers, and the large majority indicated that they were employed in the private sector (Table 8.6). Only four members indicate they were employed by the Town or another unit of government. In many communities, liberal policies for release of public employees for response to fire and emergency calls enables support of response, especially during regular weekday schedules. Given the small numbers of members involved, this is not a major area of opportunity; in our experience, the number of Town or governmental employees in the GBFD is low relative to other communities.

Table 8.6: Employment Sector

In what economic sector are you employed?		
Answer Choices	Responses	
Great Barrington Town government	9.09%	2
Other Government	9.09%	2
Private	77.27%	17
Non-Profit	4.55%	1

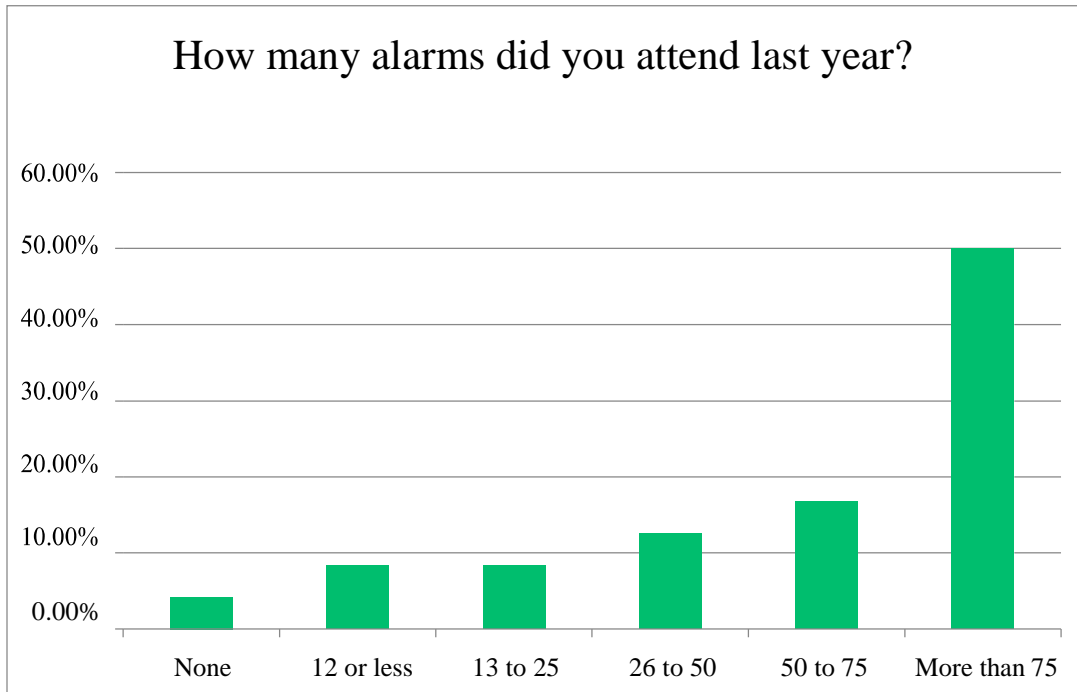
We asked about availability for response to alarms (Figure 8.14). Unsurprisingly, weekdays 0800-1700 were listed as the most challenging time, with fewer than 50 percent of members indicating they were available. Availability was over 70 percent for all other time periods.

Figure 8.14: Availability by Time of Day



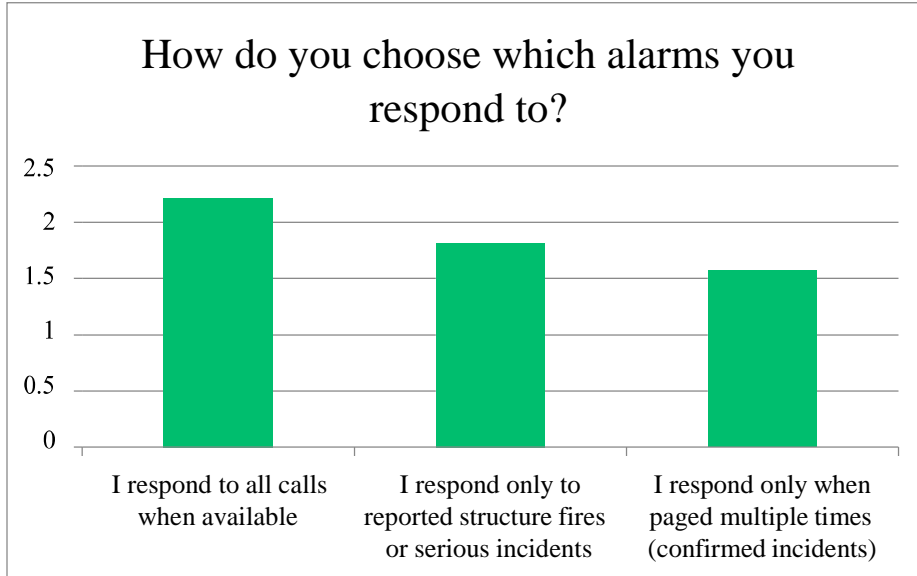
To ascertain activity levels, we asked each member to indicate the number of alarms they attended in the past year (Figure 8.15). Although we have access to actual data, it is important to gauge perceptions, and also to tie activity levels to attitudes. Half of the members indicated that they responded to over 75 alarms.

Figure 8.15: Activity Levels in Past Year



We asked members how they select call to respond to. We know that members may screen calls depending on their ability to leave work or other activities. On the positive side, 43 percent of members say they respond to all calls when available. The other selections pertain to responding only to serious calls or calls where specific requests for additional staffing are made. The answers in Figure 8.16 are expressed as weighted averages.

Figure 8.16: Choosing Alarms



The next section of the survey asked about pay, benefits, and satisfaction.

When asked about the current pay schedule for call members, just over half indicated that they were satisfied. Some 39 percent were dissatisfied, while another eight percent were unsure (Table 8.7). We next asked if additional pay would motivate members to attend more alarms. Table 8.8 shows that seven members indicated “yes”, with five more “unsure. This equates to just under half of members stating that additional pay would not motivate or enable them to respond to more alarms. Almost the same distribution of members replied with regard to “whether additional pay would help retain” members.

Table 8.7: Satisfaction with Pay and Compensation

I am satisfied with the hourly pay and compensation for Call members.		
Answer Choices	Responses	
Agree	52.17%	12
Disagree	39.13%	9
Unsure	8.70%	2

Table 8.8: Would Additional Pay Motivate Me to Attend More Alarms

	Would additional pay motivate you to attend more alarms?		Would additional pay help keep you active longer?	
Yes	30.43%	7	36%	8
No	47.83%	11	45.5%	10
Unsure	21.74%	5	18.2%	4

We asked members what, if anything might make it easier or more attractive to increase their call attendance activity. In this question, multiple responses were permitted. Only 14 members (58 percent) responded to this question. Table 8.9 shows the responses. The most popular responses were more pay, and more Town benefits. However, greater public recognition was second, followed by recognition from elected officials and then Town government.

The free comments section yielded one response naming an incentive - first-time homebuyer assistance. The other two responses indicated that members were doing all they could, and more members were needed, while the other response indicated that the member participated out of a sense of community (implying that additional compensation was unnecessary).

Table 8.9: Additional Benefits to Encourage Participation

**Are there other benefits that could make it easier and/or more attractive to increase my activity?
Explain briefly.**

Answer Choices	Responses	
Pay	71.43%	10
Other Town Benefits	71.43%	10
Public Recognition	57.14%	8
Recognition from Town Government	28.57%	4
Recognition from elected officials	35.71%	5
Other (specify)	21.43%	3

To further probe members’ availability, we asked if members were doing all that they could, and if their activity could be stimulated with added pay and benefits. Table 8.10 shows that five members (21 percent of respondents) stated that they would be motivated to do more with additional pay or benefits.

Table 8.10: I am doing all that I can, added benefits will not motivate me to do more?

Category	Number
Agree	9
Agree, maybe only a few additional calls	5
Unsure	4
Disagree, I could probably do more	3
Disagree, I could definitely do more	2

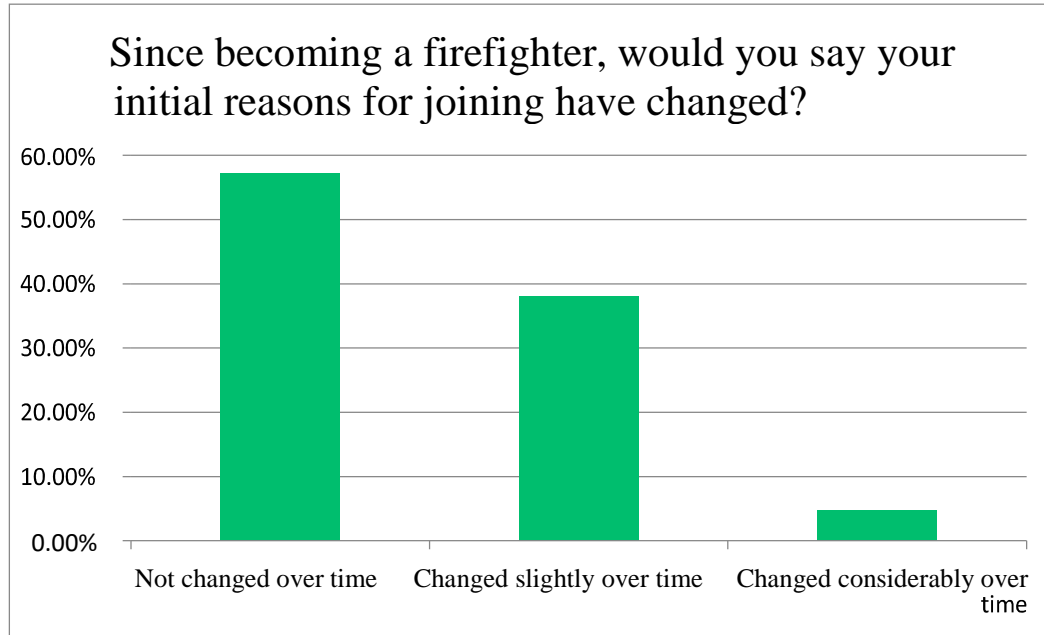
To better understand motivations for joining and continuing to be a member, we asked several questions. We first asked about factors that drew people to join the fire department. Respondents were asked to rank their three most important reasons. The three most popular answers were:

1. I wanted to help people in times of a genuine emergency
2. I had a desire to be a part of a firefighter community
3. I had a desire to use my skills and experience in firefighting

This indicates that members join largely with a specific intent to participate in firefighting. While general community service during an emergency was highest, specific interest in firefighting was very important. If “family being involved” and “friends being involved” are combined, they would tie for third place. This reinforces the social network nature of fire department membership.

We next asked if those reasons had changed over time. Over 95 percent of members responded that those reasons had not changed or changed only slightly (Figure 8.17).

Figure 8.17: Reasons for Joining Over Time



We asked if there were other reasons for continuing to be a firefighter. Again, we ranked the top three responses.

1. I enjoy the challenge of applying my skills/experience when firefighting
2. I feel like I am a contributing member of my firefighting team
3. I enjoy being a part of my community in general

These responses are very positive, indicating that members are motivated by the work and gain enjoyment from it. There is also a strong community service orientation.

Question 26 asked about the association with a specific fire station. Roughly 85 percent of members indicated that their affiliation with their station was either “very” or “somewhat” important.

We next asked about impediments to participation for members. This was asked in two questions; the first applied to “exterior” issues, and the second applied to issues “inside” the Department.

For “outside the department,” not surprisingly, “family” and “work” were the top impediments. The next most common was “other reasons. Table 8.11 presents these results.

Table 8.11: Top Outside Impediments to Participation

Work related time constraints (includes needing to work extra hours or multiple jobs)	16
Employer will not release me for calls	6
Possibility of moving out of the area	5
Limited time due to family/home related responsibilities	15
Personal health reasons	3
Concerns about future of the department	2
Other personal hobbies	6
Local community needs are not strong enough	0
Other reasons not listed above	8

When asked about factors inside the department, the top responses are shown below (Table 8.12). We can see that “too many false alarms” is followed by “leadership or management issues.” There is a tie for “not enough emergency calls” and “other reasons not listed above.”

Table 8.12 Top Inside Impediments to Participation

	Raw	Weighted
Too many emergency calls	4	7
Not enough emergency calls	9	14
Too many false alarm calls	12	29
Association responsibilities/commitment	1	1
Training demands	2	6
Concerns about future of the department	2	3
Attendance requirements for non-emergency events	0	0
Community needs are not strong enough	1	3
Relations between volunteer and career personnel	1	2
Leadership or management issues	8	16
Other reasons not listed above:	7	14

The results of this question are not open to straightforward interpretation. While the number of false alarms is clear, the response on “not enough emergency calls” appears contradictory, although it may apply to working incidents where members actually get to deliver service when they respond (as opposed to getting turned around *en route* or at the station). The leadership or management issues question bears further analysis, and is addressed in later questions. However, “concerns about the future of the Department” did not rank high, nor did the question asking about relations between the career and volunteer (call) staff.

The outlook for individual members is very positive. Only one currently active member indicates they intend to stop responding in the next two years. Two members who say they are not currently responding say they will try to return to an active role (Table 8.13).

Table 8.13: Activity in Near Future

How would you describe your future in the Department?

Answer Choices	Responses
Currently responding, will remain active for next 2 years.	80.00%
Currently responding, will likely stop in next 2 years.	5.00%
Not currently responding, no plan to change.	5.00%
Not currently responding, will try to return to active role.	10.00%

We next asked about concerns for the future of the GBFD (Table 8.14). Members were allowed to check all answers that applied. The most popular responses were 1) not enough members; 2) not enough officers (tied with “other”); and 3) conflicts are not addressed openly. The orientation of these concerns toward service delivery is a positive indication of organizational health. As with any organization, there is room for improvement and further exploration.

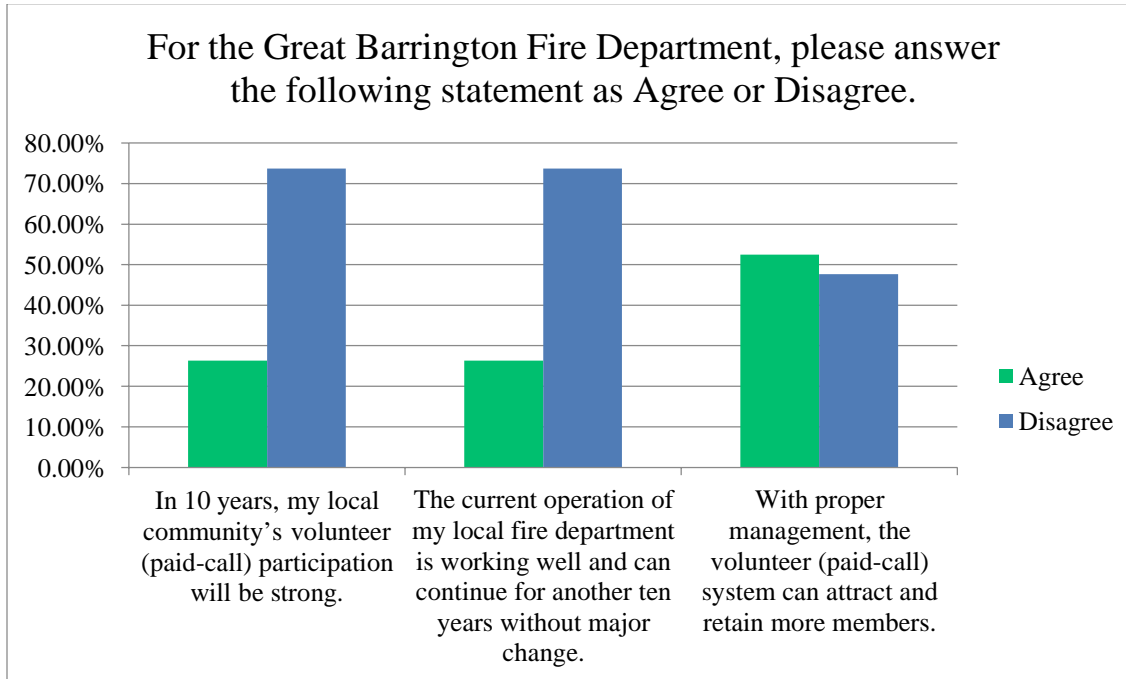
Table 8.14: Concerns for Future of GBFD

Currently, what are your concerns about the future of Great Barrington Fire Department? Check all that apply.

Answer Choices	Responses
I have no concerns	9.52% 2
Communication should be more two-way or open	19.05% 4
My input is not valued	9.52% 2
My contribution/accomplishments are not recognized	4.76% 1
Conflicts are not addressed openly	28.57% 6
Conflicts are not addressed in a timely manner	19.05% 4
Awards/compensation are distributed unevenly	9.52% 2
New member selection is not scrutinized enough	4.76% 1
Shortage of officers	33.33% 7
Inadequate financial resources	4.76% 1
Not enough members	66.67% 14
Lack of policies or minimum standards for members	9.52% 2
Other reasons not listed above	33.33% 7

Members were asked a high-level question on the future of the department. Responses indicated pessimism about the long-term stability of the organization (Figure 8.18). Nearly three-quarters of respondents felt that paid-call participation would be strong in 10 years. An identical percentage disagreed that the GBFD “could continue for another 10 years without major change.” On a more positive note, answers were evenly split on the question “with proper management, the paid-call system can attract and retain more members.”

Figure 8.18: Future Outlook



Similarly, 66 percent of members agree that it is possible to attract additional members to the GBFD. Only two respondents disagreed. The remaining five members (24 percent) were unsure.

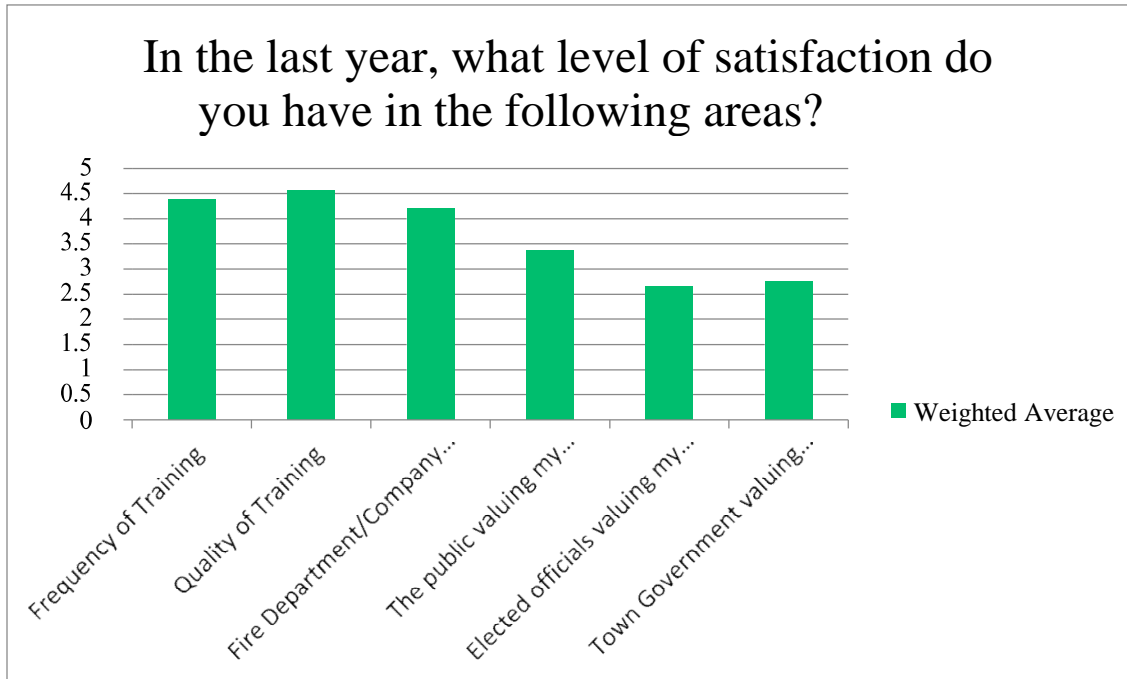
The last question on satisfaction concerned the member's degree of satisfaction with components of the GBFD and community support. Generally, members are highly satisfied with both the frequency and quality of training. Lesser majorities approved of company or department requirements (which were intended to measure administrative and fundraising activities). Lower satisfaction was found for the statements concerning the service of paid-call members being valued. Only one-third of members were satisfied or highly satisfied with the public, elected officials, and Town officials valuing their service. While the public received only a 15 percent dissatisfied score, elected and Town officials had 50 and 45 percent dissatisfaction, respectively.

Table 8.15 presents the raw data. Figure 8.19 presents the weighted averages shown in the Table. Though these results are not uncommon, they show room considerable room for improvement.

Table 8.15: Overall Satisfaction

In the last year, what level of satisfaction do you have in the following areas?										
	Highly Satisfied	Somewhat Satisfied	Neither Satisfied or Dissatisfied	Somewhat Dissatisfied	Highly Dissatisfied					
Frequency of Training	66.67%	14	9.52%	2	19.05%	4	4.76%	1	0.00%	0
Quality of Training	76.19%	16	9.52%	2	9.52%	2	4.76%	1	0.00%	0
Fire Department/Company Requirement	47.62%	10	28.57%	6	9.52%	2	9.52%	2	0.00%	0
The public valuing my service(s)	15.00%	3	20.00%	4	30.00%	6	10.00%	2	5.00%	1
Elected officials valuing my service	10.00%	2	10.00%	2	15.00%	3	40.00%	8	10.00%	2
Town Government valuing my services	15.00%	3	10.00%	2	15.00%	3	30.00%	6	15.00%	3

Figure 8.19: Overall Satisfaction



The last general question asked for any comments “that were important to the study” the members might have. We received 10 responses. The responses could be summarized as follows:

The most common themes were: 1) recognition of declining volunteerism; 2) expressing the need or better management to encourage greater participation; and 3) general support for the management and operation of the Department.

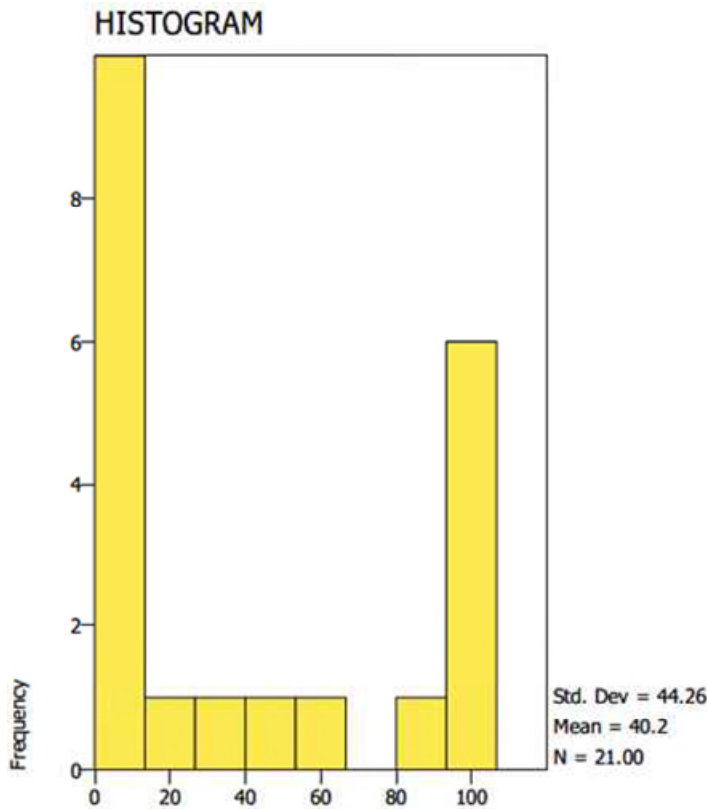
One comment suggested exploring shared services, while another expressed skepticism with the survey.

Adding Career Personnel

We asked several questions about the proposed idea of adding additional career staff to enable 24-hour coverage with one person on duty.

First, we asked members to indicate their agreement with the statement: “Hiring additional career firefighters will support the volunteer (paid-call) system.” This question yielded an average of 40 out of a high score of 100. This indicates that while most members do not feel that this is a net positive, the responses are split. To better understand these data, we plotted individual responses. Figure 8.20 below shows the distribution of responses. We can see that although the average agreement is about 40 percent, opinions are polarized, with 10 members selecting “0” and six members selecting “100.” This shows that there are two distinct perceptions of the contribution that adding career staff would make for the call members. The overall perception is decidedly mixed, leaning strongly toward negative.

Figure 8.20: Histogram of Responses “Agreement with Adding Career Firefighters”



We followed this question with a “free form” comments question. The comments received were generally supportive of the added career personnel. These members feel that additional support is needed. Common negative themes include inadequate call volume, possibly discouraging call members from turning out, and expense to the Town.

8.3 Member Entry Process/Standards

The GBFD has a well-developed new member entry process. Several improvements have been made in recent years to comply with occupational safety and health guidance. The process is divided into four phases: 1) Application; 2) Support Firefighter Training; 3) Interior Firefighter Training; 4) Probationary Training Complete. Each phase is documented on a checklist, which is signed off at each major step by the Chief. The training milestones are consistent with NFPA 1001, *Standard for Fire Fighter Professional Qualifications*.

New members must also pass a medical exam and respirator physical (for interior firefighters).¹⁵

Application – The process begins with a prospective member submitting an application. A State

¹⁵ Many existing members have not been through a recent physical.

criminal background check is performed, and if the prospective member passes, they are scheduled for an interview with the Chief Officer corps. Upon completion, the candidate gets an appointment letter from the Town Manager, and then takes the oath of office, observes Departmental trainings, and takes State Ethics Training.

Support Firefighter Training – The next phase is training to become a scene support (exterior) firefighter. A set of individual skills and can be completed and signed off by an instructor. When this phase is completed, the member may respond to calls, but cannot use self-contained breathing apparatus.

Interior Firefighter Training – The Interior Firefighter program is more demanding, and prepares the member to engage in interior firefighting and use breathing apparatus. Skills include forcible entry, ground ladders, search skills, ropes and knots, ventilation, and auto extrication. These requirements can also be fulfilled through the Massachusetts State Call/Volunteer Training Program.

Probationary Training – The last phase is completion of the Probationary period. Upon completion of training requirements, the member is issued a black helmet, and is able to obtain a fire department license plate and permit for red lights on their vehicle.

9 Recruitment and Retention

Recruitment and retention of volunteer/call firefighters is a national challenge. Departments across the country have had difficulty maintaining membership rolls, and many factors have been cited as contributors. The United State Fire Administration's report *Retention and Recruitment for the Volunteer Emergency Services* summarizes its findings as follows:

Those organizations that seek solutions and adapt to our changing personnel environment are successful. Individuals are still willing to give their time to volunteer emergency services organizations provided the following:

- *The experience is rewarding and worth their time.*
- *The training requirements are not excessive.*
- *The time demands are adaptable and manageable.*
- *They are rewarded with a personal sense of value.*
- *There is good leadership minimizing conflict.*
- *There is ample support for the organization.*

The emergency services are the most demanding of volunteer activities today. The physical and time demands associated with training; responding to incidents; maintaining facilities, apparatus, and equipment; fundraising; and administering a nonprofit corporation are grueling if not managed properly. In today's hectic world, strong leadership is required to make the emergency services the organizations that will attract volunteers.¹⁰

While this list of conditions for success is admirable and may be valid, conditions in most organizations are not nearly as ideal. Very real demographic challenges, coupled with lifestyle factors and an ever-increasing expectation of training standards and requirements place real impediments on organizations. Further, concerns of recruitment and retention must be balanced alongside day-to-day operations by managers.

The GBFD has traditionally enjoyed good membership support, but numbers of members have declined over decades. Long-time or former members cite increased training standards, removal of alcohol from firehouses, and society at large as contributing factors. Generational differences and evolving professional expectations and standards of conduct have doubtless changed the fire service from a primarily social endeavor to one where professionalism is valued above all else.

The tensions between retaining senior members who remember the autonomy and freewheeling atmosphere of the "good old days" and newer members expecting a professional workplace environment and clearly-defined expectations is a significant management challenge.

¹⁰U.S. Fire Administration. *Retention and Recruitment for the Volunteer Emergency Services: Challenges and Solutions*. FA-310, May 2007.

9.1 Pay and Benefits

Compensation is governed by an agreement between the Town of Great Barrington and the Great Barrington Firefighter’s Association. The current agreement was effective July 1, 2017. The agreement addresses hourly pay, stipends, and differential pay. The current hourly rates are shown in Table 9.1. Firefighters are paid for attendance at calls, approved training, and authorized work details. The hourly pay was increased under the current Chief.

Table 9.1: Firefighter Compensation Program

Title	Hourly Rate
Firefighter	\$12
Lieutenant	\$14
Captain	\$15
Deputy Chief	\$16

Any incident response qualifies as a minimum of one hour pay.

One-time stipends of \$1,000 are provided for certification either as an Emergency Medical Technician, or for Firefighter I/II.

An additional \$1 hour pay differential is added for 1) apparatus driver/operator; 2) Firefighter I/II certification (including completion of the Call/Vol Program); and 3) EMT license (all levels).

A \$0.10 hourly differential is added for each year of service.

Firefighters are only eligible for pay once they have completed probation.

In terms of benefits, they are minimal for call firefighters. As municipal employees in Massachusetts, there is no social security contribution. Any eligible employees have a contribution made to the Berkshire County Retirement System.

However, only employees regularly scheduled to work more than 19 hours/week are eligible for benefits.¹⁶ This effectively means that call firefighters do not participate in the retirement plan.

Part-time employees such as call firefighters are able to participate in an OBRA/Simple plan which is a mandatory, defined contribution plan, which consists of 7.5 percent of earnings. The

¹⁶ The Berkshire County Retirement System requires an employee contribution of 9% of base pay up to \$30,000, and 2% of any pay above that amount.

OBRA/SMART Plan is allowed by federal law in place of Social Security when an employee is not eligible for the public pensions available to longer-term Massachusetts public employees.

9.2 Wellness

The GBFD began a health and wellness program in 2016. This has included efforts to promote fitness and healthy habits among members, but also includes the on-scene component of medical rehabilitation. Medical rehabilitation at fire, emergency, or training scenes is a widely-recognized (but less practiced) safety and health initiative.¹⁷ The rationale for such programs is to both provide medical evaluation of personnel following strenuous activity, in order to prevent adverse medical outcomes, and to assure that personnel receive adequate rehabilitation on the scene to avoid becoming medically compromised.

This on-scene rehabilitation program was established with the support of the Southern Berkshire Volunteer Ambulance Squad (SBVAS) and the GBFD Support Group. This is a laudable achievement, particularly for a department of its size. It is a leader in the region in this area.

9.3 Recent Recruitment and Retention Activity/Trends

Like many similar organizations, recruitment and retention remain challenges for the GBFD.

In recent years, the GBFD has tried numerous approaches to reach out for new members. Large banners are placed on each fire station. In addition, the GBFD has attempted to recruit at the High School, held open houses, tried to inspire people on Facebook, and set up booths and demonstrations at community events.

While programming is limited, word of mouth remains a major source of new members.

9.4 Demographic analysis

The population trends in the Town and indeed the western part of Massachusetts shows trend of 20-30 years old leaving the area, making it hard to recruit new firefighter staff. While the GBFD has successfully recruited older members, the 20-30 age group is a primary recruitment group.

Census data (Table 9.2) show that the number of persons aged 20-30 has decreased by 4.8 percent from 2000 to 2010, and another 2.9 percent from 2010 to 2016 (estimated).

¹⁷ NFPA 1584, *Standard on the Rehabilitation Process for Members During Emergency Operations and Training Exercises (2015)* is the national standard for this activity.

Table 9.2: Population Change 2000-2016

	2000 Census	2010 Census	2012-16 ACS
20 to 24 years	399	383	468
25 to 29 years	710	335	557
30 to 34 years		338	
TOTAL	1109	1056	1025
		-4.8%	-2.9%

This trend means that the GBFD will have an increasing challenge to find new members in this critical age range.

10 Training and Professional Standards

The department maintains a very robust training and certification program consisting of regularly scheduled classroom instruction and hands-on drills. In recent years the program was revised to include a more formal approach to scheduling and development of lesson plans and course delivery; this reflects a level of relevancy to the services and programs delivered by the department. The department has also expanded training requirements, including certification for all newly appointed members.

The revised program consists of a weekly schedule of firefighting, rescue, and emergency medical care training at the task, tactical, and strategic level. Lesson plans are developed to ensure instruction in the broad areas relevant to the urban and rural physical environment for which Great Barrington firefighters respond. The high level of attention and detail given by the department's training specialist in the development of training sessions was noted during our onsite visit.

Another revision is in the area of certification. Before, members underwent regular training, but it was not as standardized or certified. New members are now required to successfully complete NFPA Firefighter II-level training as established by the Massachusetts state fire training standards. For the remainder of the new member's career, all other training and refresher course work is built upon this initial certification.

ISO Training Criteria - The scope of ISO's rating includes an assessment of fire department training. Training programs should be closely linked to ISO's criteria when developing officer and firefighter coursework. Of the 50 credits the fire department may earn under ISO's grading schedule, nine points, or 18 percent, can be earned under the topic of training. The following Table 10.1 is a breakdown of training elements and available and earned credit the department received during ISO's most recent survey in August 2015.

Table 10.1: ISO Training Assessment

Training Element	Credit Earned	Credit Available
A. (Training) Facilities and Use For maximum credit, each firefighter should receive 18 hours per year in structure fire related subjects as outlined in NFPA 1001. ¹⁸	3.52	35
B. Company Training For maximum credit, each firefighter should receive 16 hours per month in structure fire related subjects as outlined in NFPA 1001.	15.63	25
C. Classes for Officers For maximum credit, each officer should be certified in accordance with the general criteria of NFPA 1021. Additionally, each officer should receive 12 hours of continuing education on or off site.	6.55	12
D. New Driver and Operator Training For maximum credit, each new driver and operator should receive 60 hours of driver/operator training per year in accordance with NFPA 1002 and NFPA 1451.	2.50	5
E. Existing Driver and Operator Training For maximum credit, each existing driver and operator should receive 12 hours of driver/operator training per year in accordance with NFPA 1002 and NFPA 1451.	1.25	5
F. Training on Hazardous Materials For maximum credit, each firefighter should receive six hours of training for incidents involving hazardous materials in accordance with NFPA 472.	0.50	1
G. Recruit Training For maximum credit, each firefighter should receive 240 hours of structure fire related training in accordance with NFPA 1001 within the first year of employment or tenure.	3.75	5
H. Pre-Fire Planning Inspections For maximum credit, pre-fire planning inspections of each commercial, industrial, institutional, and other similar type building (all buildings except 1-4 family dwellings) should be made annually by company members. Records of inspections should include up-to date notes and sketches.	3.00	12
Total	36.7	100

As can be seen, the department received only 36 percent of the total credit available. Aside from a loss of credit due to a lack of facilities such as drill grounds, much of the unearned credit falls within the type and frequency of training. It is important to note that improvements in the program may have occurred since the survey indicating the department's credit for training could improve if surveyed today.

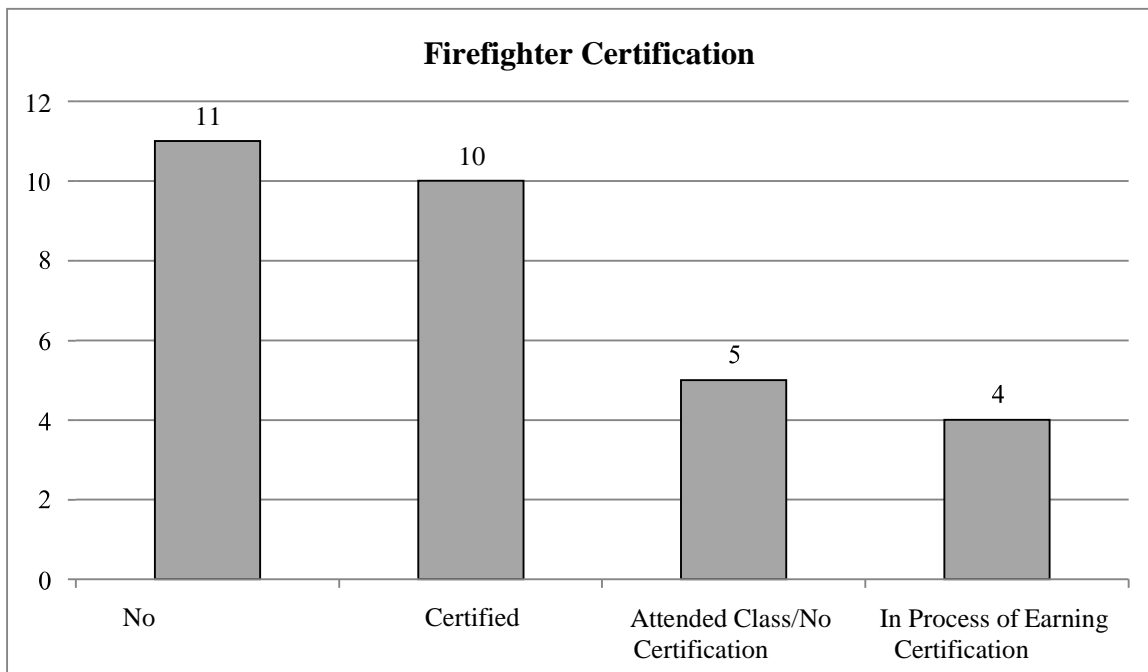
¹⁸ This refers to training at a designated training ground with props such as a burn building.

10.1 FF Training Levels

The department has, as part of its training program, ongoing opportunities for members to earn certification at all levels of firefighter and officer development. Our analysis of department training and certification consisted of 30 members, including current officers and firefighters. The reviewed included overall training hours, certifications, and instructional topics. Certifications are in conjunction with the Massachusetts Firefighting Academy and commensurate with nationally recognized standards of the NFPA.

Basic Firefighter - Basic firefighter training consists of two levels, Firefighter I and II. Certification can be achieved through a prolonged process consisting of 16 weeks of instruction and physical practice at the Massachusetts Firefighting Academy facility in Springfield. The certification can also be earned by challenging the exam and evolutions. Of the 30 members for which data was provided, 47 percent either hold or are in the process of earning certification. Another 16 percent have completed some or all of basic firefighter training but hold no certification. The remaining 37 percent hold no recognized certification (Figure 10.1).

Figure 10.1: Certification levels within GBFD



Driver/Operator - Course work and certification is available through the state academy for members with responsibilities of driving and operating fire apparatus. This has become more important in recent years, primary due to the ever-increasing size and complexity of heavy fire apparatus such as pumpers and ladder trucks. The need for driver/operator training is an integral part of the ISO's review of the fire department's training program. Currently no member holds certification. Instead, members receive in-house training in addition to field experience.

Officer - Officer certification is scaled at four levels, from basic company to chief officer, according to NFPA 1021 *Fire Officer Professional Qualifications*. While the training could be provided in-house, trainings for Fire Officer I and II are most commonly completed via a course. Chief Burger is certified at Fire Officer II. One other firefighter is certified at Fire Officer I. No other officers are certified.

Credentialed Chief Officer -The state offers a voluntary certification of credentialed chief fire officer. The period of certification is three years, with eligibility for renewal prior to its expiration by completing continuing education requirements. Applicants are required to accumulate 100 points of approved attendance/activities over the individual's career to date. Chief Burger holds the certification.

Fire Training Instructor - In addition to programs offered by the state academy, the vast majority of training occurs within the confines of the local fire department. Weekly training and drill work, where firefighting and related skills are refined, occur on an ongoing basis. That said, as with state training, local instructors should be credentialed in instructional methodology and delivery. Currently, Chief Burger and two additional members hold instructor certification.

Fire Prevention Officer/Basic - Fire prevention and mitigation are integral components to the programs and services provided by the department. Personnel assigned to these duties must be well versed in the many aspects of property inspection and applicable codes and standards. Two members of the department hold basic fire prevention officer certification.

Fire Prevention Officer I - Built upon the basic certification, members are assigned to the management of inspections and other forms of code enforcement. Chief Burger and one other member hold this level of certification.

Emergency Medical Technician/Basic - Providing emergency medical care at the scene of a fire is an integral part of fire department operations. In addition, the department responds to a host of emergencies which may require firefighters to have emergency medical training. Often it is the fire department that first arrives at the scene of an injury. Emergency Medical Technician (EMT) serves as one of the minimum certifications for emergency medical care. There are currently eight members holding EMT certification with one additional undergoing training and education for the same.

Other Certifications - Members hold other various certifications beyond the minimum required by the department and not directly identified by ISO.

10.2 State Training Capabilities

The Department of Fire Services manages the Massachusetts Firefighting Academy, which serves as the primary training provider for the state's municipal fire services. The academy's programs are provided at no cost to firefighters who are members of city and town fire departments.

Training and certifications are conducted at the academy's two campuses, one located in

northeastern part of the state at Stow, and the other located in Springfield and serving the western region of the state. Courses are also delivered using local fire department classroom and training facilities. The Great Barrington department receives much of its recruit firefighter training through the Springfield facility; the Department often hosts academy training programs for various departments in the region.

The programs comprise many facets of firefighting, spanning from introductory recruit training to advanced incident management and officer courses. In addition, the academy provides training in rope, water, and other forms of technical rescue, hazardous materials. Courses are offered on many topics that are relevant to the modern all-hazards fire and emergency services agency. There are more than 300 continuing education courses offered by the academy. All programs are open to members of fire departments within the state, with special offerings to members of public fire departments in other states.

Courses Offered - The academy offers a full spectrum of municipal officer and firefighter courses. The list below illustrates the wide range of subjects delivered through its training facilities and various outreach programs, offered in conjunction with local fire departments or online. It should be noted that within each subject are numerous courses.

- Firefighting
- Advanced Firefighting
- Officer
- Investigation
- Prevention
- Public Education
- Flammable Gas
- Hazardous Materials
- Technical Rescue
- Rapid Intervention

Fire Service Certification System - There is a voluntary certification program in place, managed by the Massachusetts Fire Training Council (MFTC), the sole statutory authority to certify Massachusetts firefighters. Appointed by the governor, the council is directed to develop professional qualification examinations and certification policies, which are in turn administered by the academy.

The purpose of the certification system is to provide a stimulant for professional development in the fire service, allowing firefighters to demonstrate their ability to meet professional qualification standards through an objective measure of their knowledge, skills, and abilities. The system consists of a voluntary process; however, municipalities may require certain certification for firefighter appointment or retention.

In the case of Great Barrington, the department requires the achievement of Firefighter II certification as a condition for retainment within one year of appointment (however, this deadline is waived for members making a good faith attempt to complete the training).

Training Facilities - The expansion and upgrade of the academy's Springfield facility was completed in 2015 with a project cost of over \$11 million. The facility was constructed in conjunction with the City of Springfield and is located on the site of the city's original fire training academy. The site is an expansion of the city's original six-acre facility and consists of three primary structures that include an administration/classroom building, burn building, and a

drill tower. The 2015 upgrades include classrooms, offices, male and female lockers, staff and student turn out gear storage, facilities areas with a mini-crib room, maintenance shops, storage for hose and other equipment, fire safety lab with offices and ground storage space, emergency equipment response storage, and expanded parking. Located approximately one hour drive from Great Barrington, the facility's upgrades should serve the firefighters of western Massachusetts for many years to come.

10.3 Neighboring Departments

The GBFD has good relationships with their neighboring fire departments. The GBFD readily admits that they are increasingly dependent on mutual aid. They have worked to standardize policies, and have had a communications policy adopted by the Berkshire County Chiefs to enable smoother interactions at emergency scenes.

The Department maintains good relationships with neighboring agencies, and has set the stage for greater cooperation and tighter integration of services in the future.

10.4 Occupational Safety and Health Requirements

Fire departments in Massachusetts are directly responsible for compliance with workplace safety regulations of the U.S. Occupational Safety and Health Administration (OSHA). While OSHA directly enforces its requirements for private sector workers, public workers are not subject to federal enforcement.

Public workers are covered by requirements of State law. A major enhancement of regulatory protection for workers took place in March 2018, when the State Department of Labor Standards (DLS) updated Massachusetts General Law Chapter 149, section 6 ½.¹⁹ This updated law explicitly brings public workers under regulations comparable to OSHA. In addition to spot inspections for "imminent hazard" workplaces, a combination of complaint-driven, voluntary, and planned inspections are carried out. Enforcement is achieved through fines. This regime will take effect on February 1, 2019.

The State DLS has published some guidance for fire services on its website (<https://www.mass.gov/service-details/learn-about-updated-law-for-public-sector-safety>). The new requirements will entail a significant increase in mandated training, mandatory physicals, and, record keeping. The requirements apply not only to fireground environments, but also to fire stations and routine activities.

¹⁹ See "OSHA Safety for Public Sector."

<https://www.mass.gov/files/documents/2018/03/26/OSHA%20Safety%20for%20Public%20Sector%20-%20Highlights%20of%20Updated%20Law%20M.G.L.%20c149%20s6.pdf>

11 Emergency Medical Services

Emergency medical services transport is an important emergency service for residents of the Town. While GBFD plays a supporting role, the provision of EMS transport is provided by the Southern Berkshire Volunteer Ambulance Squad (SBVAS).

11.1 SBVAS

The SBVAS is situated on the grounds of Fairview Hospital, located at 31 Lewis Avenue in Great Barrington (Figure 11.1). The SBVAS was originally an all-volunteer organization. More recently, paid staff was hired to provide daytime coverage, while volunteers would cover nights and weekends. Some four years ago the agency went to a paid staff model.

Figure 11.1: SBVAS Headquarters



The SBVAS now has 11 full-time and 30 part-time staff, and eight volunteers. Of these personnel, nine are paramedics, seven are advanced EMTs, and the remainder are basic EMTs. Two units are staffed on a 24/7 basis, with a third unit held in readiness and staffed as available. If the two front-line units are utilized, a page is sent for a crew to staff the third unit. If a crew is not readily available, mutual aid is requested from a neighboring agency.

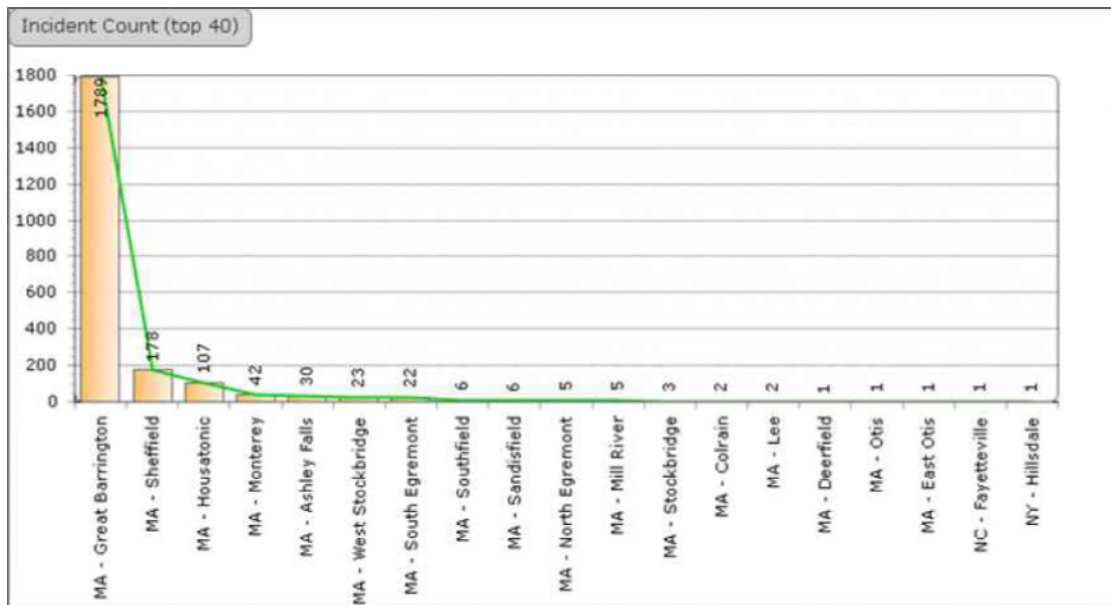
SBVAS also performs interfacility (non-emergency) transports, which is a significant source of revenue. The SBVAS is able to provide its service without any direct subsidy from the municipalities served. They rely on insurance company billings for revenue.

SBVAS prefers that fire agencies respond on all incidents, although GBFD does not do this.²⁰ They will utilize EMT-trained firefighters to provide additional staff if needed. They report that call volume continues to increase.

11.2 Demand for Service

The greatest demand for ambulance service is within the Town of Great Barrington. Data from SBVAS shows that roughly 80 percent of its calls for service are within the Town (Figure 11.2). In 2017, the SBVAS responded to 1,522 calls for service within the Town.

Figure 11.2: SBVAS Incidents by Town



Response times for 9-1-1 calls within the Town of Great Barrington have been about six minutes in the last two years. These times are better than those for the total service area of SBVAS, owing to the fact that the ambulances are based within the Town, and are thus closer to calls in the Town (Table 11.1).

²⁰ While SBVAS prefers to have a parallel fire department response on all calls, this is not a standard practice in most EMS systems (whether municipal third services, contract 9-1-1 responders, or fire-based EMS systems). Most EMS systems send a parallel fire department response only on certain types of calls (e.g., automobile crashes, high-acuity medical or trauma calls, calls which involve an environment that is immediately dangerous to life or health, calls requiring additional manpower for lifting or safety, or calls requiring specialized fire department equipment or training). The other call types generally do not require a fire department response. Criteria-based dispatch systems such as the Medical Priority Dispatch System™ are employed by many communities across the U.S. to ensure that fire departments are dispatched according to a medically validated algorithm.

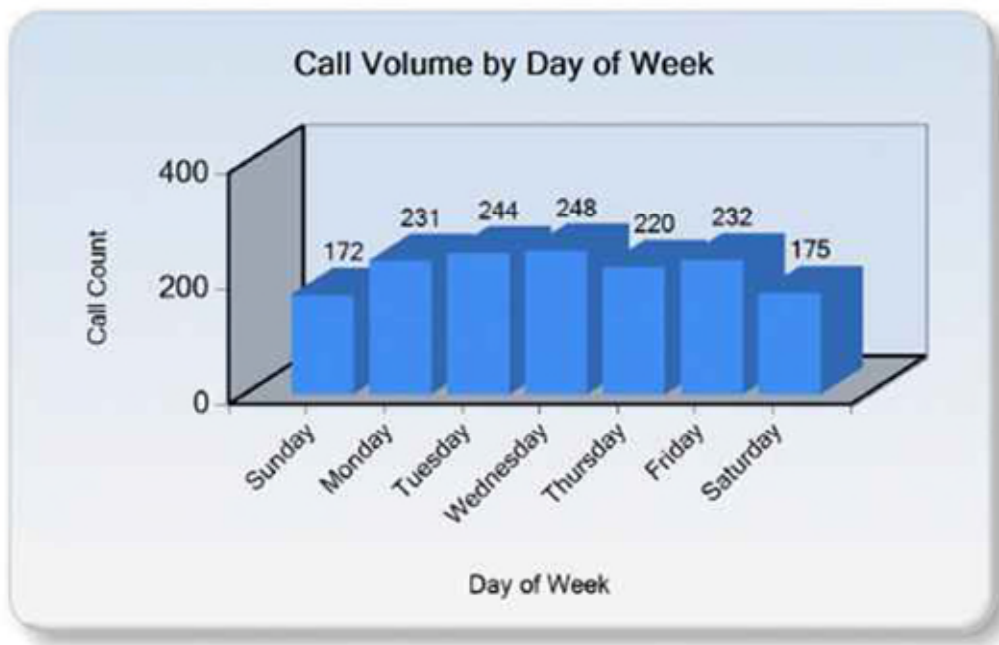
Table 11.1: SBVAS Statistics for Town of Great Barrington

	FY 2014	FY2015	FY2016	FY2017
Avg. Response Time (minutes)	6.6	6.5	5.9	6.1
Number of Calls	724	1180	832	1128

The figures in the above table do not include those calls for which mutual aid must be received from neighboring towns. In such cases, the GBFD reports that response times can be in excess of 30 minutes.

The most frequent days for calls are weekdays, with weekend calls being lowest. Figure 11.3 shows data for 2017.

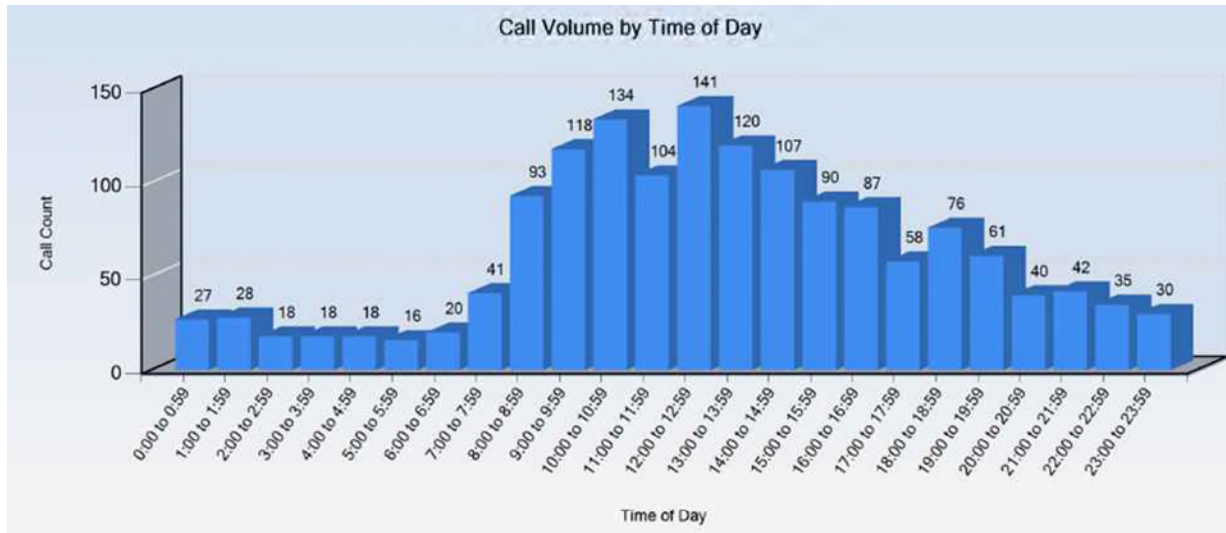
Figure 11.3: Calls by Day of Week



Next we looked at calls per hour of the day (Figure 11.4). We can see that calls are lowest from about 11:00 p.m. through 7:00 a.m., when they more than double each hour until they peak at midday.

Calls slowly decline after 1:00 p.m.. This distribution by time of day is fairly typical for most EMS systems across the United States. We see that both GBFD and SBVAS experience peak activity at the same times of day.

Figure 11.4: SBVAS Calls by Hour of Day, 2017



11.3 Current GBFD Role

The GBFD responds to high-acuity emergency medical calls or by request from SBVAS. These incidents amount to between 90 and 125 calls per year.

The Fire Chief also sometimes responds when SBVAS needs an additional crew member for a call within the Town of Great Barrington. This situation occurs when the SBVAS ambulance is on another call, or outside the Town. This is done to reduce the response time for the ambulance. This practice is undertaken informally at present.

11.4 Alternate EMS Delivery Models

Manitou was asked to examine alternatives to the currently employed EMS delivery model. There is concern that the current EMS delivery model leaves the Town of Great Barrington vulnerable to delayed response times when the primary and secondary SBVAS units are already on calls. According to the Fire Chief, this occurs fairly regularly and is a product of both units being on interfacility transports to locations such as Pittsfield or Albany. Faraway destinations can include New York City and Boston.²¹ As discussed earlier, when both SBVAS units are on

²¹ As a reminder, data for interfacility transports were not available for analysis.

calls, the tertiary SBVAS unit is activated when needed, on a call-back basis.

The Fire Chief provided specific suggestions for consideration, each of which is discussed in the sections that follow. Manitou also explored some additional ways to prevent delayed response times for such situations.

11.4.1 Automatic Paging of SBVAS When Two SBVAS Units Are Out

One method to reduce response times for the SBVAS tertiary ambulance would be to encourage SBVAS to page its volunteer or on-call personnel to respond to the station anytime that the secondary unit is dispatched and the primary unit is still on its initial assignment. This would ensure that crews needed for staffing the tertiary ambulance head to the station before another call is received, not afterwards. Doing this would place greater demands on SBVAS personnel but would improve service to all the towns SBVAS serves.²²

11.4.2 Providing a GBFD Firefighter in Lieu of an SBVAS Subsidy

According to the Fire Chief, the SBVAS may soon request subsidization of its operations by the towns it serves because of low reimbursements for 9-1-1 calls. Were this to happen, it might be possible for GBFD to hire an additional firefighter/EMT. The additional personnel would be made available to staff the third SBVAS ambulance, when needed, in lieu of the Town providing SBVAS a cash subsidy. Such an arrangement would offset SBVAS' operational costs by reducing its personnel budget while enabling the GBFD to capitalize on having an additional staff resource when the third ambulance is not needed. Depending on the level of the subsidy required by SBVAS, this could be a budget-neutral arrangement for the Town of Great Barrington.

The Town of Great Barrington should explore the possibility of establishing a memorandum of understanding that would provide the SBVAS with a GBFD firefighter/EMT to staff the third ambulance, when required, in lieu of a cash subsidy.

11.4.3 Fire Department-based EMS in Great Barrington

Another avenue of exploration is the question of whether the GBFD should be the primary EMS provider to the Town of Great Barrington. To answer this question, we estimated the cost of the Fire Department starting and maintaining a single ALS ambulance for the Town on a 24/7/365 basis. It is important to note that Manitou did not have access to either revenue data for SBVAS or the breakdown of the types of transports SBVAS performs (e.g., ALS vs. BLS, and interfacility versus scene response). Accordingly, we were unable to estimate the revenue that GBFD might be able to obtain were it to perform reimbursed EMS transports. Based on the aforementioned intent of SBVAS to request subsidies to offset poor reimbursement rates for 9-1-1 calls, and based on Manitou's findings in similar studies we have performed elsewhere, we conclude that it is unlikely that the Town would realize sufficient revenues to fully offset the cost

²² We understand that this is currently done, but that it is difficult to personnel to respond in a timely manner.

of providing EMS transport in-house.

11.5 Potential Cost of Initiating Ambulance Service

Manitou was asked to evaluate the feasibility of establishing an ambulance within the GBFD as well as alternative services. In this section, we estimate costs of providing service using conservative figures based on industry norms. We estimate costs associated with two options – staffing a 24/7/365 full-time advanced life support ambulance, and operating a back-up ambulance.

Full Time ALS Ambulance

For the Town of Great Barrington to establish its own emergency medical service (EMS) within the Fire Department, we estimate it would cost a bare minimum of approximately \$843,000 in the first year and \$574,000 in the following year, with a slight yearly increase thereafter to cover cost of living adjustments for personnel.

The starting point for this analysis is the provision of a single advanced life support transport-capable ambulance serving just the Town of Great Barrington at a level of service commensurate with that currently being provided by the Southern Berkshire Volunteer Ambulance Squad (SBVAS).

Table 11.2 shows the calculations for these estimates. Explanations of the assumptions used to derive these estimates are provided following the table.

Table 11.2. Estimated EMS Operation Start-Up and Out-Year Costs

	Costs	
	Start-Up	Out-Years
Staffing	\$ 473,815	\$ 488,030
Vehicle	\$ 300,000	\$ 42,870
Insurance - General Liability	\$ -	\$ -
Insurance - Vehicle	\$ 12,000	\$ 12,000
Quarters	\$ -	\$ -
Vehicle Fuel	\$ 4,875	\$ 4,875
Capital Equipment	\$ 25,000	\$ 3,573
Consumables	\$ 10,000	\$ 10,000
Training	\$ 10,000	\$ 10,000
Uniforms	\$ 7,250	\$ 2,500
Utilities	\$ -	\$ -
Other	\$ -	\$ -
TOTAL COST	\$ 842,940	\$ 573,847

Staffing – A total of 4.95 full-time equivalents (FTEs) are needed to staff each 24-hour position on an ambulance. (Table 11.3, on the next page, shows the derivation of the 4.95 shift relief factor.) It should be remembered that FTE’s does not necessarily relate to a full-time position. A combination of overtime and part-time personnel could substitute for some of these positions.

In order to arrive at an order of magnitude estimated personnel cost, it is fair to simply use 4.95 FTEs as a bare minimum because actual personnel costs will likely be higher due to overtime laws.²³ Rounding up from 4.95 FTEs to 5 FTEs means that the Fire Department will need to hire 10 paramedics. Two personnel are needed to staff an ambulance, one of whom would serve as the EMS manager.

According to salary.com, paramedics in the Pittsfield area earn an average of \$42,502 annually. This figure was used to calculate the total first-year staffing cost of at least \$473, 815, reflecting nine paramedics and one paramedic manager (earning a 25% premium for managerial duties).

Out-year staffing costs were assumed to increase by three percent per annum to provide for a cost- of-living adjustment. The actual rate of the increase would be a subject for contractual

²³ This number of personnel (4.95 FTEs) does not translate readily to a 40-hour workweek because of the Fair Labor Standards Act requirements. This means that the Town would either have to pay some overtime or would need to hire some part-time workers in addition to its regular full-time complement. It is beyond the scope of this analysis to examine the optimization of EMS personnel practices.

negotiations with organized labor.²⁴

Table 11.3 Derivation of Shift Relief Factor

Total Number of Hours of Needed Coverage per Year per Position	8,760
Total Number of Scheduled Hours of Work per Year per Person	2,080
a. Annual Leave (starting at 2 wks/year)	(80)
b. Sick Leave (starting at 2 wks/year)	(80)
c. Military Leave (2 wks/year)	(80)
d. Bereavement Leave (4 hrs/year)	(4)
e. Training Time	
Mass. EMT recertification requirements (spread evenly)	(30)
Service-related (16 hrs/year)	(16)
f. Court Appearances (8 hrs/year)	(8)
g. Jury Duty (8 hrs/year)	(8)
h. Annual Physical Exam	(4)
Deduct Total Non-Productive Hours (sum of a. through h.)	(310)
Total Number of Productive Hours of Work per Year per Person	1,770
Number of FTEs Needed to Cover One Position Each Year	4.95
<small>(Total Number of Hours Needed/Productive Hours)</small>	
Number of Staffed Positions Needed for Each Ambulance	2
Average Paramedic Pay (Pittsfield)	\$ 42,502
Staffing Cost (No Retirement) of a Fully Staffed Ambulance	\$ 473,815

Vehicle Costs – The first-year costs for an ambulance are estimated at \$300,000. The actual costs of an ambulance vary considerably and are dependent on the base model chosen, as well as innumerable design options that make the actual cost impossible to estimate. The \$300,000 figure was chosen using recent acquisition experience of a similarly sized EMS agency for a nicely configured (but not top-of-the-line), new ambulance.

The out-year cost for vehicles shown is the straight-line depreciation rate needed to replace a \$300,000 ambulance on a 7-year life cycle (the industry norm). The actual amount that should be set aside in the budget each year is undoubtedly higher because a new ambulance will likely cost more in seven years. The Department should use its prior experience on vehicle replacement as a better guide.

The line for vehicle costs does not include preventative or incident-based maintenance, as this would be a function of the Department’s existing vehicle maintenance program and driving experience.

Insurance – It was assumed that the Town’s existing general liability insurance would be

²⁴ Although the \$42,000 figure is higher than the salaries paid to paramedics by SBVAS, this number does not include any assumptions for benefits.

extended to cover medical malpractice and other general insurance needs. Although the Fire Department's existing insurance package could probably be expanded to include an ambulance, the estimate of \$12,000 per year for an ambulance insurance premium is given as guide; this figure was provided by a leading insurance agency that specializes in insuring ambulance services. Actual premium rates will be dictated by the prior loss experience of the Fire Department and the various coverage levels and options desired.

Quarters – No figure is given for the cost of quarters for personnel or housing the ambulance because it was assumed that this would be done using available space within existing Fire Department facilities.

Vehicle Fuel – The costs of fuel was calculated by assuming that the ambulance gets approximately 10 miles per gallon of diesel fuel (supported by industry experience) and is driven approximately 15,000 miles per year (based on the Fire Chief's estimate of the number of miles the ambulance would likely be driven). The fuel cost estimate assumes a cost of \$3.25 per gallon of diesel. This number was based on Pittsfield area average diesel prices obtained from the Mass.gov website, but reflects about \$0.10 per gallon more than that reported in order to provide a hedge against rising fuel prices in the coming year.

Capital Equipment – This estimate includes \$10,000 for a manual-loading ambulance stretcher with mounting system and \$15,000 for a portable EKG monitor/defibrillator. Both costs are in line with those quoted for such equipment on reputable EMS supply websites; as with other durable items, the actual costs will vary depending on the model and options desired. The out-year figures for this category reflect a 7-year replacement cycle (or 14.29 percent per annum depreciation).

The costs of vehicle-installed and portable radios are not included in this estimate because it was assumed that the Fire Department would have ample radios to equip the ambulance and its staff accordingly. If this is not the case, this number will be slightly higher for the first year – on the order of \$1,000 for two portable radios and another \$500 for a mobile radio.²⁵

Consumables – SBVAS estimates that it spends approximately \$30,000 per year on consumables for its three ambulances. This number reflects a proration for one ambulance.

Training – This number reflects \$1,000 per person per year for new and recurrent training costs.

Uniforms – This estimate reflects a first-year cost of three pair of Class B uniform pants (\$75/pair), three pair of uniform shorts (\$45/pair), six Class B uniform shirts (\$40/shirt), one pair of footwear (\$100), and belt and uniform insignia (\$25) for 10 personnel. Out-year costs reflect a uniform allowance of \$250 per person per year. These costs could differ, depending on the Fire Department's personnel practices. The Department should also count on additional costs for turnover of personnel and loss/damage of apparel.

²⁵ Costs reflect a conventional, analog radio system, not a digital trunking system, which would be much higher (\$3,000 to \$5,000 for a mobile radio and \$4,000 to \$5,000 apiece for portable radios).

Other – These estimates do not include things like payroll processing, billing (for transports), and other shared services available through the Fire Department or elsewhere in town government.

GBFD Back-Up Ambulance

A less expensive option exists. GBFD could procure and cross-staff a back-up ambulance that would be dispatched when an EMS call within the Town of Great Barrington is received and the primary and secondary SBVAS ambulances are on assignments. Under this concept of operations, GBFD would maintain a fully stocked ambulance that is ready to be dispatched when needed. The crew for this ambulance would come from GBFD on-duty and/or on-call personnel, but the ambulance would not be routinely staffed. Accordingly, there would be no associated staffing costs.

Table 11.4 below shows the start-up cost of approximately \$362,000 and annual out-year costs of approximately \$40,000 for this alternative. As can clearly be seen, without personnel costs, this is a substantially less expensive means to ensure a timely response when SBVAS is unavailable.

Table 11.4: Cost Estimates for Back-Up GBFD Ambulance

	Costs	
	Start-Up	Out-Years
Staffing	\$ -	\$ -
Vehicle	\$ 300,000	\$ -
Insurance - General Liability	\$ -	\$ -
Insurance - Vehicle	\$ 12,000	\$ 12,000
Quarters	\$ -	\$ -
Vehicle Fuel	\$ 4,875	\$ 4,875
Capital Equipment	\$ 25,000	\$ 3,573
Consumables	\$ 10,000	\$ 10,000
Training	\$ 10,000	\$ 10,000
Uniforms	\$ -	\$ -
Utilities	\$ -	\$ -
Other	\$ -	\$ -
TOTAL COST	\$ 361,875	\$ 40,448

This option does not include costs for staffing. One option would be to staff the ambulance with on-call or per diem personnel. This option is a managerial challenge, and would likely require some addition of full-time staff to enable consistent availability of the unit. Another possibility is that additional career personnel could be hired to provide this service as an additional duty to their firefighting and rescue tasks. Although there would be some offset of revenue from this alternative, it is not expected to completely cover the cost of added personnel.

As a back-up unit, the ambulance does not necessarily have to be staffed on a 24/7 basis, but could be staffed during the periods of highest activity for SBVAS.

Recommendation: The Town of Great Barrington should consider providing a backup ambulance to provide EMS when SBVAS is unable to respond. The one caution with this option is that the back-up ambulance might not be available if it is needed to respond on a mutual-aid basis to assist neighboring towns under existing mutual aid agreements. If the Town wishes to ensure the availability of its backup ambulance to service the citizens of Great Barrington, it should consider excluding the unit from its mutual aid agreements.

12 Recommendations

The following section presents the options and recommendations for the Town and the Great Barrington Fire Department. Many of these recommendations are dependent on additional resources for the Fire Department. Implied within these recommendations is a desire to meet public expectations, satisfy legal mandates, and maintain minimum professional and industry norms.

1. **Proceed with hiring of a new career firefighter position** – We believe this position should combine the duties of the Administrative Deputy Chief, Training Officer, and be a focal point for recruitment and retention. This position should require Fire Instructor Certification, and administrative proficiency.

The administrative and daily requirements to maintain the Department, its fleet, and facilities is time consuming. This position should be on a weekday work schedule. This will enable assembly of a crew during the period of highest demand for service, and could enable handling of some EMS assists without the need to page the membership, reducing the burden of response. Furthermore, by putting this position on days, it will not disrupt the existing dynamic of paid-call response on nights and weekends.

2. **Adopt NFPA 1720 as a benchmark for service delivery** -- The Town of Great Barrington should adopt NFPA 1720, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments* as a goal within 1-3 years, with an eye toward a compliance schedule supported by measurement and evaluation of alternatives to support achievement of its various requirements.

The GBFD should begin the reporting of its response times and staffing on a regular basis, perhaps quarterly, and report the data publicly and to the Town government. It is important that the public understands the performance of its fire services with regard to basic service-level measures for multiple purposes. First, in the probable event that additional resources are needed, a clear understanding of the needs should be demonstrated. Second, the level of service indicators of response time and attendance are critical to enable the public to evaluate their desired level of service. Third, administrative effectiveness measures and compliance are important components of organizational effectiveness, and should also be measured. Based on the addition of staff in the coming fiscal year, it is hoped that a measurable impact can be identified to enable prediction of future possible additions to staff.

3. **Develop plan for additional support for administration within the GBFD** —The GBFD should have an administrative assistant position to handle purchasing, payroll, recordkeeping, and correspondence for the Department. The current situation requires the Chief to work well in excess of a regular workweek, in addition to being on-call on a 24-hour basis.
4. **Evaluate staffing alternatives to improve response times** - the GBFD had proposed adding four full-time positions to enable 24-hour staffing. One of these four positions is being added, which will provide badly-needed administrative support and augment staffing in the daytime period. This will not address the documented response time issues we identified in our analysis.

We would recommend that an interim strategy be undertaken to explore alternatives to augment the current staffing profile through a combination of options that could have a measurable impact on response times and staffing. These are worthy of exploration as the Town moves to a more data-based assessment of needs within the Fire Department.

Examples of pilot programs that could be explored include:

- a. Implement an option for a paid overnight stand-by crew at the Great Barrington station. Two paid-call employees could sign up for an overnight shift in which they would remain in quarters and provide the ability to staff.
 - b. Consider moving toward a part-time staffing model for periods of difficult paid-call attendance. Saturdays, for example, are reported to be challenging days. A two-person standby crew could be hired to provide minimal staffing in support of response. Two members responding from the station, with response from Chief Officers, and one to two members from home could bring a four person crew plus supervisor for handling many incidents.
5. **Develop a health and safety compliance plan** – The GBFD should set a goal of complying with OSHA regulations with an emphasis on fireground safety and health requirements. The GBFD recently completed a self-assessment and found numerous areas that will require attention.
 6. **Begin administration of examinations for vacant positions** – There are several key vacancies within the Department. The testing procedure should be utilized to fill these positions, and the practice of utilizing personnel acting “out of title” or on a semi-voluntary basis should be developed.
 7. **Do exit interviews with members leaving the Department** – The decline in members should be studied further. A third party should be engaged to do exit interviews with members who have gone inactive to better understand what motivated their actions. They will provide a valuable source of data that should be used to help design a comprehensive retention program.
 8. **Reduce automatic alarm response to 2 engines and 1 ladder** – The current response protocol does not distinguish between automatic alarms and structure fires. If members are available, additional apparatus should be allowed to respond. However, as the situation stands, the run card creates a false expectation, and a modified response is consistent with practices in the industry. The existing protocol can remain for high hazard or institutional occupancies. The Chief points out that the Department seldom turns out enough members to bring more than this number. Reducing this number will provide a more realistic performance standard.
 9. **Increase hourly pay** – While it was not a panacea, members did indicate that additional pay could be a motivating factor to encourage attendance at alarms. Given the alternative of retaining full-time staff, increasing the compensation of paid-call members is extremely cost effective. The pay rates indicated in Table 12.1 are base rates, and longevity and other differentials would remain in place. We understand that pay has increased considerably under the current Chief.

Table 12.1: Suggested Firefighter Compensation Program

Title	Hourly Rate
Firefighter I	\$11
Firefighter II	\$14
Lieutenant	\$16
Captain	\$18
Deputy Chief	\$20

10. **Modest repair/renovation to Housatonic station** – The Housatonic station is a poor stepsister to the Great Barrington station. The building is in need of cosmetic repairs, painting, and may need exterior work to resolve drainage and other site issues. The Town should conduct an assessment of the facility and develop a feasible work plan to make improvements to extend its serviceability and comfort. We understand that this was requested in previous years.
11. **Eliminate Administrative Deputy Chief position** – The Administrative Deputy Chief position should be eliminated. The duties expected of this position will be supplanted by the Chief and the new hire. The current membership roster does not justify a third Deputy Chief position for supervisory purposes.
12. **Develop a targeted training program** – This program would be based on skills maintenance for currently certified personnel, and development as well as facilitating completion of certifications for newer personnel. This will require coordination with the State, but the costs of hiring instructors is a necessary expense.

The State Fire Academy offers only a combined Firefighter I/II program. Based on the needs of the Department, additional training could be brought in-house, using a contracted instructor. Where possible, students can challenge the national certification exam. An example of a needed course would be Fire Officer I.

Continue to work with paid-call personnel to plan and deliver training. Other key topics include a formal driver/operator training program.
13. **Increase training budget for the GBFD** – An important source of funding for training comes from the Firefighters Association. This voluntary fundraising by the community and firefighters is positive and desirable. However, with a drive to bring more training in-house, added costs will be incurred. The GBFD should work with the Town to develop an enhanced training budget that will enable development of an in-house (or partially in-house) training program.
14. **Continue to develop policies and procedures** – The GBFD has a good start on a book of procedures. This effort should continue, and with additional support staff, the Chief should have more time to complete this project.

15. **Explore feasibility of offering property tax rebates to paid-call members meeting training and activity goals.** The Town should explore offering a property tax credit to members. Such an incentive can be a tool to retain members and provide a steady gesture of support.
16. **Explore Town policy on encouraging employees to become members of the GBFD** – The Town does not have a robust number of paid-call members who work for the Town. We believe that Town employees could be an untapped resource for additional members. We also believe that a liberal policy for releasing members from their jobs should be considered.
17. **Evaluate the Fleet for Opportunities to “Right-Size”** - The GBFD has a very good fleet of apparatus. The capital and upkeep costs of the fleet are a necessary part of doing business and providing high-quality, specialized services. With trends in utilization of apparatus and participation of personnel, consideration should be given to the possibility of retiring one or more pieces of apparatus, or planning for a dual-role apparatus in the future.
18. **Recruitment** – Develop a mass mailing in a Town bill or newsletter, use targeted social media, and invigorate a high school-based program to recruit potential members. This could be done as a service project, or a consultant could be retained to develop and manage a social media recruitment campaign.
19. **Add minimum participation in training and a proficiency requirement** – The GBFD should require a minimum number of training hours annually to continue to participate in providing service. We understand that some members do not attend training regularly. While accommodations should be made for members who have other commitments but otherwise remain active, proficiency in basic skills should be tested and demonstrated regularly to enable members to continue delivering service. Some training topics are mandated by State or federal requirements, and members must attend.
20. **Evaluate the strategic possibility of moving into EMS transport service** – Fire-based EMS is effectively providing ambulance transport in other communities. The provision of this service offers the potential to offset the cost of staff that would also provide initial fire response. There are numerous alternatives, and while we provided cost estimates, we were unable to estimate revenue raised from provision of this service. The experience of neighboring towns has been positive. Any decision should ideally be done in a collaborative mode, in which sustainability and quality of service is maintained regardless of provider.

12.1 Cost Estimates of Recommendations

As part of the study, we were tasked with developing estimates of the cost of recommendations. Our estimates of the various recommendations and alternatives are presented below.

Staffing Plan Implementation

We acknowledge that the GBFD needs to support its response staffing if it is to improve its response times for getting major apparatus to the scene of fire and related emergencies. As discussed, while Chief Officers respond in departmental cars and arrive first at most incidents, the arrival of apparatus such as engines or ladder is the most critical milestone that should be assessed.

The Department advanced a plan for adding four staff to permit one person on-duty on a 24-hour basis. The Town opted to fund one position for the current fiscal year, and we support its being filled. To summarize the staffing alternatives, we present the alternatives below, and summarize them in the following table. It should be remembered that if paid-call members work beyond a weekly threshold, that they would be eligible for pension benefits, which would have an added cost for the Town.

The options presented below in Table 12.2 are representative of alternatives that could be used to support response, using combinations of paid-call personnel in a standby-by mode and additional career staff.

Table 12.2: Cost Implications of Staffing Alternatives

Plan	Detail	Estimated Cost	Advantages	Disadvantages
Current staffing plan (one added career firefighter on day schedule)		Already budgeted (approximately \$40,000)	Will permit added support for response, administrative duties	None
Encourage standby duty on evenings (overnight)	Two personnel on standby	Flat fee of \$100/person \$200/night \$73,000/year	Uses existing personnel	Dependent on participation of call members
Add second career firefighter	One added position on day shift	\$45,000	Will create an effective day crew, freeing Chief from having to respond on an engine or to stay back and maintain continuity with administrative work.	
Add part-time career staff on 12-hour schedule during weekend days	One part-time career staff member on 12/hour steady shift weekend days	624 hours annually \$13,728.	Provides weekend coverage during days when members may be unavailable. Coincides with tourist schedule	Cost, but limited
Add four staff to permit 24/7 coverage by one firefighter	Add three additional full-time positions.	\$135,000, plus estimate of \$60,000 for overtime to account for leave, illness, and training.	One career person on duty at all times. Will provide added support for administrative and support duties	Cost
Augment career staff with one-member standby crew on evenings and weekends		\$81,760 for one paid-call position 14 hours per day, 7 days per week.	Provides two personnel on duty on a 24/7 basis	Cost, dependent on participation of call members
Add full-time administrative support position		\$52,000 salary plus individual insurance.	Enables Chief to focus time on specialized tasks, strategic issues. Provides administrative continuity.	Does not directly contribute to service delivery.

Implementation

Each plan would be implemented on a pilot basis, and impacts on staffing and response times would be monitored. The goal of the plans would be to make measurable improvements or maintain current response capability. While consistency in response around the clock is desirable, the most important measure is to increase the percentage of incidents being responded to within desired time frames. No department can staff to assure 100 percent compliance with a response time standard.

The ability to leverage the comparatively lower-cost paid-call personnel on a standby mode should be used as a means to delay or minimize hiring of additional career staff. It is unlikely that future staffing needs will be met solely through use of standby crews. A tradeoff between more time spent on standby versus availability for emergency response when not in the station must be considered.

13 Conclusions/Next Steps

The Great Barrington Fire Department is an effective department providing a range of emergency response service to the community. They are adaptive to their environment and have developed capabilities in response to community risks and needs. Like many organizations dependent on a “voluntary” workforce, it is having difficulty maintaining enough members to maintain their historic service levels.

The GBFD delivers specialty services with an apparent level of pride and professionalism. The delivery of these services is dependent on the paid-call members. The Town will remain reliant on these community-minded members for the foreseeable future.

However, recent declines in membership warrant a closer look at retention concerns among current members. Although the membership is sharply split on the question of adding more paid staff, we believe that the plan to add one position is prudent, and will *support* rather than *supplant* the dedicated efforts of the paid-call members.

As part of this effort, we believe that the GBFD should continue to collect and closely monitor data on participation of paid-call personnel. The response times for the GBFD (which encompass both apparatus and personnel), do not meet NFPA 1720, which we recommend the Town adopt as a planning tool. The GBFD has focused on developing and maintaining good records which will enable enhanced reporting, and this is a major positive finding of the study.

Another important area of concern is compliance with occupational safety and health requirements and guidelines enforced by the State. Failure to comply is a liability exposure for the Town.

By adopting public reporting of response times and participation, the public and elected officials will have an objective basis to understand the service levels provided, and the need for additional resources to maintain or improve them. Importantly, decisions should be made about the strategy of assuming a larger role in emergency medical services, as an opportunity to support additional personnel and realize a revenue source to offset future costs of additional full-time positions.

Lastly, we have identified numerous challenges facing the Department. While some of these are elective in nature, the demands of managing the Department, its programs, and simultaneously attending alarms and managing emergencies is clearly more than one person can reasonably accomplish. Additional administrative capacity is needed to enable the Chief to take a more strategic focus, and delegate more day-to-day tasks.

We believe that while the Department faces challenges, the recommendations provided here can strengthen participation and maintain the long tradition of citizen provision of fire and rescue service to the residents of Great Barrington.

The public and elected officials will need to make additional investments in fire and emergency services to comply with legal mandates, continue to maintain the sound management of the

Department, and to meet response time and staffing criteria – at historic levels, or according to the national standard.

Appendices

A.1: Comparative Staffing Data (compiled by GBFD January, 2018)

Town	Population	Square Miles	Full Time	FFs	PT/Per Diem	Staffing Hr/Day	Admin Assistant	EMS	Call Volume	
									Fire	EMS
Ware	9,872	40.00	15			24/7	PT	ALS	500	2000
Brewster	9,820	25.40	17			24/7	FT	ALS	800	2100
Southborough	9,502	15.70	21			24/7	FT	ALS	500	1300
Southwick	9,502	31.70	7			12	FT	ALS	350	1100
Sturbridge	9,268	39.00	9			24/7	FT	ALS		
Blackstone	9,026	11.20	11			24/7		ALS	1000	1000
Middleton	8,987	14.40	11	15		24/7		ALS	450	1850
Townsend	8,926	33.10	4	72		24/7		ALS	350	1450
Littleton	8,924	17.60	17			24/7	FT	ALS	350	1450
Freetown	8,870	38.30	11			24/7	FT	ALS	400	1500
Monson	8,560	44.80	7			24/7	FT	ALS	250	1100
Douglas	8,471	37.70	8			24/7	FT	ALS	350	950
Plainville	8,264	11.50	23			24/7	FT	ALS	600	2400
Templeton	8,013	32.40	3			Weekdays	PT	ALS	150	750
Rutland	7,973	36.40	7			24/7		ALS		
Millis	7,891	12.30	13			24/7		ALS	650	800
Orange	7,839	36.00	10			24/7		ALS		
Sterling	7,808	31.60	7			24/7	FT	ALS	480	720
West Boylston	7,669	13.80	7	Yes		24/7		ALS	350	800
Cohasset	7,542	31.50	24			24/7		ALS		
Upton	7,542	21.70	6			16	FT	ALS		
Halifax	7,518	17.30	11			24/7	FT	ALS	400	1200
Ayer	7,427	9.60	14			24/7	FT	ALS	700	1300
Westminster	7,277	37.30	9			24/7	FT	ALS	600	700
Dighton	7,086	22.60	9			24/7		ALS	275	700
West Bridgewater	6,916	15.70	18			24/7	PT	ALS	1000	1300
Newbury	6,666	26.30	5			Weekdays		ALS	400	800
Berkley	6,411	17.40	4			24/7		ALS	200	600
Merrimac	6,338	8.80	4			15		ALS		
Granby	6,240	28.09	5			12		ALS	300	700
Chatham	6,125	24.40	28			24/7		ALS	1100	1600
Topsfield	6,085	12.80	5			12	PT	ALS		
Ashburnham	6,081	41.00	4	11		24/7	FT	ALS	250	450
Lee	5,943	27.00	10	1		24/7		ALS	200	1100
Hopedale	5,911	5.30	10			24/7		ALS	330	1050
Orleans	5,890	22.70	24			24/7	FT	ALS	800	1800
Mendon	5,839	18.30	5			16		ALS	225	450
Southampton	5,792	29.10	1	54		24/7		ALS	250	500
Barre	5,398	44.60	4	Yes		24/7		ALS	350	850
Manchester	5,136	18.30	13			24/7	FT	ALS		
Montague	8,437	31.50	12			24/7		BLS	475	650
Georgetown	8,183	13.20	1			None	Stipend	BLS	700	600
Lancaster	8,055	28.20	2			Weekdays		BLS	350	800
Shirley	7,211	15.90	4			12		BLS	220	880
Dalton	6,756	21.90	3			Weekdays		BLS		
Stow	6,590	18.10	6	Yes		24/7	FT	BLS	400	550
Lincoln	6,362	15.00	14			24/7		BLS		
Dover	5,589	15.40	0			None		BLS		
Warren	5,135	27.60	4			16		BLS	250	400
Lenox	5,025	21.70	9	Yes		24/7		BLS	600	1000
Boxborough	4,996	10.40	6	20		24/7		BLS		
Sutton	8,963	33.90	4			Weekdays		None	475	0
Adams	8,485	23.00	0			None		None	250	
Salisbury	8,283	17.90	14			24/7	FT	None	400	1600
Boxford	7,965	24.40	5			Weekdays		None	500	450
Hamilton	7,764	14.90	4			Unknown		None		
Williamstown	7,754	46.90	1			None		None	250	0
Great Barrington	7,104	45.80	2			Weekdays		None	450	100
Rockport	6,952	17.50	0			None		None		
Harvard	6,520	27.00	2			Weekdays		None	240	0
Groveland	6,459	9.40	0			None		None		
Mattapoisett	6,045	24.20	2			Weekdays	PT	None	600	
Rowley	5,856	20.30	3			Weekdays		None	350	430
Hadley	5,250	24.60	6			12	PT	None	700	450
Hampden	5,139	19.70	3			Weekdays		None		
Deerfield	5,125	33.40	0			None		None		
Average	7,217	24.71	8.0							
Median	7,244.00	24.40	6							