TOWN OF BREWSTER, MASSACHUSETTS
FIRE DEPARTMENT STAFFING ANALYSIS

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PROJECT OVERVIEW, SCOPE, AND METHODOLOGY

Municipal Resources, Inc. (MRI) was engaged by the Town of Brewster, Massachusetts, to undertake an organizational and operational assessment including an analysis of the effectiveness, and overall efficiency study of the Town's fire, rescue, and emergency medical services (EMS) delivery systems, to identify any gaps or deficiencies, and to make recommendations for improvement. Projected growth in area services due to increases in population and increased service levels were also included to provide recommendations on the Department's long-range planning needs. The primary intent and goal of this project was to determine whether the existing organizational structure and operations of the Brewster Fire Department including levels of staffing, facilities, equipment, funding, management practices, and deployment of resources are adequate to provide a level of service within Brewster, that is in line with generally accepted standards and benchmarks utilized by comparable fire departments in similar communities; and based on standards and best practices for modern-day fire services currently in practice in Massachusetts and the United States.

To these ends, MRI looked to provide information relative to:

1. Short-term opportunities for improvement of the Department's service delivery capabilities.

2. Present short and long-term organizational and operational adjustments that seek to improve service delivery to the Town.

These activities are part of the Town of Brewster's ongoing fire and emergency services oversight and planning responsibilities. They are focused on identifying the risks that residents, visitors, and firefighters are currently exposed to, as well as the potential future risks, and the development of an appropriate set of responses to those threats in a fiducially responsible manner. Through the strategic planning aspect, the project team makes recommendations for long-term success, viability, and stability, together with improved efficiency, operations, and safety for firefighters and citizens today, as well as projecting future needs for the provision of fire and emergency medical services throughout the community. The MRI project team has attempted to produce a report containing recommendations, focused primarily on long-range strategic planning, that will assist the Brewster Fire Department, and the Town of Brewster, to set a clear course of action for future service improvements and delivery.

ABOUT MRI

MRI was founded in 1989 by six former municipal and state government managers, with both public and private, professional experience. MRI provides professional, technical, and management support services to municipalities, schools, and non-profit organizations throughout the Northeast. MRI provides technical knowledge and practical experience that others cannot offer because it hires the best in the municipal consulting industry. This is evidenced by a high level of implementation of MRI's recommendations by its clients. MRI's clients have come to expect the organization to provide whatever they need, and it fulfills their expectations.

MRI's dynamic management staff adapts services to specific client needs. Clients realize that MRI has been in their shoes and has the experience, sensitivity, and desire that it takes to develop and deliver services that specifically meets their needs. The depth of MRI's experience is reflected not only in the experiences of its associates, but in the scope of services it provides its clients, from professional recruitment to organizational and operational assessments of individual municipal departments and school districts; or ongoing contracted services for various municipal government and school business support activities. Municipal Resources has a particularly strong public safety group with nationally recognized expertise in fire and emergency medical services.

MRI's professional staff is always focused on helping its clients solve problems and provide solutions for their future success. We simply work to gain an understanding of past events to build a framework for future success. We do not put forth idealistic, unachievable, or narrowly focused solutions.

MRI'S PHILOSOPHY

Municipal Resources, Inc. is committed to providing innovative and creative solutions to the problems and issues facing local governments and the agencies that serve them.

The purpose of MRI's approach is to supplement the efforts of municipal employees and other personnel and enable them to do their jobs well. MRI is committed to supporting and enhancing positive, sustainable communities through better organization, operations, and communication. This is achieved by:

- Supporting towns, cities, counties, school districts and other community service agencies with management and technical services to facilitate constructive change within client organizations.
- Conducting studies and analyses designed to assist clients in achieving organizational improvement.

- Advocating and advancing cooperation, coordination, and collaboration between government organizations and related community support agencies.
- Maintaining a staff of highly qualified professional, experienced and open-minded life-long learners to serve as consultants and advisors to clients.
- Maintaining awareness and understanding of advances in "best practices" for delivery of all levels of core community services and related professional management.
- Developing and refining techniques for effective community engagement, information dissemination, and constructive change.

OBJECTIVES

1. To help municipalities and agencies obtain maximum value for limited tax dollars.

2. To identify and help communities manage the risks associated with public safety functions.

3. To raise public awareness of the value and professionalism of their municipal resources.

4. To help local leaders develop and execute plans that best meet their community's needs, given available resources.

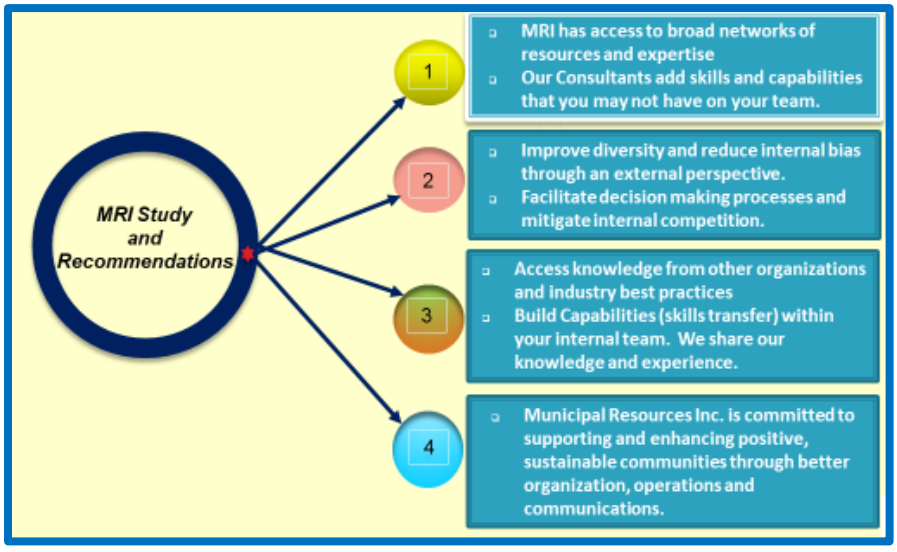

FIGURE I-1: MRI PROJECT IMJPLEMENTATION PLAN

SCOPE OF WORK

To be effective, a project of this type requires a thorough assessment to determine a baseline of current operations. Projections for community population growth that can translate into increased requests for service, the need for expanded levels of service, and evolving community expectations were necessary to develop recommendations for the department's long-range plans. A thorough review of existing staffing, funding, management practices, and regulatory environment was undertaken to determine whether the department can provide a level of service that is in line with generally accepted standards and benchmarks for a community of like character. An evaluation of the following information and topics were all components of this review:

An evaluation of the following information and topics were all components of this review:

1. A review of background information that impacts the Brewster Fire Department including:

    a. Fire service data and information provided by the fire department and the Town;
    b. Community population and demographics;
    c. Residential, commercial, industrial, and municipal features of the community including a community tour;
    d. Review of incident response statistics volume and trends;
    e. Review of response times;
    f. Policies and agreements that may determine staffing levels and practices;
    g. Evaluation of the provision and use of fiscal resources including the amount of overtime;
    h. Assess and evaluate the department's current scheduling, staffing, organizational structure and delivery of services;
    i. Assess service demand trends, including demographic and service demand increases; including those attributed to societal adjustment due to the Covid19 pandemic;
    j. Municipal ordinances related to fire and EMS delivery;
    k. Mutual aid agreements and resources;
    l. Standard Operating Guidelines (SOGs) for the Fire Department;
    m. Vehicles and staffing/run assignments;
    n. Fire department operational plans;
    o. Adequacy of the department's training and fire prevention functions;
    p. Current deployment of resources along with a future needs assessment;
    q. Identification of the level of service provided to, and expected by, the Town,
    r. The Brewster Fire Department's current Strategic Plan 2022 – 2026, and;

s. Developed a report that will address short- and long-term staffing needs, organizational structure, service and demand trends, over the next decade.

2. Input was solicited from a range of stakeholders through personal interviews, including:

- Chairman of the Select Board
- Town Manager
- Fire Chief
- Deputy Fire Chief
- Fire Department Career Captains
- Town Human Resources Director
- Town Finance Director
- Police Chief
- International Association of Fire Firefighters Local 3763 E-Board
- Mutual Aid Fire Chiefs
- Open Session for Fire Department Members

In performing this study MRI focused on the following aspects of the fire and emergency medical services and their operations:

- Organizational structure and governance;
- Organizational, managerial, and operational practices including policies, rules and regulations, and standard operating procedures/guidelines (SOPs/SOGs);
- Fire department staffing practices and personnel scheduling;
- Lack of viability of the department's call component;
- Community profile and characteristics, risks, vulnerabilities, and concerns;
- Fire and EMS operations, including response times, NFPA 1710 and OSHA Two-in/Two-out compliance, standards of cover, incident and response time analysis, designation of operational responsibilities, and deployment of resources;
- Training and professional development;
- Fire prevention and code enforcement;
- Budgeting;

- External stakeholders' perceptions concerning the fire department and relationships with various officials; and,

- Sense of common vision among internal stakeholders.

At the completion of each key component of the Department's operations, the project team has attempted to provide a status and/or "gap" statement which indicates the current status of that activity, any gaps between that activity and expected performance (as defined by regulations, standards, industry best practices, or organizational policy), and recommendations that should be implemented to close the "gaps" or correct the deficiency.

METHODOLOGY/PROJECT APPROACH

MRI's project methodology and approach was targeted to fulfill the scope of work in a thorough and comprehensive manner. MRI consultants performed several days of on-site work, interviews, and observations in Brewster. The assessment employed the following methodologies:

- On-site visit to Brewster that included in-person meetings, tour of fire department facilities, and tour of Brewster to observe target hazards, community risks, and building density and type,

- Review of the fire department's facilities, apparatus, and equipment,

- Analysis of fire department staffing, including current operations, scheduling, use of overtime, organizational structure and future needs based on risk, current operational experience, and projected community growth and development,

- Analysis of community demographics and projected growth and development,

- Interviews with fire chief and deputy fire chief,

- Interviews with the town manager,

- Interview with Chairman of the Select Board,
- Interviews with other key fire department personnel including members of the Brewster Fire Department command/supervisory staff, EMS coordinator, administrative assistant, union leadership and other department members having direct knowledge and understanding of the subject areas,

- Interviews with other key town officials including the finance director and human resources director,

- Interviews with fire chiefs of neighboring mutual aid fire departments,

- Review of mutual aid and regional operations,

- Review of existing department incident statistics, standard operating procedures/guidelines, budget, and other records,

- Review of the applicability of various national standards and best practices for municipal fire and EMS services, such NFPA 1710, Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments, NFPA 1500, Standard on Fire Department Occupational Safety, Health, and Wellness Program, and NFPA 1300, Standard on Community Risk Assessment and Community Risk Reduction Plan Development.

These discussions focused on the current fire and EMS delivery system and structure to identify any concerns or areas requiring special focus, and to gather thoughts and ideas about areas of potential improvement and long-range visions, needs, goals, and objectives. The team spent significant time with the fire chief and deputy fire chief to gain an understanding of the organizational, operational, and management systems and approaches currently in place, and then compared the current structures against contemporary practice and convention. There were also reviews of relevant statistics, and operational data that was furnished by the Department.

MRI's project team utilized a seven-phase process to conduct the assessment of the Brewster Fire Department and to develop the planning recommendations. The seven phases include:

1. Development of an action plan.

2. Orientation, stakeholder input, data gathering, and identification of significant issues facing the Town of Brewster and the Brewster Fire Department.
3. Information review, inventory, and assessment of the emergency risks and target hazards located within the Town, and effectiveness and current operational readiness of the Brewster Fire Department.

4. Development of an assessment and inventory of current fire department operations including the adequacy of current staffing/deployment models and organizational structure.

5. Evaluation of the overall effectiveness, efficiency, and quality of service of the fire protection and EMS delivery systems within the Town of Brewster.

6. Preparation of a final evaluation report including planning recommendations for the Town of Brewster and the Brewster Fire Department.

7. Presentation of a final project report to the Brewster Town Manager and other selected stakeholders.

During this study, the MRI team investigated areas such as the organizational and command structures of the fire department, chain of command, budgeting, staffing, service demands, deployment of personnel, standards of cover, perceptions within the community, working relationships with other persons and agencies, responsiveness, internal policies and procedures, and compliance with various state and federal regulations.

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

Using this review as a basis, the project team made recommendations for improvements that take into consideration the current and future financial ability of the Town, appropriate modifications to the delivery systems to provide optimum service to the entire community, efficient use of resources, and whether the current organizational structure is appropriate or should be modified.

We have produced a comprehensive report containing recommendations that will assist the Town of Brewster and its fire department, to set a clear course of action for future service improvements and delivery. All recommendations for improvement are based on various administrative regulations promulgated at the federal and state levels, nationally accepted consensus standards developed by the Insurance Services Office (ISO), National Fire Protection Association (NFPA), Commission on Fire Accreditation International (CFAI), Commission on Accreditation of Ambulance Services (CAAS), and industry best practices and procedures. However, since every community has unique characteristics, challenges, and resource limitations, our recommendations are specifically designed to address the immediate and long-term needs of the Town of Brewster.

When appropriate, MRI's evaluation and recommendations include multiple options, identify potential implications of options, and suggest what is believed to be the most appropriate option. The project team has attempted to provide a series of recommendations for an organizational

structure that can provide a high level of service today, and five to ten years into the future; constrained by anticipated fiscal and economic projections; expand and contract with future needs; and be able to navigate any fiscal constraints of reimbursements from public and private sources, particularly with the unknown long-term implications of the COVID-19 pandemic. To these ends, MRI looked to provide information relative to:

1. Short-term opportunities for improvement of the Department's service delivery capabilities.

2. Present short and long-term organizational and deployment adjustments that seek to improve service delivery to the Town.

3. Develop a report that will address operations, staffing, organizational structure, and service demand trends, needs over the next decade.

The resulting recommendations are also based upon an acknowledgement that fire departments are living and constantly evolving organizations. They must constantly change and adapt to current, and anticipated, conditions and realities. A municipal fire department, while steadfastly holding onto traditions, is an organization that must be progressive and proactive, and requires a perpetual commitment to improvement. The modern fire and emergency service is constantly besieged with ever increasing demands from the public and must readily adapt to changes in technology, constantly evolving risks and hazards, and new generations of men and women entering this highly rewarding and challenging public service avocation. The delivery of high-quality fire and emergency medical services requires energetic, enlightened, progressive, and proactive leadership at all levels of the fire and rescue services delivery system. Every day must include an effort to improve and move forward.

ACKNOWLEDGEMENTS

The MRI project team would like to thank Brewster Town Manager Peter Lombardi, Select Board Chair David Whitney, Fire Chief Robert Moran, Deputy Fire Chief Kevin Varley, Police Chief Heath Eldredge, Finance Director Mimi Bernardo, Human Resources Director Susan Broderick, the officers and firefighters of the Brewster Fire Department, and the Orleans and Harwich fire chiefs who took the time to speak with us, and for their cooperation and assistance in preparing this report. Brewster is a proud and vibrant community with high expectations for the performance and professionalism of its public servants. It is MRI's goal to provide the town and fire department with a road map and template for strengthening the level of fire and emergency medical services available to the community. As with any public safety organization, there is always room for improvement, but **the citizens of the Town of Brewster should be proud of the high quality and**

exemplary performance of the members of the Brewster Fire Department who provide round-the-clock fire protection and emergency medical care.

CHAPTER II
COMMUNITY OVERVIEW

TOWN OF BREWSTER

The Town of Brewster is located in Brewster County, on Cape Cod (Figure II-1), approximately 85 miles southeast of Boston. It is located in what is referred to as the mid Cape area, just prior to the "elbow". According to the United States Census Bureau, the Town had a 2020 population of 10,318, an increase of 5.1% from the 2010 United States Census Bureau population of 9,826[1]. The town covers an area of 25.4 square miles, of which 22.9 square miles is land and 2.5 square miles, or 10.07%, is water. With a permanent population density of 450 people per square mile, the town is still classified as a rural community. In reality, with the seasonal influx of tourists, longer tourist seasons, and people spending more time at what have traditionally been vacation homes on Cape Cod, the town is much more suburban in nature.

FIGURE II-1: LOCATION OF BREWSTER ON CAPE COD

Brewster is bordered on the north by Cape Cod Bay, on the west by Dennis, on the south by Harwich, and on the east by Orleans. The town is separated into two villages, West and East

[1] https://www.census.gov/quickfacts/fact/table/brewstertownBrewstercountymassachusetts/BZA010221

Brewster, both of which comprise the Brewster census-designated place. Brewster is 31 miles south of Provincetown, 14 miles east of Hyannis, and 31 miles east of the Sagamore Bridge.

U.S. Route 6 passes through the southeast corner of Brewster from southwest to northeast, as a two-lane expressway; however, there are no exits within the town borders. Massachusetts Route 6A passes through the town from east to west as Main Street through the town center. Routes 124 and 137 both have a northern terminus along Route 6A in town; short portions of Routes 28 and 39 also pass through the southeastern corner of town.

As with all communities on Cape Cod, Brewster's population increases significantly – estimated to approximately 30,000 - during the warm weather months when large numbers of people vacation in the area.

BREWSTER FIRE DEPARTMENT

The Brewster Fire Department is still technically a combination (career/call) department. In reality it has evolved into a fully career emergency services organization that delivers fire, rescue, and emergency medical services (EMS) to the Town of Brewster. The Department is currently authorized for a total of twenty-three full-time, career firefighters, who perform firefighting, rescue, and emergency medical care duties, and fire prevention functions. The uniformed personnel are assisted by one civilian support person.

The department operates out of a single, state of the art station located at 1671 Main Street, protecting a year-round population of 10,318 in an area of 25.4 square miles. With a population density of about 450 people per square mile the district would be considered rural in nature. However, as already noted, based upon the continued residential growth that is occurring in the town, along with the significant population increase during the warm weather months (population swelling to 30,000), the district's character is more suburban in nature. This dramatic seasonal increase in population significantly impacts the department as the number of fire and EMS runs also increase significantly during the months of June, July, and August.

The fire headquarters houses all the administrative offices, training areas, living quarters for the on-duty personnel assigned there, and all equipment and apparatus. The Brewster Fire Department operates three engines (one equipped as a rescue pumper and referred to as a Squad and one reserve), one - 109' aerial ladder, three Advanced Life Support (ALS) ambulances,

one brush/forestry truck, one UTV for off road use, two rescue boats, and several other command/staff/utility vehicles.

During the five-year period from March 27, 2018, through March 27, 2023, the Brewster Fire Department responded to a total of 15,250 calls for emergency service, an average of 3,050 per year, or 8.4 per day. In 2022, the department responded to 3,236 incidents, an average of 8.9 per day, which is about 6.1% higher than the five-year average. As with most departments that provide the primary EMS service for their community, the majority of these incidents (11,133/73%) are emergency medical related. This includes 280 mutual aid ambulance responses. The department's Fiscal Year 2023 annual operating budget is $3,123,820.

The department provides EMS treatment and transport services to the community at the Advanced Life Support (ALS) level. All Brewster Fire Department personnel are required to possess a minimum of Emergency Medical Technician (EMT) training and certification. Eleven of the department's personnel are certified to provide ALS (paramedic) level care with one additional member in medic school.

The Brewster Fire Department is an all-hazards response agency that responds to a wide range of emergency incidents and requests for assistance each year from within its primary protection area. It also provides automatic and mutual aid to (and receives from) all surrounding municipalities. Department personnel are trained to operate at the hazardous materials operations level, and to mitigate a wide range of specialized types of technical emergencies including various water rescue incidents.

COMMUNITY GROWTH AND DEVELOPMENT

The Town of Brewster, like many on Cape Cod, remains a growing community which continues to experience growth, albeit slowly. It also remains a vacation destination during the warm weather months. However, like many other communities located on Cape Cod, it is experiencing an increase in formerly seasonal residents who are now making their vacation homes their primary domicile.

During the site visit to Brewster and tour of the fire department's response area, the MRI team was made aware of several large residential projects that have been completed or are still in development within the Brewster Fire Department's first due response area. These include several communities targeting the growing over 55 population along with multiple affordable housing developments that are projected to bring approximately 200 additional housing units to the Town. In addition, in late 2021, the citizens of Brewster gave permission to purchase the two Cape Cod Sea Camp properties which cumulatively total about 121 acres. Among multiple goals for the town was to protect the properties from commercial development. Subsequently, the Select Board created two new advisory committees to, among other charges, develop

comprehensive long-term plans for Town Meeting consideration. They also hired a landscape architect to provide expert support and design guidance to the committees as the Town plans future uses of the properties. It is unknown what impact this project will have on the fire department, but the department should remain engaged in the process as an important stakeholder.

CHAPTER III
BREWSTER COMMUNITY RISK AND HAZARD PROFILE

Fire and rescue services protecting all communities generally have a common overall mission, the protection of life and property; but different community profiles in which they operate. These dissimilarities create vastly different fire and rescue services operational needs based on a unique community risk profile, service demands, and stakeholder expectations.

A community risk assessment is a comprehensive process to identify the hazards, risks, fire, and life safety problems, and the demographic characteristics of those at risk in a community. In each community, there are numerous hazards and risks to consider. For each hazard, there are many possible scenarios and potential incidents that could be encountered depending on timing, magnitude, and location of the hazard or incident. A thorough risk analysis provides insight into the worst fire and life safety problems and the people who are affected. The analysis results create the foundation for developing risk-reduction and community education programs.

Conducting a community risk analysis is the first step toward deciding which potential fire or injury problem needs to be addressed. Risk analysis is a planned process that must be ongoing, as communities and people are constantly changing. Too often, an objective and systematic community risk analysis is a step that is overlooked in the community education process. Many emergency service organizations address risks based on a perceived need for service that is not there. This approach can be costly (i.e., misdirected resources, continued property loss, injuries, or deaths). In short, a good community risk assessment will produce a realistic picture of what the hazards and potentials for incidents are, identify who is at risk, and attempt to quantify the expected impacts (Figure III-1).

Understanding the definition of hazards and risks is critical to the risk assessment process. Hazards are physical sources of danger that can create emergency events. Hazards can be items such as buildings, roadways, weather events, fires. Risk relates to the probability of a loss due to exposure to a hazard. People and property can be at risk. Consequences for the community are also factors to consider. Each of these factors are assessed during the community risk process (Figure III-2).

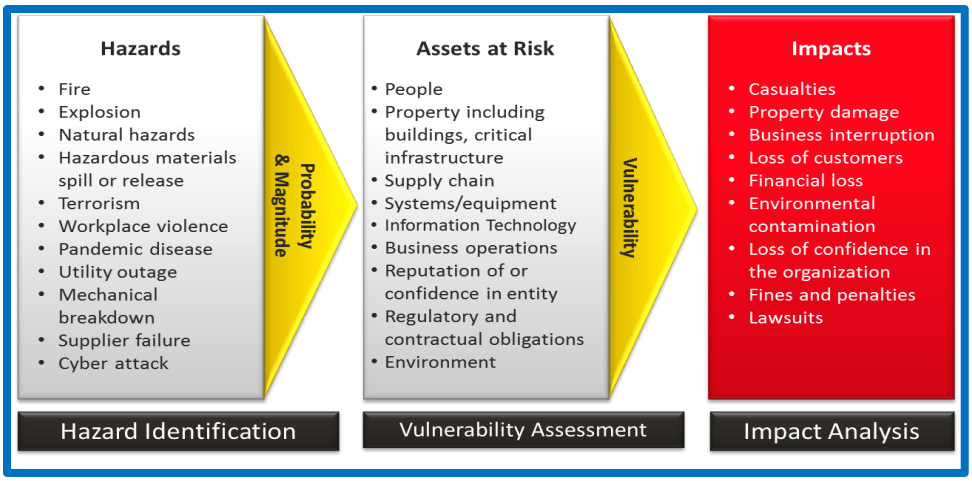

FIGURE III-1: RISK ASSESSMENT PROCESS

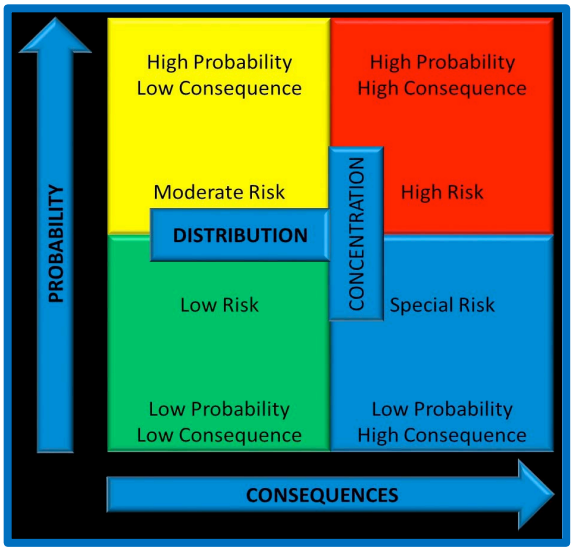

FIGURE III-2: FIRE PROBABILITY AND CONSEQUENCES MATRIX
Image credit: Commission on Fire Accreditation

In performing a risk assessment, a community determines which hazard may occur, how often it is likely to occur, and the potential impact of that hazard. Most municipalities' hazard mitigation plans address numerous natural hazards, including but not limited to, floods, hurricanes, tornadoes, and winter storms. They also usually cover a wide variety of human-caused hazards such as fire, hazardous materials releases, and transportation incidents. Almost any of the comprehensive list of potential hazards identified in these plans will involve the community's fire and EMS responders, at least during the initial stages.

A more focused community fire risk assessment is performed by assessing such factors as the needed fire flow, probability of an incident, consequences of an incident, and occupancy risk. The "score" established is then utilized to categorize the area, or even individual properties, as one of low, moderate, or high/maximum risk. This categorization can assist a fire department in establishing fire risk/demand areas or zones. Having this information readily available provides the community and the fire department with a better understanding of how fire stations, response run cards, and staffing patterns can be used to provide a higher concentration of resources for higher-risk scenarios or, conversely, fewer resources for lower levels of risk.[2] The community fire risk assessment may also include

[2] *Fire and Emergency Service Self-Assessment Manual,* Eighth Edition, (Commission on Fire Accreditation International, 2009)

determining and defining the differences in fire risk between a detached single-family dwelling, a multi-family dwelling, an industrial building, and a high-rise building by placing each in a separate category.

According to the NFPA *Fire Protection Handbook*, these hazards are defined as:

> **High-hazard occupancies:** Schools, hospitals, nursing homes, high-rise buildings, and other high life-hazard or large fire-potential occupancies.
>
> **Medium-hazard occupancies:** Apartments, offices, mercantile, and industrial occupancies not normally requiring extensive rescue by firefighting forces.
>
> **Low-hazard occupancies:** One-, two-, or three-family dwellings and scattered small business and industrial occupancies[3].

The NFPA also identifies a key element of assessing community vulnerability as fire department operational performance, which is comprised of three elements: resource availability/ reliability, department capability, and operational effectiveness[4].

> **Resource availability/reliability:** The degree to which the resources are ready and available to respond.
>
> **Department capability:** The ability of the resources deployed to manage an incident.
>
> **Operational effectiveness:** The product of availability and capability. It is the outcome achieved by the deployed resources or a measure of the ability to match resources deployed to the risk level to which they are responding.[5]

The Town of Brewster is a rural coastal community with a land area of 22.94 square miles. The town is known for its natural beauty, relaxed lifestyle, and outdoor recreational opportunities. Brewster is a community with a rich history and excellent community services and amenities that contribute to a high quality of life. The town is home to Nickerson State Park, which is the second largest State Park in Massachusetts, over 15 miles of the popular Cape Cod Bike Trail, eight miles of beaches facing Cape Cod Bay, and one of the top three rated vacation resorts in Massachusetts.

Brewster has a year-round permanent population of approximately 10,444 residents (2022 U.S. Census). It is estimated that the population almost triples to over 30,000 people between the

[3] Cote, Grant, Hall & Solomon, eds., *Fire Protection Handbook* (Quincy, MA: National Fire Protection Association, 2008), p. 12.
[4] http://www.nfpa.org/assets/files/pdf/urbanfirevulnerability.pdf
[5] National Fire Service Data Summit Proceedings, U.S. Department of Commerce, NIST Tech Note 1698, May 2011.

months of May through September. More than one third (35.1%) of Brewster's population is 65 years of age or older as compared to the statewide average of 18.1%.

The town has drafted a Local Comprehensive Plan (LCP) that establishes the community's vision for future growth and development. The LCP focuses on the preservation of open space, the current and future impact of climate change, a desire to maintain the rural, small-town feel of Brewster, and a recognition that growth should be managed appropriately. The vision statement in the LCP states, in part, that:

Within our fiscal capabilities, we strive to provide the infrastructure necessary to ensure public health and safety and to support the ability of our entire community, from older people to families with children, to live, work, learn, recreate, and gather in the town.[6]

Provided that the town adheres to the vision, goals, and objectives laid out in the LCP, it is not anticipated that the town will experience major industrial and commercial growth or allow high-rise buildings or mega-warehouse type facilities in the foreseeable future. The most significant development project currently underway is the revitalization of the former Sea Camps property that was recently acquired by the town.

As with most communities, the greatest fire safety concern in Brewster is the potential life loss in fires that occur in non-sprinklered, single, and multi-family residential dwellings during sleeping hours, which is consistent with national trends. These fires are fueled by new "lightweight" construction and more flammable home contents. The time to escape a house fire has dwindled from about 17 minutes, 20 years ago, to three to five minutes today. This poses a severe risk not only to occupants but also to firefighters as they now have less time to do their job and save residents' lives and property.

Automatic sprinklers are highly effective elements of total system designs for fire protection in buildings. They save lives and property, producing large reductions in the number of deaths per thousand fires, in average direct property damage per fire, and especially in the likelihood of a fire with a large loss of life or large property loss. They do so much quicker, often more effectively, and with less damage than firefighters do. No fire safety improvement strategy has as much documented life safety effectiveness as fire sprinklers because they extinguish the fire, or, at a minimum hold it in check and prevent flashover, until the arrival of the fire department.

Current Massachusetts codes prohibit municipalities from requiring residential sprinkler systems in all new occupancies. However, the fire department can approach the developer/builder/owner to discuss the pros and cons of residential sprinkler systems during the

[6] 2022 Brewster Local Comprehensive Plan (draft), p.9

approval process for subdivisions and large single-family residences and encourage them to consider the installation of these life safety systems regardless of where they are located. There are several publications that the fire department can use as resources to market the benefits of residential fire suppression systems including NFPA, which has developed the standards for their design and installation.

Newer multi-family residential/apartment complexes are generally fully protected by fire suppression and detection systems. However, these systems have limitations as they may not protect all areas of the building or are not always properly maintained.

According to Data USA, the economy of Brewster employs 503 people. The largest industries are professional, scientific, and technical services (146 people); construction (125 people); and health and social assistance (81 people).

The Town's Hazard Mitigation Plan (HMP) identifies and ranks the natural hazards that pose a threat to the community (Figure III-3). The HMP provides and identifies the steps that the town can take to lessen the seriousness of these hazards before a disaster strikes. It also provides guidance to the town's public safety services as they identify their needs for staffing, equipment, training, and planning.

Natural Hazard	*Frequency (i.e. Very Low, Low, Medium, High)*	*Location (i.e. small/local, medium/regional, large/multiple communities)*	*Severity (i.e. minor, serious, extensive, catastrophic)*	*Hazrd Index (i.e. ranked by combining frequency and severity; 10 - high, 1 - low)*
Flood-Related Hazards				
- Riverine/Flash Flooding	High	Medium/Regional	Serious	6
- Inland/Urban Flooding/Heavy Rain	High	Medium/Regional	Serious	6
- Climate Change	Medium	Large/Multiple	Serious	6
- Dam Failures[1]	N/A	N/A	N/A	5
- Coastal Flooding	High	Medium/Regional	Extensive	7
- Sea Level Rise	High	Large/Multiple	Serious	6
- Storm Surge	High	Medium/Regional	Serious	6
- Coastal Erosion/Shoreline Change	High	Medium/Regional	Extensive	7
Winter-Related Hazards				
- Blizzards/Snow/Nor' easter	High	Large/Multiple	Serious	6
- Extreme Cold	Low	Small/Local	Minor	2
Wind-Related Hazards				
- Hurricanes	High	Large/Multiple	Extensive	8
- Tornadoes[2]/High Winds	High	Medium/Regional	Extensive	7
- Lightning/Thunderstorms	High	Small/Local	Serious	6
- Hail	High	Small/Local	Serious	6
- Tropical Storm	High	Large/Multiple	Serious	7
Geologic-Related Hazards				
- Earthquakes	Very Low	Small/Local	Serious	3
- Landslides	Very Low	Small/Local	Minor	2
Drought				
- Drought	High	Medium/Regional	Minor	5
- Extreme Heat	High	Small/Local	Minor	5
Urban Fire/Wildfire				
- Urban Fire/Wildfire[3]	N/A	N/A	N/A	7
Invasive Species				
- Multiple	Low	Small/Local	Minor	2

1: Hazard Index ranking taken from Massachusetts Hazard Index and Risk Assessment (Feb. 2019).

2: Tornadoes not a major issue for Brewster.

3: Hazard Index ranking taken from Barnstable County Wildfire Preparedness Plan.

FIGURE III-3: NATURAL HAZARDS RANKING MATRIX, TOWN OF BREWSTER HAZARD MITIGATION PLAN

Other hazards that the public safety services in Brewster are likely to encounter include the following:

- Structure fires
  - ✓ Single- and two-family homes
  - ✓ Multi-family occupancies (apartments, condominiums)
  - ✓ Health care (including senior living/assisted living)
  - ✓ Educational occupancies (public school, day care)
  - ✓ Commercial buildings
  - ✓ Storage, agricultural
- Vehicle fires (including the unique challenges of alternative fuel vehicle fires)
- Motor vehicle crashes

- Mass casualty incidents[7]
- Hazardous materials incidents (highway and fixed facility)
- Open water incidents (drownings, boat fires, petroleum spills)
- Ice rescue
- Technical rescue (high-angle, below grade, building collapse)
- Search and rescue
- Active shooter and hostile events

Although many of the hazards identified above occur infrequently in Brewster, there is still a need for the fire and EMS services to be equipped and trained to handle a wide variety of incidents. Fortunately, responsibility for unique events that require specialized training and equipment is shared with specialized regional teams as discussed in later sections of this report.

The following factors will impact the number and type of fire incidents in Brewster:

- *New commercial development*. New commercial buildings that are built to the latest fire and building codes and are equipped with fire detection or fire sprinkler systems, will have a lower risk for a catastrophic fire. However, unintentional, or false alarms involving the fire protection systems could increase the number of calls for fire department response. Manufacturing processes and hazardous materials transportation, use, and storage increase fire risk.

- *Lightweight construction*. While efficient and economical, modern lightweight construction methods pose serious risks to firefighters because of the probability of building collapse during the early stages of a fire.

- *Interior building contents*. Today's furnishings, mattresses, and other interior contents that are made of petroleum-based materials (plastics, foams, etc.) burn more quickly, with higher heat release and more toxic smoke than pre-1960s materials. Flashover[8] can occur in a bedroom or living room before the arrival of the fire department or during

[7] A mass casualty incident (MCI) is an event which generates more patients at one time than locally available resources can manage using routine procedures.
[8] A flashover is the near-simultaneous ignition of most of the directly exposed combustible material in an enclosed area.

initial fire attack, thus creating an extremely lethal environment for building occupants and firefighters.

- *Aging building stock*. The fire risk in existing commercial and residential buildings increases unless heating systems and electrical systems are properly maintained and updated.

- *Aging population.* Older people are at a higher risk from fires due to mobility issues, cooking fires, smoking, and improper use of oxygen systems.

- *Increased traffic.* Increased traffic in the community can result in more frequent and more serious vehicle crashes and fires.

- *Alternative fuel vehicle fires.* Alternative fuel vehicles, such as electric, hydrogen, and compressed natural gas, present unique and dangerous firefighting challenges.

The following factors will impact the number and type of EMS incidents in Brewster:

- *Aging population.* Brewster's population is considerably older than the statewide average. As the population continues to age, there will be an increased demand on EMS.

- *Increased traffic*. Increased traffic in the community can result in more frequent and more serious vehicle crashes and fires.

- *Increased seasonal population*. Increases in the seasonal population will result in additional EMS calls due to increases in motor vehicle crashes and incidents involving outdoor recreation (hiking, boating, swimming), intoxication, overdoses, and health-related medical emergencies.

All communities on Cape Cod are faced with the geographic challenge of having a limited number of communities to share emergency services resources through automatic and mutual aid. In addition, fire and EMS services in Massachusetts and across the U.S. are facing serious difficulties in recruiting and retaining qualified personnel. The problem is particularly acute on Cape Cod due to housing costs and recruitment competition between municipalities. A recent article in the Boston Globe highlights the fact that many firefighters now live off-Cape, which reduces their availability for callbacks for station coverage during routine incidents or to respond to major fires.[9]

[9] https://www.bostonglobe.com/2023/07/11/business/cape-cod-housing-costs/?p1=BGSearch_Advanced_Results

Looking ahead, the Town of Brewster will continue to experience some limited growth and development. While this development will have a definitive impact on the Brewster Fire Department, the exact amount is difficult to quantitatively and accurately predict. Increased development of any type will mean an increase in the number of people living, working, and traveling within the area. Each of these will reasonably be expected to result in an increased number of requests for services from the fire department. They can also impact response times through increased traffic and congestion.

It is likely the most significant increase in requests for emergency services will be EMS related. More people simply increase the number of medical emergencies that occur. It would not be unreasonable to expect that the increase in EMS incidents would be proportional to the increase in population; however, that is not always the case. Although a number of factors can ultimately impact the requests for service, such as ages or socio-economic status of new residents, or an aging population, it could reasonably be anticipated that an increase in population, along with potential increases in employment from any significant commercial development, would translate into an increase in emergency medical incidents.

Persons over the age of 65 are considered in a higher risk group both from the perspective of fire and medical emergencies. An aging population group, along with the potential for the number of senior citizens in the age 65 and over group to increase with new developments, or with people who turn what was a vacation home into their permanent retirement residence, also suggests that the number of responses will continue to increase.

The above information is intended to provide a community "snapshot" of the Town of Brewster. It is not intended to be all-inclusive or comprehensive. For the Town's governing body and first responders it serves to put the community, and its associated hazards and risks, into some context as the Town and the fire department work to carry out the recommendations of this study and implement their long-range plans. Looking ahead, as it develops a more in-depth risk management plan, that assessment should be include:

- clearly identify and classify the Town's current risks,
- place the risks in context with the fire department's current operational capabilities and procedures,
- reflect what the Select Board feels is an acceptable level of risk for the Town of Brewster,
- implement short- and long-range plans based upon a desire to reduce those risks and/or improve service delivery levels.

RECOMMENDATIONS

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

III-2: ***The Brewster Fire Department should develop a compelling public education program that includes discussing the benefits of installing residential fire sprinklers in new one- and two-family dwellings. Although Massachusetts's construction codes do not allow residential fire sprinkler systems to be mandated, there is no prohibition for property owners to install them if they determine that it is in their best interest.***

CHAPTER IV
BREWSTER FIRE DEPARTMENT ORGANIZATION, MANAGEMENT, AND OPERATIONS

BREWSTER FIRE DEPARTMENT OVERVIEW

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

The Brewster Fire Department was established in 1928. The department remained staffed primarily by on-call firefighters until recent years. As recently as about 2011, the department was still primarily on-call with 37 call personnel supplemented by 12 career firefighters. The department continues to nominally function as a combination fire department utilizing a mix of both career and on-call firefighters; however, as of Spring 2023 when MRI was conducting this staffing analysis, the call force had declined to just two members. One of those two was most

likely going to be hired as the Department's Fire Prevention/Community Risk Reduction Officer, while the other no longer possessed the minimal requisite requirements to remain a member.

At the time of this assessment, the Brewster Fire Department is authorized a total staffing complement of twenty-three full-time, career personnel, plus one civilian administrative assistant.

These personnel include:

- One (1) Chief of Department
- One (1) Deputy Fire Chief
- Four (4) Captains are each assigned to supervise an on-duty group and serve in the dual role of engine company officer.
- One (1) Fire Prevention Officer
- Sixteen (16) Career Firefighters
- Two (2) Call Firefighters
- One (1) Administrative Assistant (civilian)

MRI was informed that unlike many departments on Cape Cod that the Brewster Fire Department does have two authorized part time seasonal positions for the summer vacation season. These personnel are normally utilized from Memorial Day to Columbus Day to supplement staffing during the busy vacation season. However, this year, due to multiple staffing challenges related to recruitment and filling vacant positions, in 2023 these personnel were not slated to start until around July 4th.

Being a tourist and vacation destination, the incident statistics illustrate the Brewster Fire Department's call volume increases between May and October each year, so the use of these seasonal personnel is an excellent way to increase staffing during the busiest months but do so in a more fiscally prudent manner. The Brewster Fire Department should be commended for this procedure which MRI considers to be **Best Practice**. Similar communities along the New Jersey shore such as Wildwood, North Wildwood, and Cape May have used a similar practice to bolster their seasonal on duty staffing with part time or per diem personnel. They often move into full-time positions when they become available.

The Fire Prevention Officer is also utilized to provide additional daytime staffing. It is supposed to be primarily for the second or third ambulance, however, staffing shortages had caused them to frequently be used to maintain minimum shift staffing. At the time of MRI's field visit to Brewster this position was vacant as the previous incumbent had resigned. We were informed that although the person in this position is compensated as a Captain, traditionally the position has been difficult to fill. The department was hoping that one of the two remaining on call firefighters was going to accept the position.

Figure IV-1 illustrates the Brewster Fire District's organizational structure that was in effect in 2023.

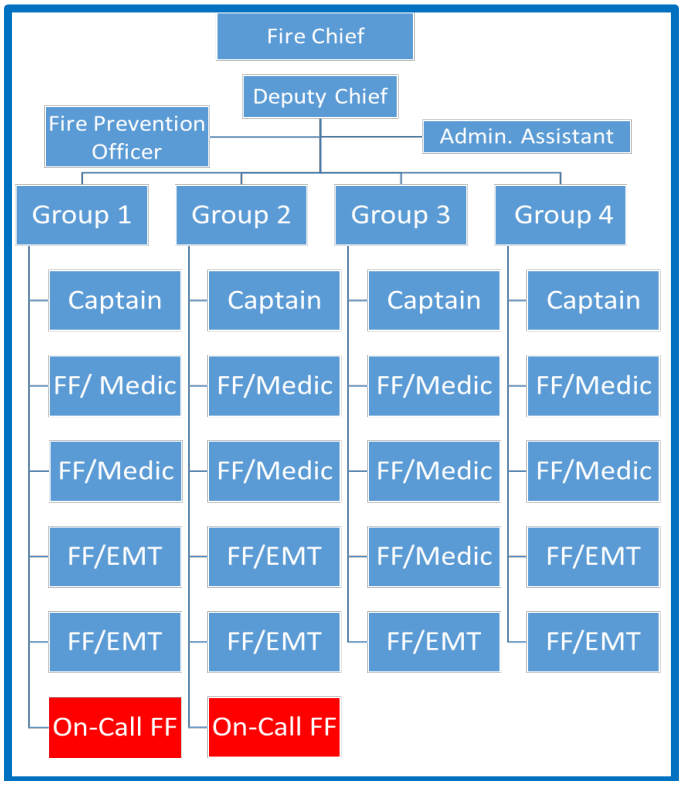

FIGURE IV-1: CURRENT BREWSTER FIRE DEPARTMENT ORGANIZATIONAL CHART

The department and its personnel are not a part of the Massachusetts civil service system. As such, the town must establish its own specific requirements for recruiting, hiring, promoting, disciplining, and terminating fire department employees. It should also be noted that at the time of this assessment, the Department was four personnel short. This caused the department to temporarily drop the minimum staffing at night to four personnel.

Fire Chief Robert Moran is the department's highest-ranking officer and serves as the administrative and operational head of the department. Chief Moran possesses a basic Emergency Medical Technician (EMT) certification and also serves as the Town's Director of Emergency Management as assigned by the Town Manager. The Fire Chief is appointed by, and reports to, the Town Manager under MGL Chapter 48, Section 42, also known as the "strong chief" law. Under this statute the chief *"..shall have full and absolute authority in the administration of the department, shall make all rules and regulations for its operation, shall report to the Town Manager/Select Board from time to time as they may require, and shall annually report to the town the condition of the department with his recommendations*

thereon…" The chief is a highly experienced and regarded chief officer who appears to be an effective advocate for the organization, who is trying to bring the department to a higher level of service and effectiveness. Chief Moran works a straight day work schedule, Monday through Friday.

The Deputy Fire Chief, who is a licensed advanced life support (ALS) provider (paramedic), also work straight daywork and serves as the second in command of the Department. This position was created as a full-time position in 2016. The Deputy Chief handles the department's day-to-day emergency operations and assumes the chief's duties in his/her absence.

Both the Chief and the Deputy Chief are considered to be management and are not a part of the collective bargaining unit. As a management team, they share responsibilities for confidential personnel matters, supervision, handling grievances or potential grievances, administering the collective bargaining agreement, overseeing budgetary expenditures, assisting with the development of policies and procedures, and the myriad of administrative and management tasks that are associated with running a significant sized, modern, full-service emergency services provider. They also appear to form a capable, well respected, and effective command team. They frequently respond to emergency incidents when appropriate, particularly when staffing is insufficient. Overall, the department appears to work diligently to meet the needs of the community. The chiefs are assisted by a civilian administrative assistant who provides a wide range of administrative and support functions.

The department is authorized to have a total of four (4) captains who are assigned as supervisors on each of the four (4) platoons/units, and function as the shift commanders. The captains serve as the department's first line supervisors, providing critical direction and direct oversight to the firefighters assigned to that platoon while also providing initial incident command and management. They form an integral part of their company or unit, and it is often necessary for them to assume hands-on involvement in operations while simultaneously providing oversight and direction to their personnel. Captains must be able to focus on the completion of specific tasks that have been assigned to their respective companies, such as interior fire attack, rescue, ventilation and/or water supply. During structure fires and other dangerous technical operations, it is imperative that these officers accompany and operate with their crew to monitor conditions, provide situation reports, and assess progress toward incident mitigation. During structure fires they must be capable of operating inside of the fire building with their crews, the most dangerous place on the incident scene. Consequently, it is imperative that they are highly qualified and experienced and can command the confidence of their personnel.

Consistent with most modern fire departments, the Brewster Fire Department provides numerous services beyond traditional firefighting. The fire department operates the town's transport ambulance service at the advanced life support (ALS) level. Therefore, officers and

firefighters are also certified to provide emergency medical care. The above-listed positions include eleven (11) paramedics (with one more in training), and eleven (11) basic emergency medical technicians (EMTs) [10]. The department provides a wide range of services under the umbrella of "community risk reduction" including traditional fire prevention activities, community cardio-pulmonary resuscitation (CPR) training programs, management of facility Tier II reports for storage of hazardous materials pursuant to the federal Emergency Planning and Community Right-to-Know Act, and numerous public education programs.

The on-duty response staff is organized into four (4) shifts of five (5) members each. Each shift consists of one (1) captain (shift commander), and four (4) firefighter-paramedics, or EMTs. There must be a minimum of one paramedic on duty at all times.

Articles 34 and 44 of the current collective bargaining agreement stipulates the number of personnel who may be off on scheduled leave at any given time. The Brewster Fire Department utilizes a constant staffing model in which the number of personnel assigned to each shift is also the minimum staffing level. This requires that any time a member is off on any type of leave, scheduled or unscheduled, another member is called in to work to fill that vacancy and bring the on-duty staffing back to the minimum level.

Duty shifts are 24 hours in length. The shift schedule is 24 hours on duty, followed by 48 hours off duty, followed by 24 hours on duty which is then followed by 96 hours off. This 8-day rotation results in an average 42-hour work week. This type of schedule is highly typical for fire departments in the northeastern United States.

The one downside to the 24-hour schedule is that there can be a tendency for continuity and/or progress on projects to be slowed by the fact that the personnel assigned to or working on them, are only available every third or fifth day. Personnel working weekends and holidays, when the fire chief is not normally working is factored in; communications can be problematic, as the fire chief may go a week or longer without seeing certain personnel who he may need to get updates from and provide direction/instruction to. While there is a wide array of alternative communications mediums available today that can minimize these issues, there is still no form of communication that is as effective as face-to-face communications.
Because all uniformed personnel are cross trained with fire, rescue, and EMS skills, the department is well-positioned to respond effectively to the expected wide range of emergency events. A few participate in specialized regional teams and operations and perform various additional duties for the department. Some, but not all, of the department's personnel have

[10] Paramedics are trained and certified to provide advanced life support (ALS) care, which can include the administration of life-saving drugs, airway intubation, intravenous fluid therapy, and specialized cardiac and stroke care. Emergency Medical Technicians (EMTs) provide basic life support (BLS) care, including airway management, cardio-pulmonary resuscitation (CPR), automatic external defibrillation (AED), fracture stabilization, and wound care.

ancillary duties they have been assigned, that assist with coordinating or managing various aspects of the department's operations.

The fire department is unionized except for the fire chief, and deputy fire chief. Captains, the Fire Prevention Officer, and firefighters are represented by Local 3763 of the International Association of Fire Fighters (IAFF). There is a current collective bargaining agreement in place. New employees serve as probationary employees for one year. The promotional process is addressed in the collective bargaining agreement. The current representation arrangement where rank and file firefighters, and supervisors (captains) are all in the same union – while very common – does have the potential to create problems and conflicts of interest within the department, particularly when it comes to the administration of discipline.

Off-duty personnel are recalled when there are multiple calls or major emergencies such as structure fires. The typical recall may result in one or two off-duty personnel returning to the station although it is not uncommon for no one to return. Structure fire recalls may have a few more off-duty personnel returning to duty, but even then those numbers are limited. Recall response time is contingent on the availability of personnel and their location at the time of the incident. Because of the cost of housing not only in Brewster, but on Cape Cod in general, few of Brewster's personnel live in or near the town. In fact, about 40% of the department's current personnel live over the Sagamore Bridge, so more than 30 miles away. MRI was advised this situation is becoming more common on Cape Cod. While the need for personnel to be able to find affordable housing is very important, it limits the department's flexibility in having personnel available for off duty responses.

Many communities in the United States (but not necessarily Massachusetts) that are similar sized to Brewster are protected by combination fire departments comprised of both career and call/volunteer personnel, or, in some instances fully call/volunteer fire departments. The project team is often questioned by municipal leaders if maintaining a call contingent in their local fire department would be a viable option to supplement the career staffing levels. However, MRI rarely ever believes this would be a feasible option in the 21st century and Brewster provides no exception.

There are several factors that lead to this conclusion, chief among them the time commitment necessary to complete initial training (up to 550 hours to earn basic certifications for both firefighting and EMT); no long deep tradition of a call or division within the department that would attract and keep members; and a general steep decline in volunteerism throughout the country. Many chiefs who lead combination departments report that they invest considerable resources, both time and financial, in training people to be call firefighters only for them to use it as nothing more than a stepping-stone to a career job. These factors are particularly relevant

in Massachusetts where the majority of communities have career firefighters and there are a large number of opportunities for those who wish to pursue a career in the fire service.

As noted above, for most of its history, in past years, the fire department primarily utilized part-time "on-call" firefighters. However, as emergency calls and training requirements increased, particularly over the past decade, on-call firefighters retired, resigned, accepted career positions, and the town increased the number of full-time personnel. Like many other municipalities throughout the United States, Brewster has been unsuccessful at recruiting new call firefighters and has arrived at the realization that it is no longer feasible or practical to recruit and retain on-call firefighters and EMTs. Over the past decade, the town has been unsuccessful in recruiting call firefighters while nearly doubling the size of the career force. In the opinion of the MRI project team, the use of call firefighters is no longer part of recommended fire protection and EMS service delivery model for Brewster. Today's training requirements for firefighting, EMS, rescue, and hazardous materials, and the frequency of emergency calls are just two of the barriers to maintaining an effective and reliable call firefighting force.

Overall, during the MRI study team's fieldwork, the Brewster Fire Department appears to have a positive organizational culture. During the interviews with stakeholders, the MRI study team was informed that labor/management relations are generally good and positive. There was a positive attitude about the changes the department was making and in the past few years, the chief and deputy chief along with most of its members were trying to raise the department to an even higher level. The project team found members that appeared to be engaged in the department besides just being employees.

The above positive attributes notwithstanding, the Brewster Fire Department is not without challenges (other than staffing) that can have an impact on it as it tries to move forward. The MRI team was informed by multiple stakeholders that several very senior (and unfortunately supervisory) members of the department tend to immediately be negative about any change that is implemented and try to place obstacles in the way of implementation. Because of their seniority and supervisory status, they have the ability to influence other members of the department many of whom have only been on the job for a few years. This type of situation can often create a divided organization as various "adversaries" seek to increase the number of personnel they perceive as loyal to them and thus against "the enemy". Changing this type of culture and minimizing the influence of these negative forces within the department will be critical if the Brewster Fire Department is to realize its full potential.

In addition, the Brewster Fire Department is one of the lower paid departments on Cape Cod. While the town has made a concerted effort to gradually increase the pay scale, it still lags behind most other departments in the area. That is a major reason that MRI was informed that more than 20 personnel have left the Brewster Fire Department over the previous five years, most of

them to employment with other fire departments on the Cape. During one stretch in 2021, four members left in a short period of time. This type of turnover is unhealthy to an organization. In addition, in early 2023 the department had four vacant (including one on long term military leave) positions it was struggling to fill.

With the constant staffing model described previously, this situation creates the need for a high amount of overtime. The amount of mandatory overtime has been cited by personnel who have recently left Brewster for other fire departments. High levels of overtime, particularly mandatory or forced overtime can have implications both fiscally, as well as for firefighter safety and patient care outcomes. For the former, in FY 2023, the Brewster Fire Department had $424,700 budgeted for overtime. However, due to the need for constant overtime, as of 3/31/23, so with a full ¼ of the year remaining, there was only $11,000 left in that account.

The firefighter safety issue is even more of a concern. The consequences of the COVID pandemic have created some unique staffing challenges for many fire departments, Brewster included. During the early days of the pandemic many days fire departments had multiple shifts filled by personnel working overtime just to fill vacancies created by personnel on both regularly scheduled, as well as unscheduled/sick leave. Today, many fire departments are having difficulty filling shifts and in some places are getting involved in bidding wars in efforts to attract the most qualified candidates. In addition to the financial implications to the municipality of the need for personnel to work numerous overtime shifts, there is growing evidence to suggest there are very real health and safety implications for firefighters as well, and which could end up having tragic consequences.

In a recent article titled "What Firefighters Really Want in 2023"[11] published in Fire Rescue 1 magazine, the results of a nationwide survey of firefighters indicated some concerning data that could have applicability in Brewster as much as any other fire department. This includes:

- 64% of respondents rate their job-related stress level at seven or above (on a scale of 1 to 10) with 41% rating an eight or above.
- 57% selected staffing challenges among their top three least-satisfying aspects of the job, with one-quarter selecting this issue as their top issue.
- 46% have considered leaving their current department; and 42% are considering leaving the fire service altogether.
- **32% state that stress is negatively impacting the quality of service they provide.**
- **54% of respondents reported that, due to staffing challenges, they believe their personal safety is at greater risk;** 50% described their stress level as negatively impacting their ability to engage in non-fire department activities such as hobbies, vacations and time with friends; 47% indicated that stress is negatively

[11] https://www.firerescue1.com/what-firefighters-want/

impacting relationships with their families; 67% say their stress level negatively impacts other aspects of their health, like ability to sleep and time to exercise.

In addition, other studies suggest:

- The PTSD rate for firefighters has been estimated anywhere from 7% to 37% compared to about 6.8% for the general population.[12]

- A recent survey found that 6.6% of first responders had attempted suicide at least once, 10 times the rate of the general population.[13]

Chief Don Abbott was a well-known fire service leader, author, and instructor who is regarded as a leading authority regarding MAYDAY[14] facts in the fire service in North America. Chief Abbott's analysis of data submitted to him by career fire departments noted a 35 percent increase in MAYDAYS during a 13-week period from March through June of 2020. This was during the initial surge of the COVID-19 pandemic as well as during social issues, protests, and related civil emergencies. Based upon interviews conducted with 156 personnel (primarily those firefighters who transmitted the MAYDAY) Chief Abbot identified some trends, several of which could have applicability to Brewster:

- Lack of control over excessive overtime, relaxing the rules because of current civil, COVID, or related situations and conditions. There was one incident in which a firefighter had a MAYDAY during his 71st-straight hour of being on duty.

- There were several MAYDAYS (39%) where crews were working short-handed.

- 81% occurred between 9:00 p.m. and 6:00 a.m.

- **77% occurred during an overtime shift; 43% while working a 24 hour + hour shift.**

- Average runs prior to MAYDAY (during a 24-hour period) were 16 runs/or standby on protest rallies (low of 9 runs / high of 26 in 24 hours).

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[12] https://www.jems.com/administration-and-leadership/post-traumatic-stress-disorder-comparison/#:~:text=Introduction,U.S.%20is%20estimated%20at%206.8%25.&text=The%20rate%20for%20firefighters%20has,anywhere%20from%207%25%2D37%25.

[13] https://www.defeatsuicide.com/suicide-first-responders#:~:text=First%20responders%20are%20more%20likely,rate%20of%20the%20general%20population!

[14] A fire department **MAYDAY** is any situation where a firefighter or firefighters is/are unable to safely exit a hazard zone (including inside of any structure on fire) on their own, or an event that cannot be resolved by that/those individual(s) within 30 seconds and/or has the potential to result in serious injury or death.

- 37% of the MAYDAY victims reported working short a crew member.

- 15% reported they didn't remember the dispatch information (address, reason for the run).

- 37% reported using more air than normal.
- **THE NUMBER ONE cause of their MAYDAY was becoming lost or separated from a hose line.**

- 43% reported difficulty sleeping during their overtime shift.

- Overtime ranged from working 48 hours (36%), 60 hours (23%), and 72 hours (17%) straight.

The critical message here related to staffing practices, and personnel working large amounts of overtime to fill vacancies, is that while each community challenge is different, and Brewster is no exception, the fact is that firefighters require adequate rest (on AND off duty) to ensure they are physically and mentally prepared for duty. Thus, adequate staffing must be planned for in advance based upon the unique needs of the community.

With support from the Town of Brewster and its citizens, the BFD has gradually been able to increase its staffing levels over the past 12 years. This has been accomplished through internal budget transfers, budget overrides, receipt of a federal Staffing for Adequate Emergency Response (SAFER) grant[15], and the use of ambulance billing revenues. The most recent increases occurred in 2019 when two additional firefighters were hired after receipt of a SAFER grant and a successful budget override; and in 2020 when two more personnel were hired utilizing ambulance revenues.

Generally, the MRI study team believes that the current Brewster Fire Department's overall organizational structure is appropriate for department's current needs and operations. However, the department is struggling with adequate staffing to continue to perform its mission in the community. In this section of the report we will make several recommendations relative to staffing and organizational structure, they primarily serve to enhance current, and mid term operations rather than indicate a need for major changes. As with any organization that continues to grow and evolve based upon the expanding needs of its customers, the Brewster Fire Department's organizational structure should continue to be evaluated in an ongoing manner to ensure it is still appropriate and meeting the department's needs. If, in the future, revisions are deemed appropriate, they can be considered at that time.

[15] The goal of SAFER is to enhance the local fire departments' abilities to comply with staffing, response and operational standards established by the NFPA 1710.

RESPONSE METRICS

A community's demand for fire and EMS services are based on that community's demographics, socio-economic factors, the percentage of commercial, industrial, and residential properties, as well as, the district's infrastructure. By reviewing the historical demand for fire and EMS services and the fire department's ability to respond to those needs within the expressed expectations of that community; a fire department can evaluate what types and levels of services that they will need to provide. Though fire and EMS standards are helpful for modeling those services, no two communities are exactly alike. Budgeting and resources often determine what level of service a community expects and can afford. Fire departments, in conjunction with their governing bodies and community political leaders, should work to establish plans that can deliver fire protection and emergency medical services at a point that meets the level of expectation that the community has established.

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

The data that was analyzed for this report was provided to the MRI study team by the Brewster Fire Department. The reports developed were automatically compiled through the report generation features of the Image Trend Software fire records management system, and electronic patient care reporting for EMS, utilized by the Brewster Fire Department. Each emergency incident that the Brewster Fire Department responds to results in the generation of a National Fire Incident Reporting System (NFIRS) report. The project team believes that the data that it analyzed is, for the most part, relatively accurate; however, the chief reported that improving data entry has been an ongoing project for the department over several years.
During the five-year period from 2018 - 2022, the Brewster Fire Department responded to a total of 15,329 calls for emergency service, an average of 3,065.8 per year, or 8.4 per day (Figure IV-2). In 2022, the department responded to 3,235 incidents which is 169 (5.5%) higher than the five-year average. Overall, the Brewster Fire Department responds to about 74.7% medical related calls and 25.3% for fires and other emergencies (Figure IV-3). The yearly percentage of EMS calls compared to total call volume ranged from a low of 72.1% in 2018 to a high of 78% in

2022. The percentage of EMS related incidents is consistent with nationwide trends where EMS related calls often account for between 70% to 80% of responses. This indicates that the department needs to remain focused on not only the EMS aspect of its operations, but also its fire suppression mission.

The year-to-year incident statistics showed a fluctuation from year to year instead of a steady upward trajectory as is often observed. The number of incidents decreased by 13.7% from 2018 to 2019 then another 10.7% in 2020 before increasing by 15.5% in 2021 and another 5.9% in 2022. In 2020, many EMS providers experienced significant declines in the number of responses which is being attributed to the COVID pandemic. They are expected to continue to increase annually now that the pandemic is over, and life has returned to the new normal. It is MRI's experience that nearly every community continues to see annual increases in call volume, and we believe this trend will continue in Brewster. This will most likely be driven primarily by the older population demographic found in Brewster, and people spending more time at what used to traditionally be seasonal vacation homes.

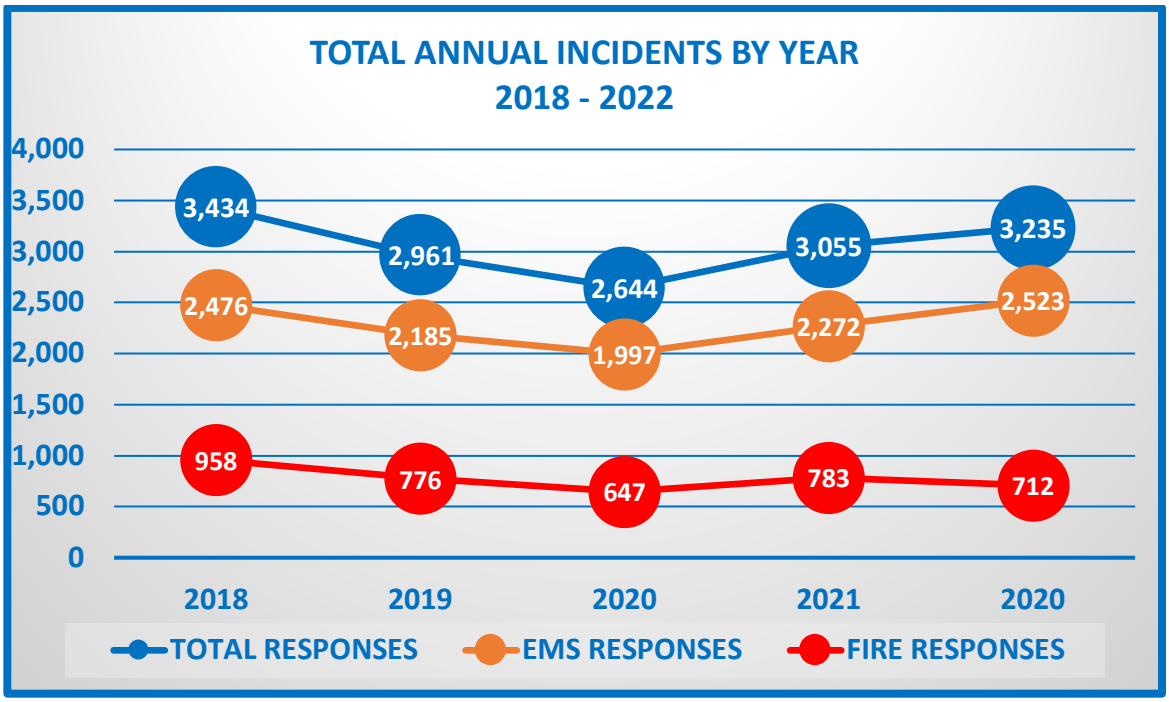


FIGURE IV-2: BREWSTER FIRE DEPARTMENT TOTAL INCIDENT TREND 2018 –2022

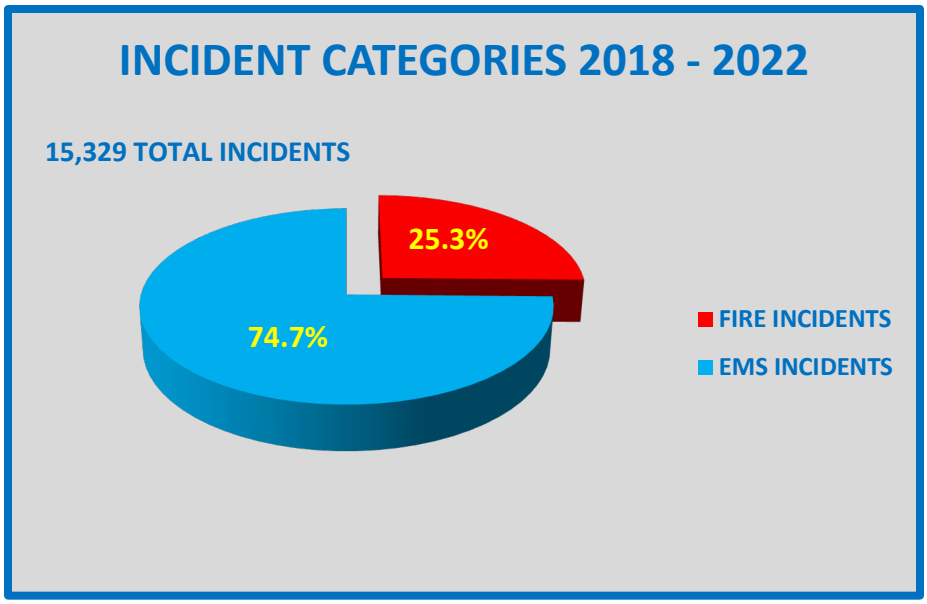


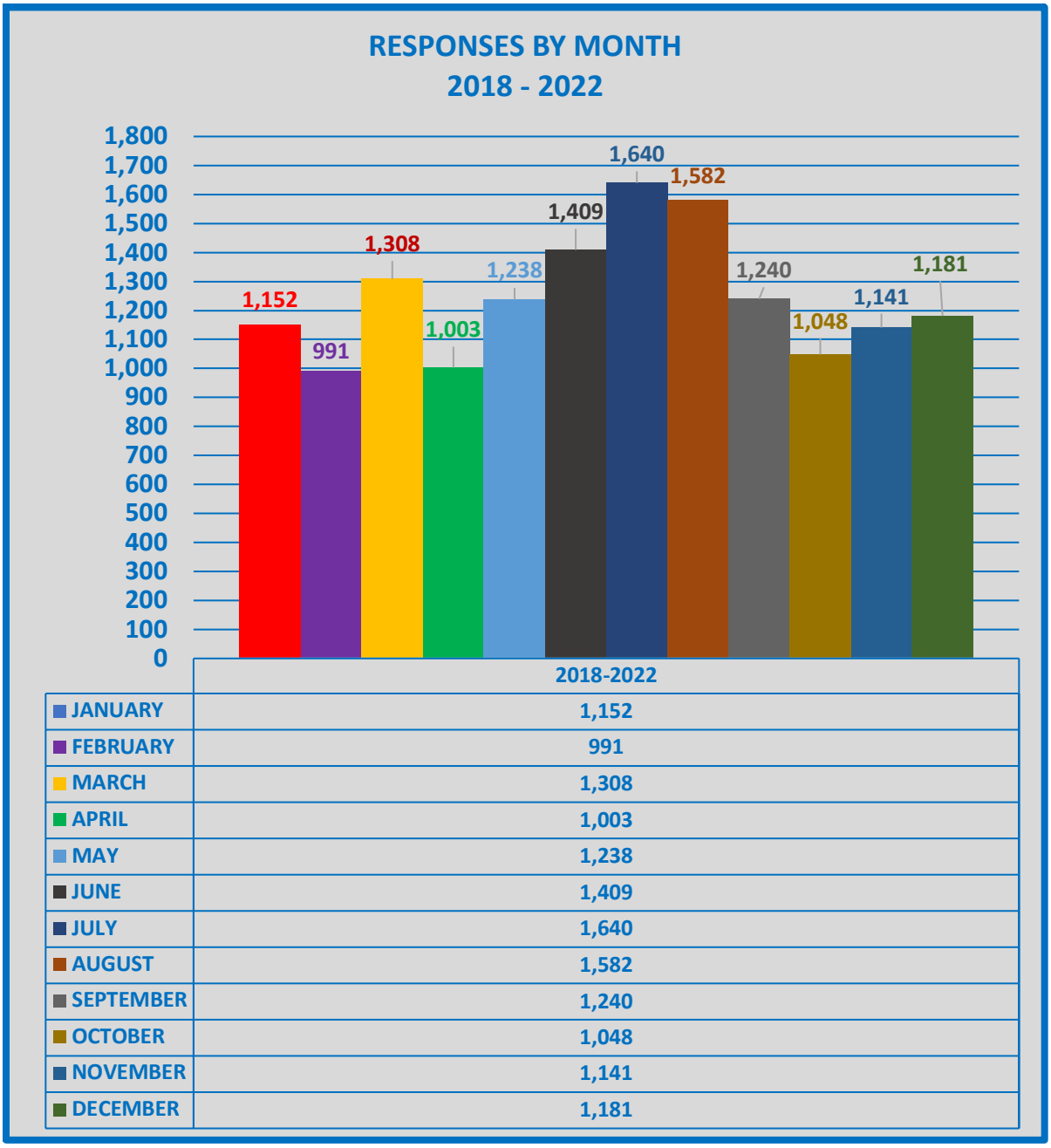
FIGURE IV-3: BREWSTER FIRE DEPARTMENT GENERAL INCIDENT CATEGORIES 2018 – 2022

For actual fire incidents, the statistical sample is small. Per NFIRS protocols, the category for "Fire Incident" must be an actual fire situation, that in many, but not all situations caused some type of damage. Many of the incidents that are classified under other types of incidents were also probably initially dispatched as some type of fire incident, but ultimately were classified otherwise, for reporting purposes, based upon the situation actually found at the scene. From 2018 through 2022, the department responded to a total of 287 actual fire incidents, an average of 57.4 per year, or about 1.1 per week. Actual fires accounted for 1.9% of the fire department's total responses during these years.

Significant structure fire incidents were a much smaller percentage of the actual fires. In the five-year period analyzed the Brewster Fire Department experienced just 56 significant structure fires, an average of 11.2 per year. These annual numbers ranged from 5 in 2020 and 6 in 2022, to 17 in both 2018 and 2021.

The number of incidents that the Brewster Fire Department responded to each month over the fire year period is mostly consistent with what would be expected of an area that experiences an influx of part-time residents and visitors during the warm weather months. Over the five-year period, incident activity began to increase in May, peaking in July and August, before beginning to decrease again in September (Figure IV-4). There are a couple of exceptions though. As seen on the chart, activity spiked in March which is due to March 2018 having an extraordinarily high number of incidents – 439 – more than double the normal number. This was due mainly by multiple Nor'easters hitting the area in rapid succession over several weeks. Also, the number of

incidents increases again near the end of the year, most likely caused by people spending the holidays at their vacation homes.



	2018-2022
JANUARY	1,152
FEBRUARY	991
MARCH	1,308
APRIL	1,003
MAY	1,238
JUNE	1,409
JULY	1,640
AUGUST	1,582
SEPTEMBER	1,240
OCTOBER	1,048
NOVEMBER	1,141
DECEMBER	1,181

FIGURE IV-4: RESPONSES BY MONTH 2018 - 2022

The number of incidents that the department responded to each day of the work week, Monday through Friday is very consistent with just 138 incidents difference in the five-year period between the slowest day, Wednesdays, and the busiest day, Monday (Figure IV-5). Surprisingly,

the weekends tended to have fewer calls with 162 fewer incidents on Saturdays than on Mondays, and another 108 fewer on Sundays than Saturdays and 270 less than Mondays. With the Brewster area being a vacation and tourist destination during the warm weather months it would be reasonable to expect the weekends to be busier.

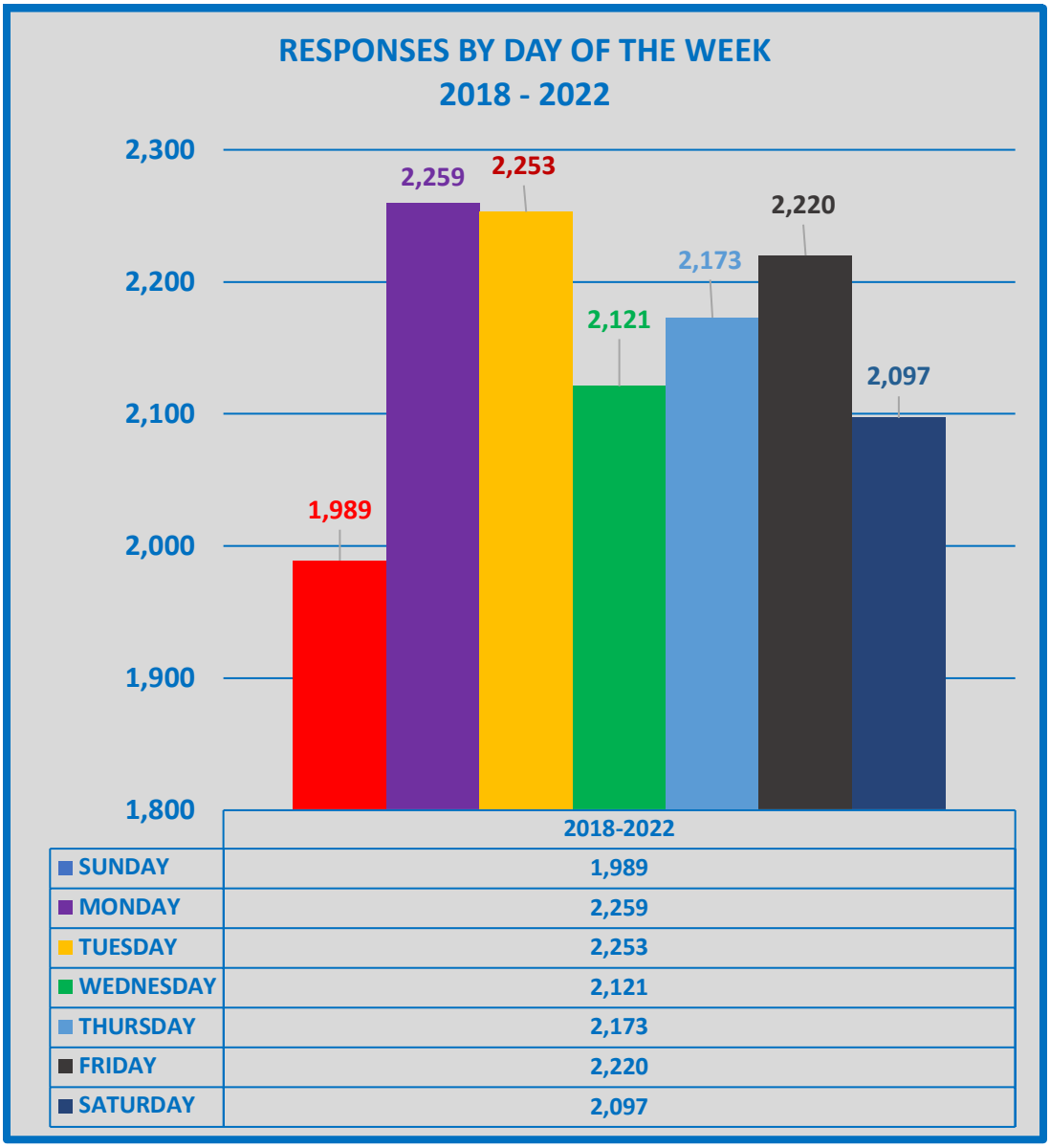
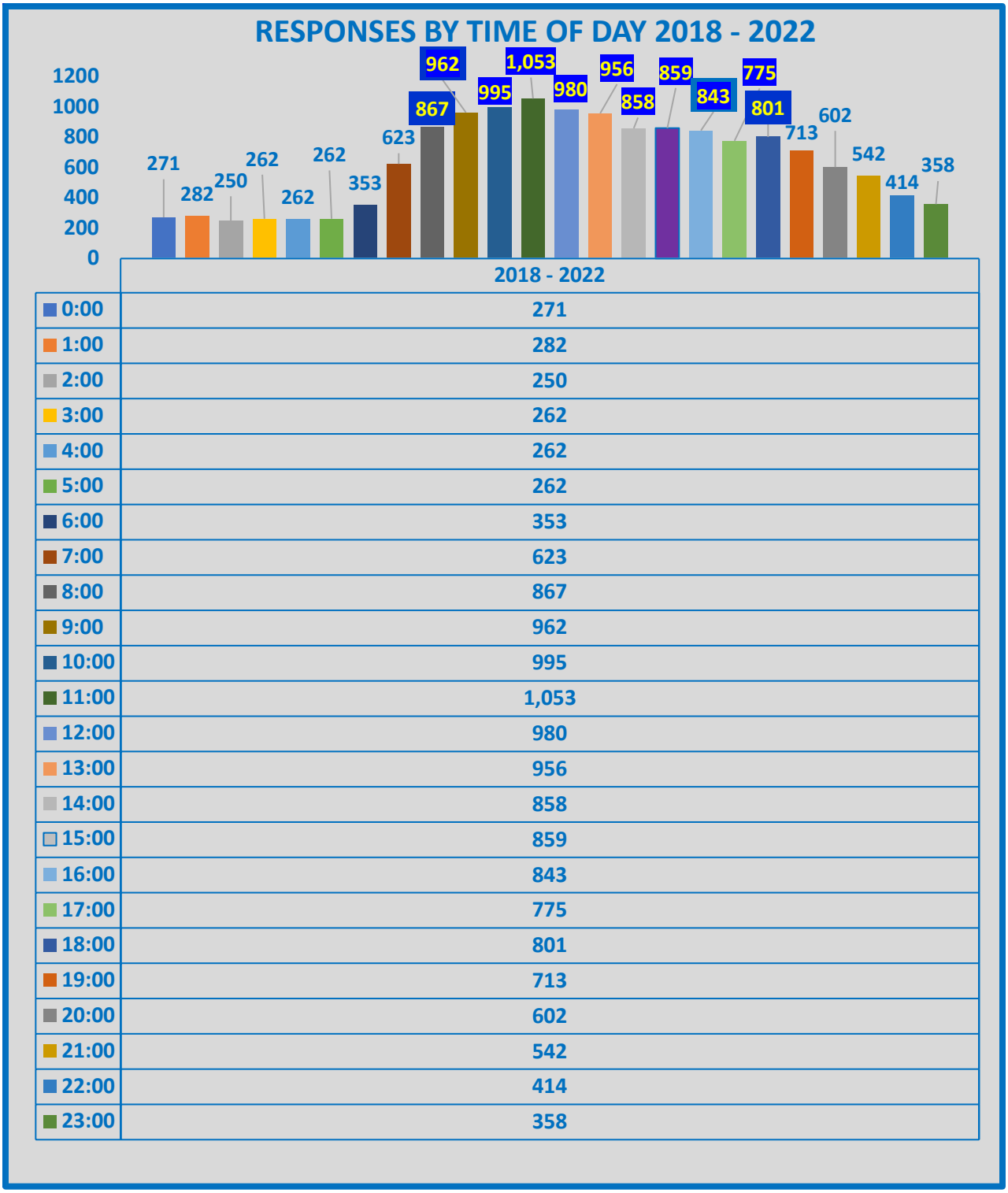


FIGURE IV-5: RESPONSES BY DAY OF THE WEEK 2018 - 2022

Incident activity rose and fell throughout the day depending upon the hour. The busiest hours of the day were between about 0800 hours and 1900 hours, with the height of activity occurring between 0900 hours and 1400 hours. (Figure IV-6).



	2018 - 2022
0:00	271
1:00	282
2:00	250
3:00	262
4:00	262
5:00	262
6:00	353
7:00	623
8:00	867
9:00	962
10:00	995
11:00	1,053
12:00	980
13:00	956
14:00	858
15:00	859
16:00	843
17:00	775
18:00	801
19:00	713
20:00	602
21:00	542
22:00	414
23:00	358

FIGURE IV-6: RESPONSES BY TIME-OF-DAY 2018 - 2022

One issue in Brewster, as with many communities, is either actual or anticipated call volume growth. The five-year incident trend analysis did not indicate a definitive trend, although in the last two years the numbers have increased each year as would be expected. indicating that incidents are generally on an upward trajectory. It is our belief that the decrease in incidents from 2019 to 2020 is an anomaly resulting from the COVID pandemic. Many other departments have experienced similar declines in responses. Overall experience shows, particularly considering some development is still occurring in the town, and with an older population, that call volume will continue to increase. Looking forward, if this growth in service demand continues, maintaining the current service level will only be possible if the level of resources dedicated to these services increase.

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

The MRI study team's evaluation found that the number of simultaneous, or overlapping incidents handled by the Brewster Fire Department is increasing and becoming a significant operational concern. This has added a stress factor to the department as the occurrence of multiple overlapping calls over the five-year period analyzed stands at 18.8%, or just under one in every five incidents. This means that 18.8% of the time the department is asked to answer not only one, but two, and occasionally three or more incidents at the same time with their resource set, and the assistance on off duty personnel, automatic, and mutual aid.

The number of simultaneous calls averages about 1.6 per day, and 48 per month over the five-year period. In three of the five years (2018, 2021, 2022), the number of simultaneous or overlapping calls exceeded 600 per year. This is a disturbing trend, particularly with Brewster currently staffed at a bare bones level. While it is not unusual – it is generally expected - to see total incident volume rise, the rate of simultaneous events indicates that the current resource set of the organization will be unable to maintain the current service level as this statistic expands toward 20% (in 2021 the number stood at 19.8% before deceasing slightly in 2022) and possibly beyond. Figure IV-7 illustrates the annual frequency of these events for the five-year period. Figure IV-8 shows the number of overlapped calls from by number of simultaneous/ overlapped incidents. These incident response metrics support the overall need to increase the human resources set provided to the department as will be discussed in detail in the *Staffing Critical Tasking, and Deployment* section later in this chapter of the report.

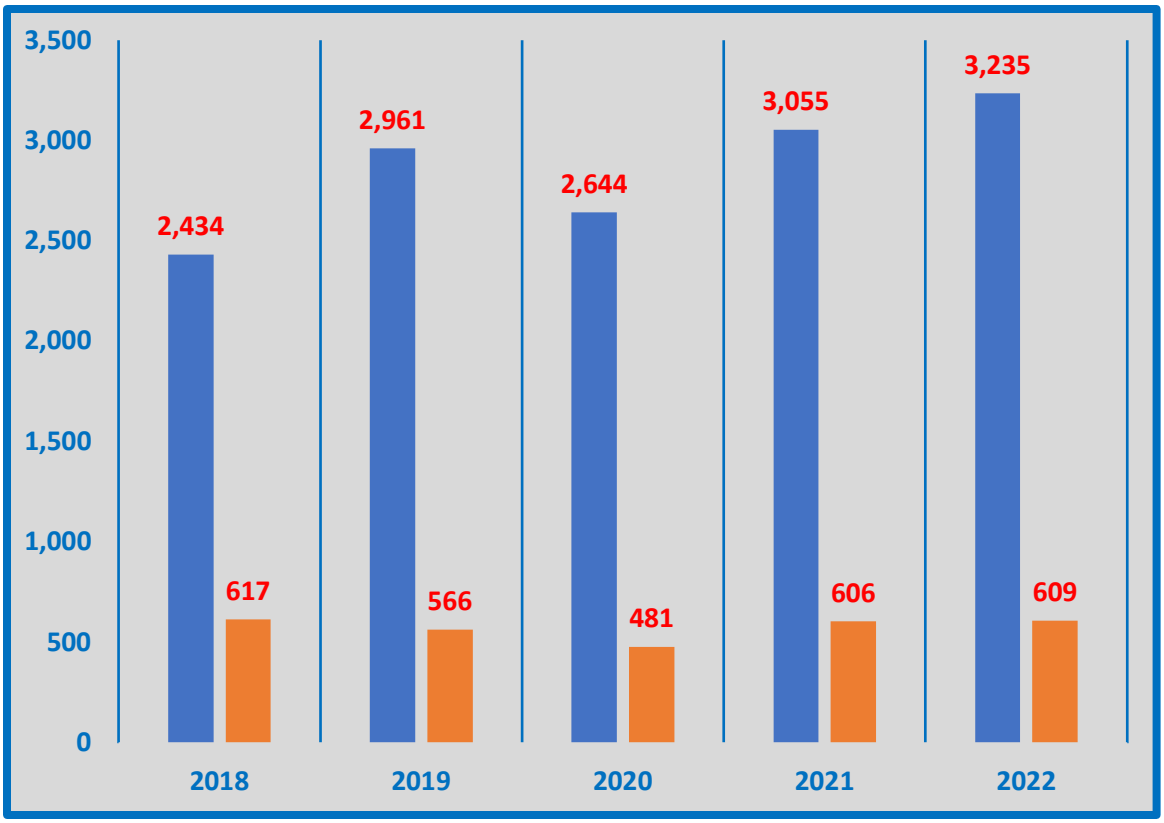


FIGURE IV-7: OVERLAPPING/SIMULTANEOUS INCIDENT VOLUME – 2018 - 2022

SIMULTANEOUS/OVERLAPPING INCIDENTS (2018-2022)					
Number of Simultaneous/ Overlapping Incidents	2018	2019	2020	2021	2022
2	437	404	369	434	459
3	121	119	88	132	105
4	33	25	17	27	29
5+	26	18	7	13	8

FIGURE IV-8: OVERLAPPING/SIMULTANEOUS INCIDENT VOLUME BY NUMBER OF CALLS – 2018 – 2022

FIRE OPERATIONS

Fire, rescue, and emergency medical system (EMS) incidents and the fire department's ability to respond to, manage, and mitigate them effectively, efficiently, and safely are mission-critical components of the emergency services delivery system. In fact, fire, rescue, and EMS operations provide the primary, and certainly most important basis for the very existence of the fire department. As with many fire departments today, the majority of responses are emergency medical service related. Improved building construction, code enforcement, automatic sprinkler systems, and aggressive public education programs have contributed to a decrease in serious fires in many communities and more importantly, fire deaths among civilians. However, while no longer generating the majority of most departments' responses as they once did, fire-related incidents are still justifiably an extremely high priority for the "fire" department and comprise a significant part of their operational missions.

These trends and improvements in the overall fire protection system notwithstanding, fires still do occur and the largest percentage of those occur in residential occupancies where they place the civilian population at risk. Although they occur with less frequency than they did several decades ago, when they occur today, they grow much quicker and burn more intensely than they did in the past. As will be discussed later in this report, it is imperative that the fire department is able to assemble an effective response force (ERF) within a reasonable time period in order to successfully mitigate these incidents with the least amount of loss possible.
NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public by Career Fire Departments*, 2020 edition (National Fire Protection Association, Quincy, MA) addresses the organization and deployment of fire suppression operations, emergency medical operations, and special operations to the public by career fire departments to protect citizens and the occupational safety and health of fire department employees. It is the benchmark standard that the United States Department of Homeland Security utilizes when evaluating applications for staffing grants under the Staffing for Adequate Fire and Emergency Response (SAFER) grant program. The ability to get a sufficient number of personnel, along with appropriate apparatus, to the scene of a structure fire is critical to operational success and firefighter safety. Accomplishing this within the 8-minute time frame specified in NFPA 1710 is an important operational benchmark.

In addition to structural firefighting and emergency medical services, the fire department is tasked with responding to and managing a broad spectrum of other types of emergencies, including, but not limited to, vehicle crashes, building collapse, water and ice rescue, mass casualty incidents, weather-related emergencies, and natural and technological disasters. These types of incidents require specialized equipment and specialized training. In all types of emergency responses, an incident command system (ICS) should be utilized that conforms to the National Incident Management System (NIMS) guidelines that have been promulgated by the

U.S. Department of Homeland Security. Since safety is the primary focus throughout all operations, a formal component of the ICS program includes the consistent assignment of an on-scene safety officer when appropriate.

The strategic and tactical challenges that the various hazards the department protects need to be identified and planned for through a community risk analysis planning and management process. The community risk and vulnerability assessment evaluates the community as a whole, and regarding property, measures all property and the risks associated with that property, and then segregates the property as either a high-, medium-, or low-hazard, which are further broken down into varying degrees of risk. *Community Risk Assessment* was discussed in detail in Chapter III. The development of a community risk and vulnerability assessment should drive many of the key decisions associated with the deployment of resources for fire and medical emergencies.

The Brewster Fire Department is equipped and staffed to respond to a wide variety of emergency incidents. Although EMS calls are more prevalent, the department must still be prepared to fulfill its core firefighting mission. As with most communities in the United States, the primary focus of firefighting operations is on fires in residential occupancies (single- and two-family dwellings, multi-family units) due to the high potential for loss of life. Until residential fire sprinkler systems become commonplace as a critical lifesaving feature in homes, the fire department will continue to be the only "front-line" resource available for firefighting and rescue. The fire codes in the Commonwealth of Massachusetts do not require residential sprinklers and do not allow communities to mandate them through local codes or ordinances.

Structural firefighting has become far more challenging and dangerous in the last thirty years with the introduction of significant quantities of plastic and foam-based products into homes and businesses (*e.g.*, furnishings, mattresses, bedding, plumbing, electrical components, home and business electronics, decorative materials, insulation, and structural components). These materials ignite, burn quickly, and produce extreme heat and toxic smoke. A fire can easily double in size and intensity every 30 seconds. If firefighters cannot arrive in a timely manner and attack the fire quickly, a strong possibility exists that a dangerous flashover (simultaneous ignition of all combustible materials in a room) will occur. Flashover can occur in as little as five to seven minutes after fire ignition and is one of the most dangerous events that a firefighter can face. When a flashover occurs, initial firefighting forces are generally overwhelmed and will require significantly more resources to affect fire control and extinguishment.

Flashover occurs quicker and more frequently today and is caused at least in part by the introduction of significant quantities of plastic- and foam-based products into homes and businesses (e.g., furnishings, mattresses, bedding, plumbing and electrical components, home and business electronics, decorative materials, insulation, and structural components). These materials ignite and burn quickly and produce extreme heat and toxic smoke.

Figure IV-9 illustrates the time progression of a fire from inception through flashover. The time versus products of combustion curve shows activation times and effectiveness of residential sprinklers (approximately one minute), commercial sprinklers (four minutes), flashover (eight to ten minutes), and firefighters applying first water to the fire after notification, dispatch, response, and set up (ten minutes). It also illustrates that the fire department's response time to the fire is one of the only aspects of the timeline that the fire department can exert direct control over. It is also important to keep in mind that once units arrive on the scene, they will need to get set up to commence operations. NFPA recommends that units be able to commence an initial attack within two minutes of arrival, 90% of the time.

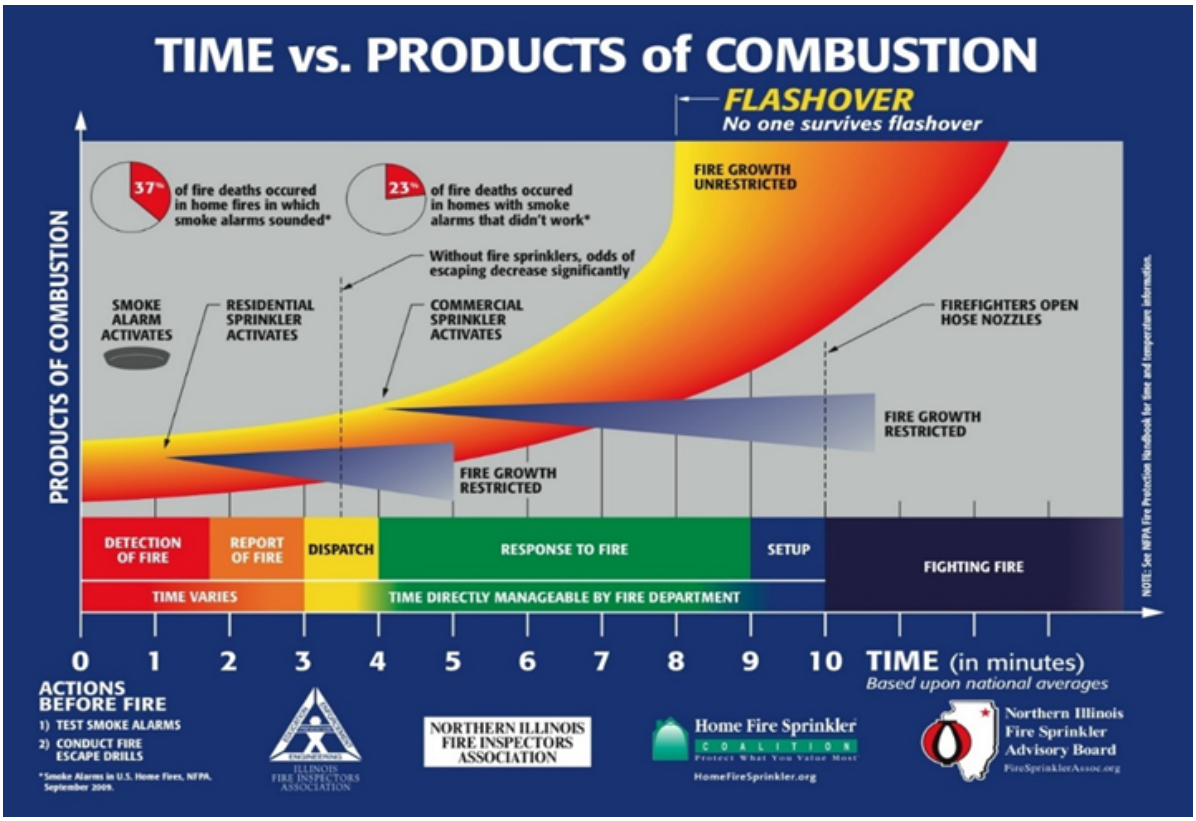


FIGURE IV-9:
HOME FIRE TIMELINE CURVE SHOWING ACTIVATION TIMES AND EFFECTIVENESS OF RESIDENTIAL SPRINKLERS (APPROXIMATELY 1 MINUTE), FLASHOVER (3 TO 5 MINUTES) AND FIREFIGHTERS APPLYING FIRST WATER TO THE FIRE AFTER NOTIFICATION, DISPATCH, RESPONSE, AND SET UP (10 MINUTES).
Image credit: Home Fire Sprinkler Coalition

The Brewster Fire Department is dispatched by, and emergency communications are handled by, the Brewster County Sheriff's Office (BCSO) Department Regional Emergency Communications Center (RECC) which is located at Joint Base Cape Cod. The BCSO RECC handles emergency

dispatch for nine communities and coordinates regional mutual aid operations throughout Cape Cod.

Response time data that was provided to the MRI study team by the Brewster Fire Department only reflects the time from when the Department received the call. It does not reflect the alarm processing or dispatch time at the BCSO RECC. The dispatch center dispatches the station as a whole, and not individual apparatus. In addition, the times reflected the total time from when the department received the call until the first unit arrived on the scene. It did not break these times out into turnout time, and travel time components. It appears when the apparatus signs on, the dispatch center is then recording dispatched and responding times simultaneously. Finally, for fire calls, the first arriving unit could be an ambulance or chief officer, not necessarily a fire suppression unit. As a result, especially with the department operating from a single station with no options to really change the response times we opted not to utilize the data since its benefit would be limited.

Interviews that were conducted by the MRI project team revealed that the Department appears well versed in the use of the National Incident Management System (NIMS) and works well with multiple agencies to provide effective and efficient emergency response services to the community. Through discussions with the department's officers, it appears that though the department has adopted, and is trained, and is aware and understands the importance of using an Incident Command System (ICS), it is often difficult to implement it initially on every incident because of limited staffing.

One of the most effective tools the fire department has to assist them with handling fires and other emergencies in multi-family residential complexes and commercial facilities, are pre-fire plans. The purpose of a fire pre-planning program is to allow firefighters to become familiar with buildings and/or facilities within their response area prior to an emergency, alert them to on-site hazards and risks, and develop a detailed fire response plan for them that includes specific tactics that will be required to mitigate fires or other emergencies. A comprehensive pre-fire plan includes as much data about the building as possible.

The information contained in pre-fire/incident plans allow firefighters and officers to have a familiarity with the building/facility, its features, characteristics, operations, and hazards, thus enabling them to more effectively, efficiently, and safely, conduct firefighting and other emergency operations. Pre-fire plans should be reviewed and updated regularly. They should be tested and validated by table-top exercises and on-site drills. Lack of an up-to-date pre-fire plan is often attributed to being one of the primary contributing factors in large fire losses.

It was reported to MRI that the Brewster Fire Department has done limited pre-planning on some of the target hazards in the town (there are only a limited number of commercial occupancies). To derive maximum benefit from the pre-fire plans, the department should make pre-fire plans

accessible on mobile data terminals (MDTs) (notebook/laptop computers) on fire apparatus, and in the command vehicle(s) for use in-route to an incident, and while on-scene. The information can also be sent to smart phones. With a cloud-based system all the information would be available in real time.

Performance improvement for fire suppression will become even more important in the coming years as the fire department command structure evolves from being a group with significant firefighting experience, to a group with stronger EMS experience. Major fire incidents continue to decline because of better fire prevention and building code compliance, the advent of advanced fire detection and suppression systems, and fire-retardant building components and contents. As a result, the fire service will be challenged in the future to maintain the necessary skill sets to properly command and control major fire incidents. Training and performance improvement strategies must be aggressively enhanced in anticipation of this paradigm shift in fire department capabilities and experience.

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

The Department recently purchased the SOG/Policy software system Lexipol. At the time of this study the Chief and Deputy Chief have been meeting with the reps from Lexipol to get the program implemented. In the near future, they will begin a process including department members to modify, develop, and implement, existing and new SOGs and policies into this state of the art, cloud-based system. The chiefs believe that once fully implemented this program will significantly increase operation effectiveness, as well as improve the department's SOGs and policies.

Brewster Fire Department staffing for fire operations will be further discussed later in this chapter in the section on *Staffing, Critical Tasking, and Deployment*.

EMS OPERATIONS

Emergency Medical Services (EMS) operations are an important component of the comprehensive emergency services delivery system in any community. Together with the delivery of police and fire services, it forms the backbone of the community's overall public safety life net. As noted in several chapters of this report, the Brewster Fire Department like many, if not most fire departments, responds to significantly more emergency medical incidents than actual fires, or other types of emergency incidents.

As a percentage of overall incidents responded to, it could be argued that EMS incidents constitute the greatest number of "true" emergencies, where intervention by trained personnel truly makes a difference, sometimes literally between life and death. Heart attack and stroke victims require rapid intervention, care, and transport to a medical facility (Figure IV-10). The longer the time duration without care, the less likely the patient is to fully recover. Numerous studies have shown that irreversible brain damage can occur if the brain is deprived of oxygen for more than four minutes. In addition, the potential for successful resuscitation during cardiac arrest decreases exponentially with each passing minute that cardio-pulmonary resuscitation (CPR), or cardiac defibrillation, is delayed.

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

- Few attempts at resuscitation after 10 minutes are successful.

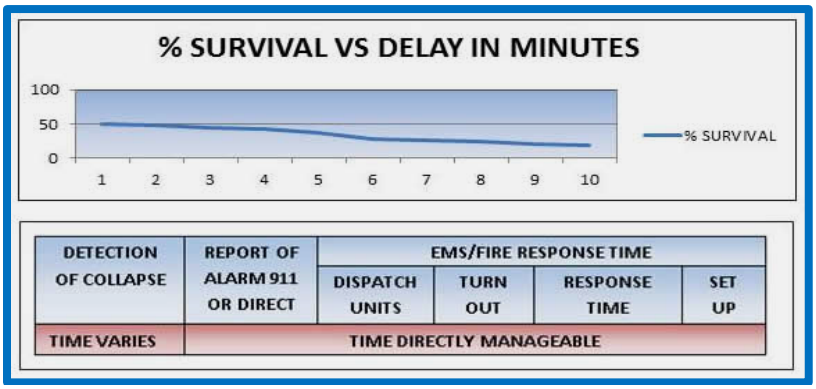


FIGURE IV-10: CARDIAC ARREST SURVIVAL TIMELINE

The EMS component of the emergency services delivery system is more heavily regulated than the fire side. In addition to NFPA 1710, NFPA 450 *Guidelines for Emergency Medical Services (EMS) and Systems*, (2009 edition), provides a template for local stakeholders to evaluate an EMS system and to make improvements based on that evaluation. The Commission on Accreditation of Ambulance Services (CAAS)[16] also establishes benchmarks for EMS operations, however, their focus is primarily on ambulance response times which is not a component of this analysis. Massachusetts regulates EMS agencies, and certain federal Medicare regulations are also applicable.

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

Typically, less than 10% of 9-1-1 patients have time-sensitive ALS needs. However, for those patients who do, time can be a critical issue of morbidity and mortality. For the remainder of those calling 9-1-1 for a medical emergency, though they may not have a medical necessity, this ninety percent, still expects rapid customer service. Response times for patients and their families are often the most important issue regarding the use of the fire department's services and are what is most often referred to when they "rate" their local emergency responders. Regardless of the service delivery model, appropriate response times are more than a clinical issue; they are also a customer service issue.

Emergency medical services (EMS) for the Town of Brewster are provided at the advanced life support (ALS)/paramedic level by the Brewster Fire Department. Advanced life support or ALS-level care refers to prehospital interventions that can be brought into the field by paramedics. Typically, this service level includes the ability to bring much of the emergency room capability to the patient. Paramedics can administer intravenous fluids, manage a patient's airway, provide drug therapy, utilize the full capabilities of a 12-lead cardiac monitor, and provide a vital communication link to the medical control physician who can provide specific medical direction based on the situation.

Primary EMS ambulance transport services to the Town are also provided by the Brewster Fire Department. The department can staff either one or two ambulances depending upon the time of day and staffing levels. It operates under a license from the Massachusetts Office of Emergency Medical Services (OEMS) which designates the service as ALS level with ambulances staffed with one EMT and one paramedic.

The citizens of Brewster benefit greatly by having firefighters provide emergency medical services at the advanced life support (ALS) level. This is an efficient use of personnel resources since approximately 74.7% of all emergency calls are for EMS incidents. This is somewhat higher than the national average as reported by the US Fire Administration (64%) and the National Fire Protection Association (65%). Additionally, Brewster's EMS revenue from insurers, Medicaid/Medicare, and direct patient billing provides a significant offset to fire-rescue department operating and capital expenses.

As is the common practice on Cape Cod, the Brewster Fire Department normally staffs their first out ambulance with three personnel, regardless of the severity of the incident. If shift staffing is at four personnel, the captain will also response in an SUV to supervise and assist. If staffing is at five, the two additional personnel may respond in a second ambulance to assist. These procedures effectively place the fire suppression function out of service until personnel who have been recalled on overtime report to the station for back-up (for a number of reasons, often no one responds back to the station for these recalls, particularly when there are multiple in the same day). When needed, the second ambulance is usually staffed with two personnel. The MRI study team was advised that the department will occasionally send only two personnel to the

hospital, depending upon the severity of the patient's condition; however, this is an exception rather than the normal practice.

The rationale for this procedure is that these additional personnel help the ambulance crew with medical care, carrying equipment, lifting patients, and driving the ambulance to the hospital when the ambulance crew, particularly the paramedic(s) are committed to the care of critically ill patients. Medical calls are generally classified from Alpha (minor/least severe) to Echo (life threatening/most severe). On Cape Cod EMS calls are categorized Priority 1 (most serious) to Priority 3 (non-life threatening). Certain assist type calls are categorized Priority 4. In many locations (not necessarily New England) normal procedures send only an ambulance, with two personnel, to the minor nature, Alpha and Bravo calls, or Priority 3 level calls unless the arrival of an ambulance will be delayed (Figure IV-11).

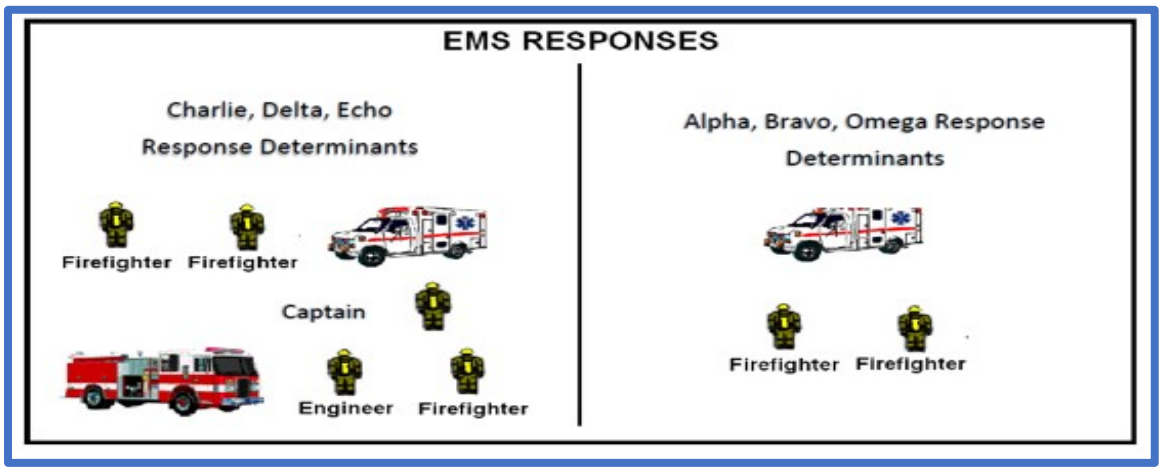


FIGURE IV-11: EMS RESPONSE MATRIX
Note: Priority 1 & 2 equates to Charlie, Delta, and Echo response determinants while Priority 3 calls equate to Alpha and Bravo level response determinants.

Dispatching an engine company also to Priority 1 and 2 calls is a best practice that ensures that sufficient personnel are on-scene to provide critical care to seriously ill or injured patients. The firefighter-paramedics assigned to the ambulance can focus on direct patient care, while other personnel are responsible for incident command, scene safety, delivering and setting up equipment, and lifting and carrying the patient(s). An engine company is requested for Priority 3 calls when the ambulance response is delayed, personnel is needed for lifting and carrying a patient, forcible entry to a residence or vehicle is required, or when the condition of the patient is found to be more serious than the initial dispatch assessment. This is illustrated in the following graphic:

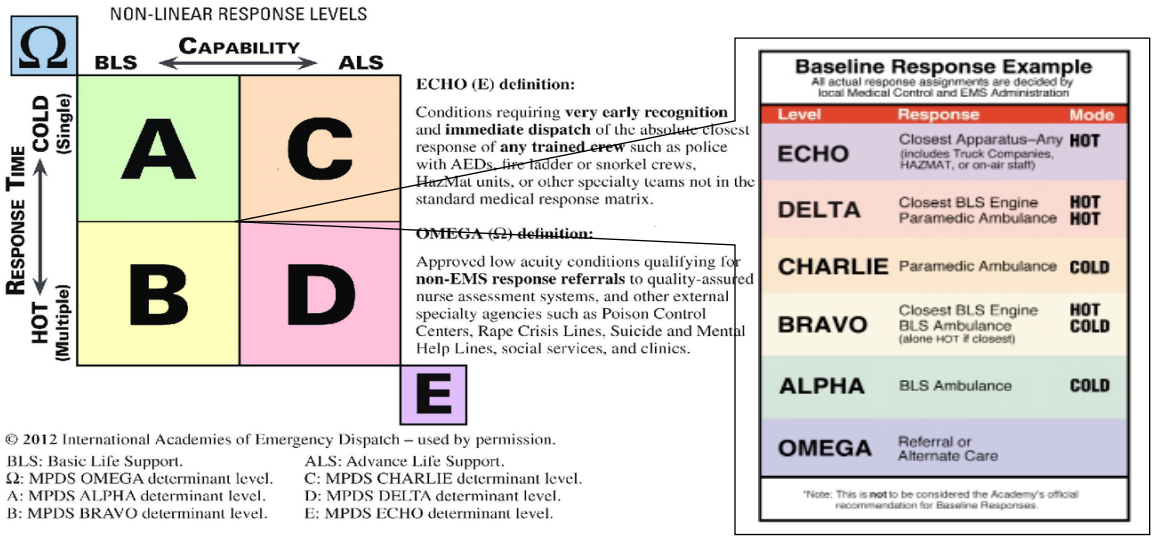


FIGURE IV-12: TYPICAL EMS RESPONSE MATRIX/ALGORITHM

While we acknowledge that changing this procedure is likely to be met with resistance, we believe the Brewster Fire Department should consider revising this procedure. The number of incidents is increasing each year, and a significant percentage of these incidents are resulting in overlapping calls. In addition, in large part due to the change in procedure that temporarily reduced nighttime staffing to four personnel to assist with reducing overtime and related personnel fatigue, staffing challenges related to simultaneous calls are going to be even more pronounced. To that end, the MRI study team suggests the following revision to the current EMS response procedures and with the current staffing levels:

- When staffing is at five personnel:
  - Two personnel respond on the ambulance to Alpha and Bravo, or Priority 3 calls. The three personnel remaining are now available for fire duty, or can handle a second ambulance call, if necessary. If they require additional assistance, they can request the engine to respond.
  - Two personnel respond on the ambulance and three personnel respond on the engine to Charlie, Delta, and Echo, or Priority 1 and 2 calls. If an additional person is needed on the ambulance they can be sent to the hospital with the ambulance crew. The two other personnel can return to station with the engine and handle a second call without the need to recall off duty personnel.
    - An alternative would be to call just one person back to work to bring staffing back up to three personnel.

- When staffing is at four personnel:

  - Two personnel respond on the ambulance to Alpha and Bravo, or Priority 3 calls. If they require additional assistance, they can request the engine to respond. The remaining two personnel are still available for limited fire duty, until one or two off duty personnel arrive at the station, or they can handle a second ambulance call.

  - Two personnel respond on the ambulance and two personnel respond on the engine to Charlie, Delta, and Echo, or Priority 1 and 2 calls. If an additional person is needed on the ambulance they can be sent to the hospital with the ambulance crew. If only two personnel are needed on the ambulance, the other two person can return to station with the engine and handle a second ambulance call without the need to recall off duty personnel.

    - An alternative would be to call just one person back to work to bring staffing back up to three personnel.

In either scenario suggested above, the current practice of recalling off duty personnel to provide coverage when the ambulance transports to the hospital should be continued. However, there would be less of a reliance on it as revising the staffing model should reduce the number of times the Town is stripped of all fire and EMS protection.

Following current department practice, the ambulance responds with lights and sirens to every call. Though a medical priority dispatch system is in place that would allow for potential non-emergency response to occur without lights, sirens and within normal traffic flow, there are no protocols or procedures to do so. The MRI team was told that most often all transports with patients to the hospital is done with lights and sirens in order to get to the hospital as quickly as possible. This is not only done in order to get the patient to the hospital in a timely manner, but also to expedite the time that the ambulance is out of service and unable to respond to another call. These practices are being phased out by most progressive fire departments for safety reasons. It is safer for responding personnel, general citizens, and the patient, to reduce the number of times that red lights and sirens are utilized.

Conversely, ambulance turn-around time is an important staffing factor to consider since it affects the availability of personnel and equipment for other emergencies. This is the time an ambulance is occupied on a medical emergency starting with the time the call is received; and ending after the transport, when the ambulance is back in Brewster and available for emergency calls. This is time that is particularly important when the hospital is a significant distance from the Town, and personnel often encounter heavy traffic conditions to and from its location in

Hyannis. The turn-around time for Brewster ambulances averages between 60 and 70 minutes, however, they can be as high as two hours, twenty-one minutes (02:21:53). Higher turnaround times can be the result of lengthy on-scene care (*e.g.*, extrication from a motor vehicle crash), longer travel times to or from an incident, or patient admission delays at a hospital. As was discussed previously, the total number of calls is the primary reason for simultaneous incidents, however ambulance hospital transport turn-around times certainly contribute to the impact of the overlapping call rate.

The following figure illustrates the number of EMS calls, number of ALS and BLS transports, and the average ambulance turnaround time for the five years period of 2018 – 2022.

Year	EMS Responses	ALS Transports	BLS Transports	Average Turn-around Time	Total Annual Turn-around Time
2018	2,476	1,128	454	70.15 minutes	1,849.6 hours
2019	2,185	1,003	332	70.05 minutes	1,558.6 hours
2020	1,997	885	357	66.75 minutes	1,381.7 hours
2021	2,272	1,053	441	63.95 minutes	1,592.4 hours
2022	2,523	1,024	461	60.85 minutes	1.506.0 hours
5-year average	**2,291**	**1,019**	**409**	**66.35 minutes**	**1,577.7 hours**

FIGURE IV-13. EMS TURN-AROUND TIME

The data in the above figure indicates several things.

- The proportion of ALS level transports to BLS levels transports is much higher than we normally see. In fact, it is really the inverse of what data sets we analyze usually illustrate. Over the five-year period, BLS transports accounted for just 28.6% of the Department's EMS transports, while ALS transports accounted for 71.4%. Long term, statistical data indicates that ALS criterion incidents usually account for about 30% to 35% of EMS responses. Given Brewster's higher than average older population, a somewhat higher percentage of ALS could be reasonably expected; however, we don't believe it would reach the proportions indicated in this data.

- The ambulance turn-around times have improved steadily over the five-year period and show a total reduction of over nine minutes. The expansion of the emergency department facilities at Cape Cod Hospital in Hyannis has probably played at least some role in this reduction.
- Given an estimated average ambulance turn-around time of 66.35 minutes (annual maximum time: 02:06:23 – 02:21:53) and a 5-year average annual ambulance transport total of 1,428 transports; Brewster ambulances are occupied on EMS transport calls for

approximately 1,577.7 hours annually. This represents an average of 4.3 hours per 24-hour shift. Many of these calls come in during the busier daylight hours contributing to the high percentage of overlapping calls.

The data relative to the number of total incidents, number of EMS transports, and the time dedicated to EMS calls supports the need for the fire department to staff two (2) ambulances 24/7 while still maintaining a simultaneous fire response capability. The benefits of increasing staffing and the number of resources deployed include:

- Significantly reduce the number of times when the Town is without ambulance coverage due to simultaneous fire and/or EMS calls.
- Significantly reduce the number of times when the Town is without adequate fire coverage due to simultaneous fire and/or EMS calls.
- Provide additional fire staffing commensurate with the risk.
- Increase ambulance revenues by reducing the number of times that a mutual aid EMS service is called to provide ambulance transport services.

To accomplish this goal, the Department's staffing should be incrementally increased with the hiring of additional personnel over the next several budget cycles. This in combination with the supervisory staffing changes is recommended later in this report.

Overall, the EMS operations appear to be well run, and the Town is happy with the service that is being provided. There is also reported to be a low level of system abuse in Brewster which reduces the number of unnecessary responses and contributes to better resource availability for actual medical emergencies.

All Brewster Fire Department personnel possess a minimum of emergency medical technician-basic (EMT-B) certification. At the time of this study, 11 of the department's personnel, including the Deputy Chief possessed paramedic certification. There are a minimum of two paramedics assigned to each shift, with a minimum of one on duty at all times.

One question that the MRI study team is often asked to provide an opinion on was what the recommended mix of ALS versus BLS trained personnel should be in a particular Fire Department. At the time of this study approximately 50% of the Brewster Fire Department's personnel possessed ALS/paramedic certification. Several stakeholders informed the study team that they would like to eventually see all department personnel required to be paramedics. Ultimately, with the majority of incidents the department responds to being EMS related, having all personnel trained and certified at the ALS level allows the highest level of care to be always available, and on every incident. However, there can be several caveats to that Initial answer.

The Brewster Fire Department is a small organization with a relatively low call volume, averaging about 8.4 calls per day, of which 73% are EMS related. If 50% of the EMS calls are ALS criterion calls (which is higher than the typical average) that equates to about four ALS calls per day. One of the concerns that are expressed by some within the EMS community is the difficulty in keeping the ALS skills of personnel sharp when they have only limited opportunities to utilize them. In addition, there is a significant cost factor associated with initial ALS training for personnel, frequent continuing education classes necessary to maintain certification, and a significant pay differential for those who are certified. Finally, many fire department personnel prefer not to be paramedics and a significant number choose to allow their certifications to lapse once they are no longer mandated to maintain them, so they can get off of the ambulance.

It is MRI's opinion that the Brewster Fire Department would not be unreasonable if it decided to attempt, long term, to have all personnel certified as paramedics, by requiring all future hires to either possess, or obtain and maintain paramedic certification as a condition of employment. However, we believe a better option would be to maintain around 12-16 paramedics and attempt to have a minimum of three on duty at all times. By increasing the number of paramedics on duty at all times, one could be assigned to the primary ambulance as is done now, while a second one is assigned to the second ambulance, while the third one is assigned to the engine, thus providing both of those units with ALS capability resulting in an increased level of service. If additional personnel wanted to maintain their ALS certifications, the department should attempt to accommodate them and encourage them to do so.

With the majority of the Department's responses being EMS related, the MRI study team believes that the Town of Brewster should consider making an organizational change by redefining the position of EMS Officer into a full time position. The EMS Officer would handle the day to day oversight of the department's EMS functions including QA, personnel training and certification, infection control, managing inventory and drugs, attending meetings, and serving on committes. The officer should work a daywork schedule providing an additional member available for response during the day. We believe that making this change will result in more effective and efficient emergency medical service delivery by the department.

It is MRI's experience that when department's create these positions that they are normally designated at an officer's rank, and as such, are tested for (although in some places even though the position has rank, they are designated as a 'staff" officer with no real fireground authority). Other departments designate the EMS coordinator with just that title but compensate them at an officer's pay grade, in this case as a Captain (the same as the Fire Prevention Officer). The current CBA designates the "EMS Officer" as receiving a stipend over their base pay, however, that assumes that the person filling the position remains on their assigned shift.

While we understand this would also need to be impact bargained with the union (as any change needs to be) it is our opinion that this position would be best designated as a Captain's position

within the Brewster Fire Department, reporting directly to the Deputy Fire Chief. Doing this would help to emphasis the importance of the department's EMS mission, allow the EMS coordinator to have an equal peer relationship with the other Captains, and allow for the implementation of more department wide continuity of EMS operations.

One thing the fire department will need to monitor very closely are any impacts of the ongoing debates over funding the Affordable Care Act (ACA) may have on their billing and revenues. Over the past several years with the changes in insurance reimbursements brought about by the ACA, a growing number of EMS providers are looking to get out of the ALS business. Increasingly, private insurance companies and the government have reduced (or are considering reductions in) reimbursement rates, and are becoming more reluctant in general, to compensate departments for the full cost of emergency room transportation fees, especially for non-emergency treatment. Communities that provide EMS transport services are therefore facing pressure on their transport revenues.

One of the fastest growing value-added service enhancements in EMS is the development of Mobile Integrated Healthcare/Community Paramedicine (MIH/CP) programs. Mobile Integrated Healthcare is defined by the National Association of EMTs (NAEMT) as ***"the provision of healthcare using patient-centered, mobile resources in the out of hospital environment."***

MIH/CP is comprised of a suite of potential services that EMS could provide to fill gaps in the local healthcare delivery system. In essence, MIH/CP is intended to better manage the increasing EMS call volume and better align the types of care being provided with the needs of the patient. To be effective, MIH/CP is commonly accomplished through a collaborative approach with healthcare and social service agencies within the community. It can be provided through community paramedicine programs, which are programs that use EMTs and paramedics to provide this out-of-hospital health care. MIH/CP programs help facilitate more appropriate uses of emergency care resources and enhance access to primary care, particularly for underserved populations, by focusing on chronic disease management, post-discharge follow up, and transport to non-emergency care settings.

The benefits of MIH/CP are therefore two-fold. These programs potentially help provide more appropriate health care to community residents, and if reimbursement arrangements can be agreed upon, also offer a substitute funding stream, separate from emergency transport, for community-based EMS transport programs.

In 2009 there were four programs like this in the country, but a recent survey by the National Association of EMTs identified more than 250 active MIH/CP programs now operating across the U.S.[17]

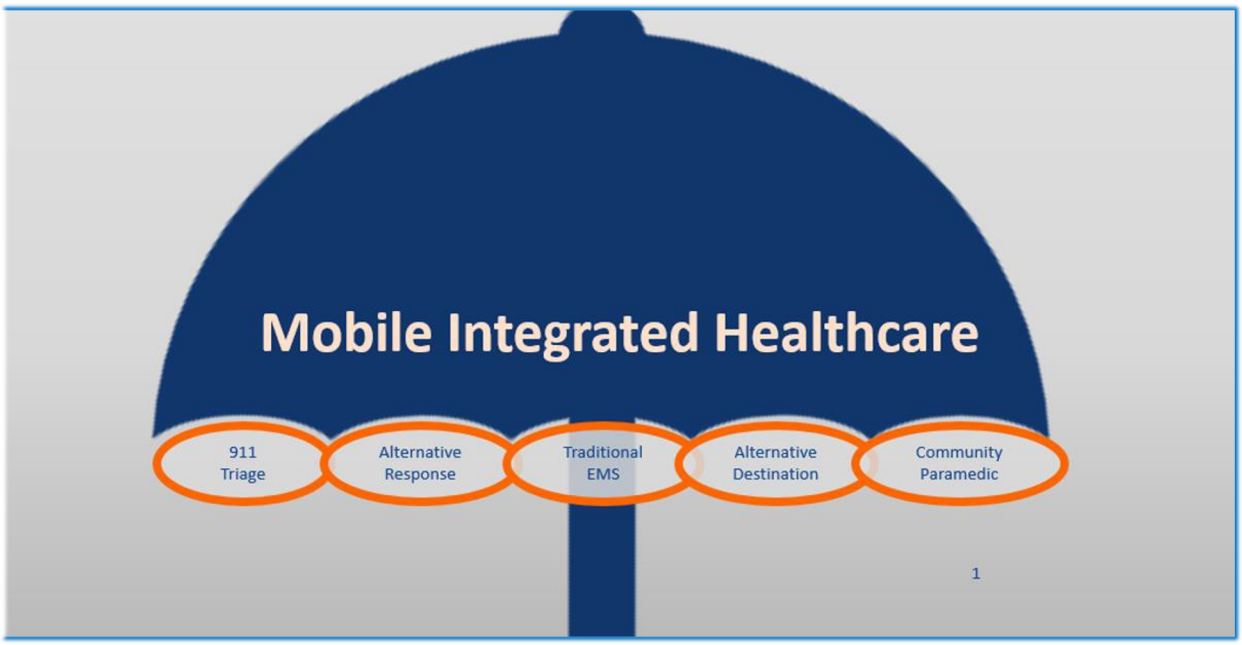


FIGURE IV-14: MOBILE INTERGRATED HEALTHCARE/COMMUNITY PARAMEDICINE BENEFITS

A consideration for a potential role for an MIH/CP program in Brewster could include a specialized response for behavioral health emergencies, in partnership with the Brewster Police Department and community mental health resources. Sometimes referred to as a Crisis Intervention Team (CIT), specialized units such as these have been effective in other communities across the country to reduce the risks associated with behavioral health-related responses.[18]

There may be government funds available for implementation of these types of programs, and some recent changes to the Medicare regulations indicate a possibly favorable view on billing for these services. The Foxborough Fire Department obtained a grant to implement this type of program effective as of July 1, 2019. With the addition of a new full-time paramedic who was designated a special agent of the board of health, the department implemented a community/public health program to address these types of needs within the town**.** It is MRI's belief that a program of this type in Brewster – particularly with its high percentage of residents over the age of 65 - would improve both levels of service offered to the community and EMS revenues generated. This could be another potential duty for the EMS officer to undertake.

17. http://www.naemt.org/docs/default-source/2017-publication-docs/mih-cp-survey-2018-04-12-2018-web-links-1.pdf?Status=Temp&sfvrsn=a741cb92_2
18. https://www.psychiatrictimes.com/view/cahoots-model-prehospital-mental-health-crisis-intervention

STAFFING, CRITICAL TASKING, AND DEPLOYMENT

The issue of fire department staffing has, over the past three or four decades, become one of the most widely and frequently debated topics in fire service history. This debate has intensified over the past several years as tax collection revenues have declined precipitously in many communities and governmental entities seek to reduce expenses.

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

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

There has been much research done by a number of fire departments on the effects of various staffing levels. One constant that has emerged is that company efficiency and effectiveness decrease substantially, while injuries increase, when company/unit staffing falls below four personnel. A 2010 comprehensive yet scientifically conducted, verified, and validated study titled *Multi-Phase Study on Firefighter Safety and the Deployment of Resources,* was performed by the National Institute of Standards and Technology (NIST) and Worcester Polytechnic Institute (WPI), in conjunction with the International Association of Fire Chiefs (IAFC), the International Association of Fire Fighters, and the Center for Public Safety Excellence. This landmark study researched residential fires, where the majority of fire, injuries, and fatalities occur. ***The study concluded that the size of firefighter crews has a substantial effect on the Fire Department's ability to protect lives and property in residential fires and occupancies.***

Several key findings of the study include:

- Four-person firefighting crews were able to complete 22 essential firefighting and rescue tasks in a typical residential structure 30% faster than 2-person crews, and 25% faster than 3-person crews.

- The 4-person crews were able to deliver water to a similar sized fire 15% faster than the 2-person crews, and 6% faster than 3-person crews, steps that help to reduce property damage and reduce danger/risks to firefighters.

- Four-person crews were able to complete critical search and rescue operations 30% faster than 2-person crews, and 5% faster than 3-person crews.

The United State Fire Administration, part of the Federal Emergency Management Agency, in the Department of Homeland Security, recommends that a minimum of four firefighters respond on or with each apparatus. In its respected textbook *Managing Fire Services,* the International City/County Management Association (ICMA) states, *"that at least 4 and often 8 or more firefighters under the supervision of an officer should respond to fire suppression operations"*. They further state, *"If about 16 firefighters are not operating at the scene of a working fire, within the critical time period, then dollar loss and injuries are significantly increased, as is fire spread"*. Many communities continue to struggle to generate a sufficient response.

The current career staffing pattern In the Brewster Fire Department consists of four work groups that work an average of 42 hours per week. These groups work rotating 24-hour shifts. This schedule provides the community with 24/7 coverage. Presently, each shift is staffed with a captain (shift commander) and four firefighters. The five personnel on shift are supported by the following additional personnel resources:

- Two command officers (fire chief and deputy chief) that work an administrative schedule and provide an on-call command officer when off duty.
- One Fire Prevention Officer.
- Automatic/mutual aid from surrounding communities

The MRI study team was informed that the department does not generally have a sick or injury leave problem. It had $444,700 budgeted for overtime in a FY 2023 which is high for a department the size of Brewster. The department ended up spending $562,956, which is 32.5% more than what was budgeted. This is due in large part to not only the Department's constant staffing model where every vacancy created by any type of leave must be filled by another member on overtime, but also to the department's difficulty retaining personnel.

To effectively respond to and mitigate requests for emergency services, an agency must have a thorough understanding of its community's risk factors, both fire and EMS. Once identified and understood, each category or level of risk is associated with the necessary resources and actions required to mitigate it. This is accomplished through a critical task analysis. The exercise of

matching operational asset deployments to risk, or critical tasking, considers multiple factors including national standards, performance measures, and the safety of responders.

Critical tasks are those activities that must be conducted in a timely manner by responders at emergency incidents to control the situation and stop loss. Critical tasking for fire operations is the minimum number of personnel needed to perform the tasks required to effectively control a fire. The same is true for EMS as there are specific patient care tasks that must be completed in succession and often together to support positive prehospital care. The specific number of people required to perform all the critical tasks associated with an identified risk is referred to as an ***Effective Response Force*** (ERF). The goal is to deliver an ERF within a prescribed time frame. NFPA 1710, as a nationally recognized consensus standard on staffing and deployment for career fire departments, provides a benchmark for ERF.[19]

During fire incidents, to be effective, critical tasking must assign enough personnel so that all identified functions can be performed simultaneously. However, it is important to note that secondary support functions may be handled by initial response personnel once they have completed their primary assignment. Thus, while an incident may end up requiring a greater commitment of resources or a specialized response, a properly executed critical task analysis will provide adequate resources to immediately begin bringing the incident under control.

The NFPA *Fire Protection Handbook*[20] classifies buildings and occupancies by their relative risk and provides recommendations on the minimum ERF that will be needed to handle fire incidents in them. These include:

High-hazard Occupancies: Schools, hospitals, nursing homes, high-rise buildings, and other high life safety-hazard or large fire-potential occupancies. The Brewster Fire Department has a very limited number of these occupancies in its response district.

> ***Operational Response:*** at least 4 pumpers, 2 ladder trucks (or combination apparatus with equivalent capabilities), 2 chief officers and other specialized apparatus as may be needed to cope with the combustible involved; not less than 24 firefighters and 2 chief officers ***plus*** a safety officer and a rapid intervention team.

Medium-hazard Occupancies: Apartments, offices, and mercantile and industrial occupancies, not normally requiring extensive rescue by firefighting forces. The Brewster Fire Department also has a limited (although slightly growing) number of occupancies of these types.

> ***Operational Response:*** At least 3 pumpers, 1 ladder truck (or combination apparatus with equivalent capabilities such as a quint), 1 chief officer, and other specialized apparatus as

[19] It is important to note that compliance with NFPA 1710 has not been mandated in the Commonwealth of Massachusetts or by the federal government. It is considered a "best practice" that fire departments strive to achieve.
[20] Cote, Grant, Hall & Solomon, eds., *Fire Protection Handbook* (Quincy, MA: NFPA 2008), 12-3

may be needed or available; not less than 16 firefighters and 1 chief officer ***plus*** a safety officer and a rapid intervention team.

Low-hazard Occupancies: One-, two-, or three-family dwellings and scattered small business and industrial occupancies.

> ***Operations Response Capability:*** At least 2 pumpers, 1 ladder truck (or combination apparatus with equivalent capabilities such as a quint), 1 chief officer, and other specialized apparatus as may be needed or available; not less than 12 firefighters and 1 chief officer, ***plus*** a safety officer, and a rapid intervention team.

The *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments* (NFPA 1710, 2020 edition), establishes the minimum criteria for a career fire department to effectively and safely respond to an emergency incident. Municipalities should base their fire department staffing decisions based on such factors as local risks and hazards, response times, incident frequency, and mutual aid availability. Of course, financial considerations do affect the ability of a community to comply with NFPA 1710. However, the Brewster Fire Department should continue to include compliance with NFPA 1710 in its long-range strategic planning and goal setting.

At the time of this assessment the Brewster Fire Department responded with one engine staffed with three personnel, and one ladder with two members to reported structure fires, provided all on duty members are immediately available. The Chief and Deputy Chief also respond. In addition, Harwich and Dennis respond with engines, Orleans responds a ladder, and off duty Brewster personnel are recalled. This will provide an initial response between 16 and 19 personnel depending on whether mutual aid units respond with three or four personnel.

If sufficient off duty Brewster personnel (four) respond to staff an additional engine, this response matrix provides at least 20 personnel on the incident. However, off duty personnel responding from home back to the station to staff apparatus and then responding will cause at least some extension of response times to get all units and personnel on the incident scene. If the incident is determined to be a working fire, additional resources are also dispatched including Eastham for an engine, and Chatham for an ambulance. The Harwich and Orleans Chiefs also respond to assist with incident management.

NFPA 1710 suggests that the following personnel are needed to safely mitigate a structure fire involving several rooms in a 2,000-square foot dwelling (Figure IV-15). Obviously, this number dramatically increases based on the extent of involvement, size of the structure, presence of hazardous materials, and use of the occupancy. As an example, a significant fire within a garden style apartment complex or an open-air strip mall commercial requires a minimum of 27/28 personnel based on the potential hazards that could be encountered.

CRITICAL TASK	NEEDED PERSONNEL
Incident Commander	1
Attack engine driver/operator	1
Two handlines with two personnel each	4
Support/back-up firefighter for each handline	2
Search & rescue team	2
Ventilation team	2
Ladder company driver/operator	1
Rapid intervention team (RIT)	2
EFFECTIVE RESPONSE FORCE	14/15

FIGURE IV-15: NFPA 1710 MINIMUM STRUCTURE FIRE STAFFING NEEDS

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

Figure IV-16 illustrates in a different way the critical tasks and resource deployment required on low and moderate-hazard incidents such as residential and small commercial structure fires. Although some people advocate that these types of incidents can be handled with fewer personnel, unless it is a small fire, there is the possibility there will not be sufficient personnel available to perform all the critical tasks necessitating that some be delayed. Ultimately, determining the acceptable level of risk they are willing to assume for the citizens they represent will be a key decision that the Brewster Select Board will need to make.

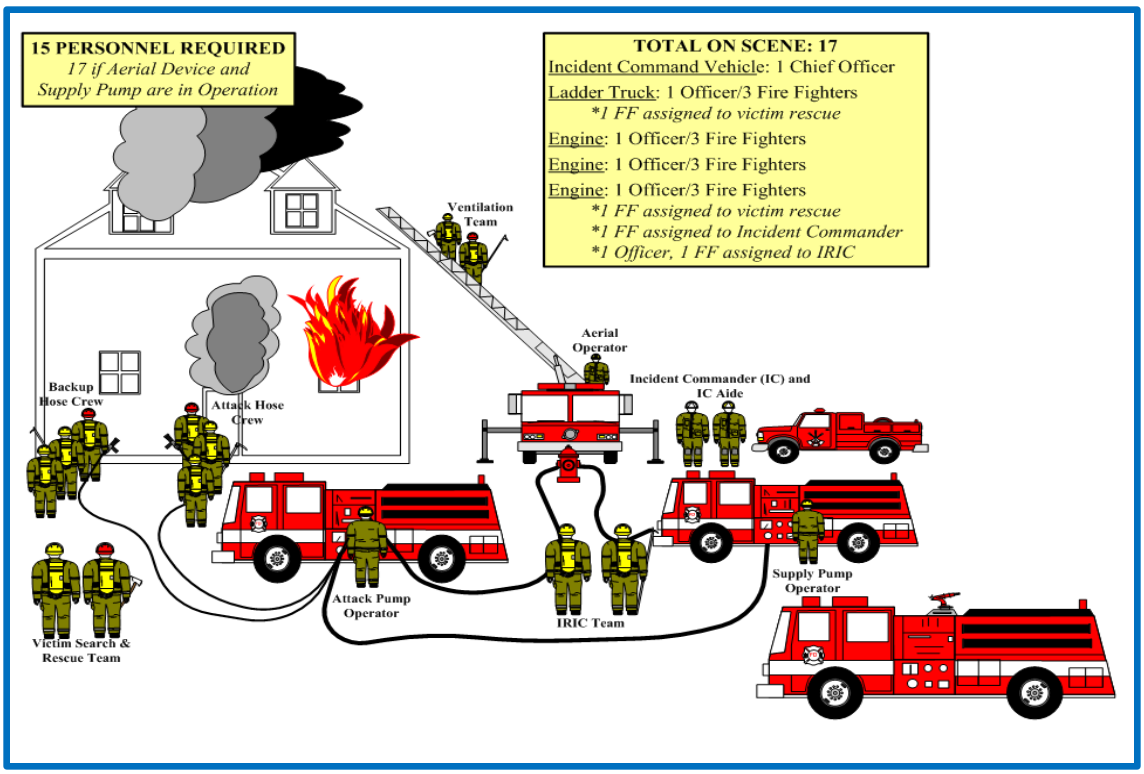


FIGURE IV-16: LOW TO MODERATE RISK RESPONSE-INTERIOR FIRE ATTACK

Typical minimum staffing needs career or primarily career fire departments for a fire involving several rooms in a 2,000-square foot, one-family residential occupancy. These are the proverbial "bread and butter" structural fire incidents that fire departments respond to, and are by far, the most common type of structure fire, accounting for around 70% of those types of incidents. The full first alarm assignment should arrive on scene within eight minutes of dispatch.

Image credit: IAFF 266

The ability to get a sufficient number of personnel, along with appropriate apparatus, to the scene of a typical residential structure fire is critical to operational success and firefighter safety. ***Accomplishing this within the eight-minute time frame (to have 16 – 17 personnel on scene) as specified in NFPA 1710 is an important operational benchmark.*** The Brewster Fire Department should make achieving this goal its highest priority. Based on conversations with the department's senior officers they understand this and would like to achieve this goal.

The 2020 edition of NFPA 1710 recommends a minimum of 27/28 personnel on the initial response for fires involving moderate hazard garden-style apartments and strip shopping centers (Figure IV-17).

CRITICAL TASK	NEEDED PERSONNEL
Incident Command	2
2 – Independent Water Supply Lines/Pump Operators	2
Fire Attack via Three Handlines	6
Support Firefighter for each Handline	3
2 – Search and Rescue Teams	4
2 – Ground Ladders and Ventilation Teams	4
Aerial Operator (if Aerial is Used)	1
Rapid Intervention Team (1 Officer/3 Firefighters)	4
EMS/Medical	2
EFFECTIVE RESPONSE FORCE	27/28

FIGURE IV-17: STRUCTURE FIRE – MODERATE RISK

Beyond the NFPA standard(s) which as standards, do not carry the weight of regulation or law, is the Occupational Safety and Health Administration (OSHA) Respiratory Protection Standard, CFR 1910.134, which carries the weight and force of regulation, thus making compliance mandatory. One key provision of the Respiratory Protection Standard that is directly applicable to fire department staffing is known as the ***"Two-In/Two-Out"*** rule. In brief, this regulation specifies that anytime firefighters operate in an environment/atmosphere that is "immediately dangerous to life and health" (IDLH), whenever two members enter the IDLH area together/as a team, they must maintain visual or voice communication with two additional firefighters who must remain outside of the IDLH atmosphere, prepared to render immediate emergency assistance to those inside (Figure IV-18). The OSHA rule does provide an exception however, which states that the rule does not apply in emergency rescue situations where a person is visible and in need of immediate rescue, or there is credible and reasonable information that potentially viable victims are still in need of rescue. It is important to note that the potential for an IDLH to exist is not just limited to structure fires. They can exist on natural gas leaks, carbon monoxide incidents, confined space emergencies, chemical spills, and even automatic fire alarm activations where there is an actual fire in progress.

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

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

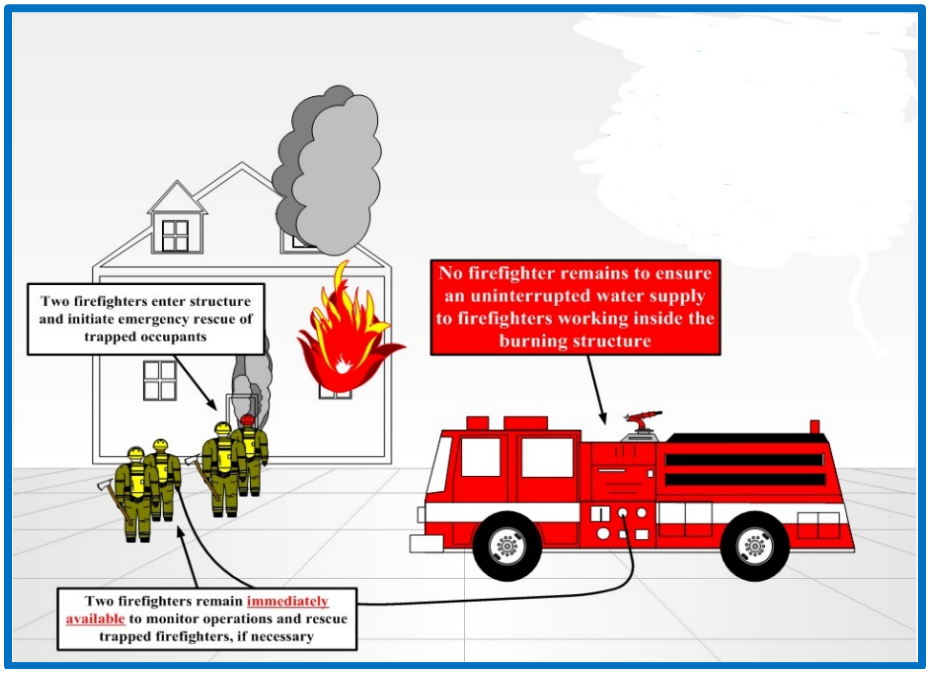


FIGURE IV-18 OSHA TWO-IN/TWO-OUT
Image Credit: IAFF 266

When looking at Brewster Fire Department staffing, it is very important to note that if the department experiences simultaneous or overlapping calls or calls that require two ambulances this will usually exhaust all on duty resources and leave no fire protection capabilities with the town itself. While Brewster does not have many fires, no one can predict when one may occur. Depleting all fire protection resources to cover ambulance calls does not appear to be a good risk assessment and management practice. With no viable on call force left, and few off duty personnel responding back to recalls, this is a policy or practice the Brewster Fire Department should consider revising.

Based on the criteria established in NFPA 1710 and detailed above, the MRI study team recommends that the following aspirational benchmarks be established by the Town:

- For structure fires, each engine company and ladder company should be staffed with no less than three (3), and preferably four (4) personnel, including an officer (lieutenant or higher rank). It should be noted that NFPA 1710 does not require all personnel to be transported to the scene on the same apparatus. As such, a three-person engine company

can be supplemented by personnel who arrive in the ambulance (provided that they are committed to engine company duties).

- Minimum response to a single-family dwelling fire should include a total of 17 firefighting personnel (including an incident commander [Chief or Deputy Chief] and company officers). This complement of personnel should continue to be accomplished through the use of automatic or mutual aid.

To the extent possible, the fire department should base its strategic planning, goal setting, standard operating procedures and guidelines, safety and health policies, training, and deployment of apparatus and equipment on the guidance found in NFPA 1710 as well as other NFPA standards such as *Standard on Fire Department Occupational Safety, Health, and Wellness Program* (NFPA 1500, 2021 edition) and *Guide for Structural Firefighting* (NFPA 1700, 2021 edition). The implementation of these best practices will result in a measurable improvement in the delivery of services to the citizens of Brewster, will enhance firefighter safety, and will mitigate risk to the community.

The current staffing levels of the Brewster Fire Department are deficient in the following respects:

- The minimum staffing level of five (5) personnel means that the engine is, at best, staffed with an officer and two (2) firefighters, which is below the practice recommended in NFPA 1710. The ladder is staffed with just two firefighters and no officer.
  - If just one ambulance is out on a call, usually only one engine, now inadequately staffed with just two (2) personnel may be available.
  - If two ambulances are on a call, there may be no fire suppression capability at all left to cover the Town.

- During nighttime and weekends, there is no incident commander on duty, since the Captain is assigned to the engine. This means that overall, all incident command is delayed until the arrival of an off-duty fire chief officer or a mutual aid chief officer. Critical decisions that must be made to ensure effective tactics and fire ground safety cannot be made because the Captain is committed to interior firefighting efforts. It is not realistic to have the Captain involved in evolutions such as forcible entry, hose line advancement, and/or search and rescue while expecting him/her to lead the overall strategic direction of the incident.

  - The Captain (shift commander) does have the flexibility to respond where his/her command capabilities are most needed, which is a practice that should be continued. In addition, there are numerous administrative functions that a shift commander is responsible for.

The Town previously received a Staffing for Adequate Fire and Emergency Response (SAFER) grant in 2016 for two (2) firefighter/ paramedic positions. SAFER grants are highly sought after and highly competitive, and cover all or most of new firefighters' salaries and benefits over a defined time period, typically three to five years. Once the grant expires, the Town is fully financially responsible for the additional personnel which is always a factor that must be given careful consideration. Brewster would like to apply for a future grant dependent upon the recommendations contained within this report.

One concern that was expressed to the MRI Study team was that when there are simultaneous calls, and the second one is a motor vehicle crash, the ambulance may initially respond alone except on Route 6 where a line box response brings either an engine or an ambulance from a contiguous community. In this situation the engine responds with call back personnel, or mutual aid is requested from a neighboring community. Current industry practice in the fire and emergency services is for a minimum of one engine to respond with the ambulance to every motor vehicle accident, particularly on higher speed, more limited access roads and highways. While the additional personnel can help the ambulance crew by performing hazard evaluation and abatement, as well as patient care (Figure IV-19) an additional important consideration is to provide a blocking vehicle to protect the ambulance and personnel operating on the incident scene from being struck by an inattentive motorist.

Highway safety is a major concern not only for motorists, but also for the fire, EMS, and police personnel who respond to unplanned traffic incidents. As the number of responders being struck on the highways and being seriously injured or killed has increased significantly over the past decade, the need for the use of blocking vehicles to help keep them safe has become a much more important necessary and important part of the emergency response system (Figure IV-20).

CRITICAL TASK	NEEDED PERSONNEL
Incident Command	1
Hazard evaluation/Abatement	2
Patient Evaluation/Care	2-3
EFFECTIVE RESPONSE FORCE	5-6

FIGURE IV-19: CRITICAL TASKING – MOTOR VEHICLE CRASH

FIGURE IV-20: FIRE APPARATUS SERVING AS A BLOCKING VEHICLE ON A ROADWAY INCIDENT

Based upon the increasing incident volume, and the planned growth within the town, the MRI team believes that career staffing within the organization will probably need to be bolstered through an incremental and fiscally realistic process, starting in 2024. The specifics of these increases are detailed later in the *Recommendations* section of this chapter and Chapter VII, *Summary and Looking to the Future*.

COMPARATIVE ANALYSIS

The process of benchmarking, also known as comparative analysis, is an effective way of making general comparisons between similar communities and identifying trends and patterns, but there are limitations as to how the data should be used. The data gathered through this process provides a perspective on organizational norms and best practices. Ideally, a community would utilize this information to identify needed change and through paced action, work incrementally toward implementation.

The information in the next table provides very basic staffing comparisons, including administrative staff for communities that surround Brewster. There are similarities between each of these departments, but it should be noted that there are also differences in how each community delivers fire and EMS services. Each municipality and its fire department provide emergency and other public services based on the expressed desires of that community and its citizens. What may be effective in one community may not be in a neighboring town or city. The ability of the fire department to provide the services desired by the community it serves is based on its perceived risk and available funding and resources.

DEPARTMENT	POPULATION	CY22 RUNS	*FULL TIME STAFF	# OF FIREFIGHTERS PER 1,000 RESIDENTS	# OF FIREFIGHTERS PER SHIFT	*ADDITIONAL DAYSHIFT PERSONNEL	DUTIES OF DAYTIME PERSONNEL
Brewster	10,318	3,236	23	2.23	5	1	Fire Prevention Officer
Chatham	6,600	3,240	32	4.85	7	2	Fire Prevention Officer EMS Coordinator
Orleans	6,307	2,683	36	3.8	8	2	Fire Prevention Officer EMS Coordinator
Eastham	5,752	2,236	24	4.17	5	2	2 Firefighters
Wellfleet	3,500	1,311	22	5.71	5	1	Captain – Fire Prevention
Harwich	13,441	4,850	40	2.68	9	2	Fire Prevention Officer EMS Coordinator

*Includes Chief Officers

** Does not include Chief Officers

FIGURE IV-21: FIRE DEPARTMENT REGIONAL STAFFING COMPARISON

AUTOMATIC/MUTUAL AID AND REGIONAL OPERATIONS

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

Automatic Aid is assistance that is dispatched automatically by agreement between two or more communities or fire districts to all first alarm structural fires. The automatic aid will depend upon the location in the community and the type of equipment that each department can share as well

as staff. It is predetermined by each community's fire department so that on the initial notification through 9-1-1 the neighboring department is also notified and responds as long as they are able to. If they are unable to respond because they are not available due to an incident in their own community, Brewster would rely on the regional mutual aid agreements and go further out to other fire departments.

As a hallmark of fire department operations throughout Massachusetts (and in most other areas of the country as well) the Brewster Fire Department engages in robust mutual aid relationships with all its surrounding communities and departments. These departments respond together regularly to a wide range of incidents. The departments operate seamlessly together, even with regard to chief/command level officers responding to and assisting with managing incidents, regardless of which community it is occurring in. In most cases they respond immediately, or simultaneously upon the report of any structure fire. Doing so quickly increases the number of firefighting personnel who are available. This is the case in Brewster as units from Dennis, Harwich, and Orleans respond automatically to reported structure fires. NFPA 1710 also recommends that the appropriate number of personnel (17) arrive on scene within eight minutes (480 seconds) travel time.

The use of extensive automatic aid is an exceptional practice utilized in many locations that has served to increase the service level to all participating communities while reducing the cost of individual fire services. In many cases this practice is viewed as a means for "mutual survival" by chief officers. The MRI project team views it as a mechanism to not only enhance operational safety, but a major factor in future operational success.

Like many communities in Massachusetts, Brewster utilizes a Metro Card mutual aid response system to determine responses to various types of incidents. These cards are revised on an annual basis, as necessary. Mutual and automatic is provided reciprocally throughout the municipalities on Cape Cod.

Many organizational assessments suggest that automatic aid practices should be developed further as they reflect an industry best practice. Moving forward, the Brewster Fire Department should attempt to enter into enhanced automatic aid agreements with surrounding communities to provide for the simultaneous dispatch of additional resources to attempt to better achieve the recommended benchmarks – both personnel and time on location – for each specific type of structure fire. These revised response assignments should be based upon critical staffing needs as identified in this report.

Mutual Aid Provided to Brewster				Total Per Year	Brewster Mutual Aid Provided	Net Mutual Aid
	Dennis	Harwich	Orleans			
2018	45	47	33	125	112	Brewster +13 Received
2019	31	72	47	150	122	Brewster +28 Received
2020	19	38	20	77	86	Brewster +9 Given
2021	33	62	31	126	115	Brewster +11 Received
2022	41	59	40	140	130	Brewster +10 Received

FIGURE IV-22: MUTUAL AID RECEIVED BY BREWSTER

Overall, between 2018 and 2022, the Brewster Fire Department received automatic or mutual aid 618 times, an average of 124 times per year (Figure IV-22). Conversely, the department provided automatic/mutual aid 565 times, an average of 113 times per year. The most frequent automatic/mutual aid partners were the Dennis, Harwich, and Orleans Fire Departments which makes sense as their districts are adjacent to the Town.

Fire and EMS mutual aid is an essential component of every community's public safety capabilities. The coordination and sharing of services for large fires, mass casualty incidents, unusual events that require specialized equipment and training, disasters, and simultaneous emergency calls is an efficient and cost-effective way to manage and mitigate significant events. Brewster provides and receives mutual aid on a routine basis.

The Brewster Fire Department participates in the Massachusetts Fire District 1 and Barnstable County mutual aid networks. In addition to coordinating fire mutual aid services, District 1 has established a number of specialized rescue and technical support teams. Trained personnel from Brewster are members of the county technical rescue team, and the county dive team. The County coordinates mutual aid responses to major incidents through its communications control point that is operated by the BCSO RECC. The control point has had no negative experience when Brewster requests additional resources.

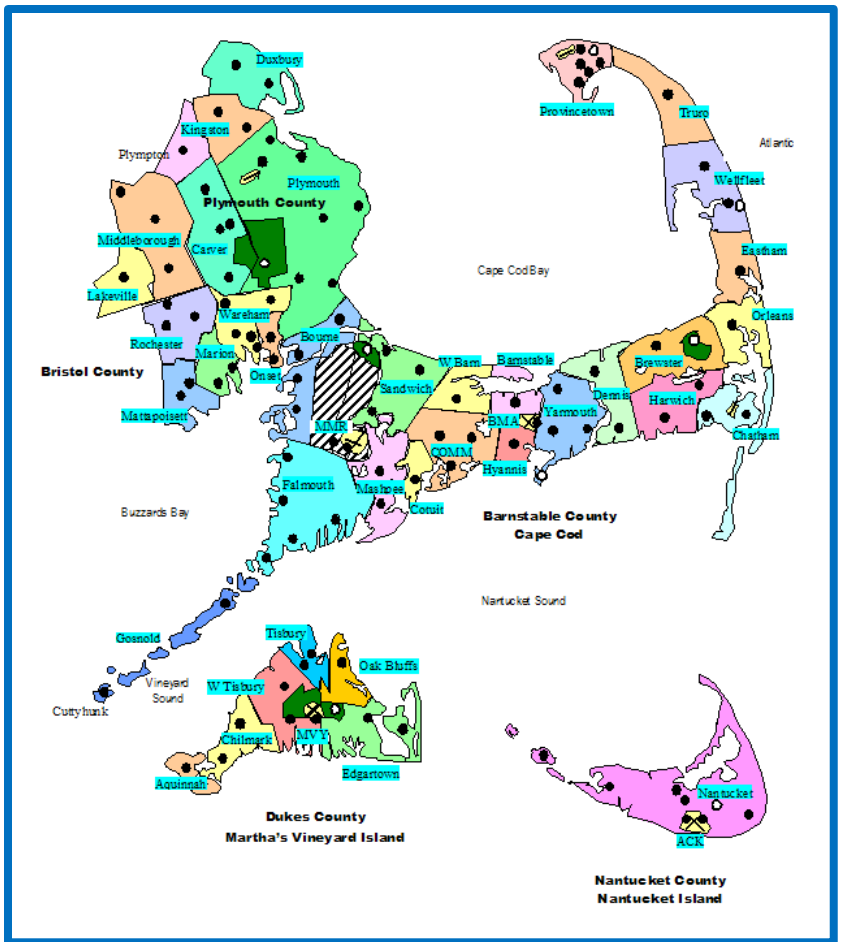


FIGURE IV-23: MASSACHUSETTS FIRE DISTRICT 1 MAP.

Brewster Fire is well respected among its peer mutual aid communities. The MRI study team reached out to the following fire and EMS agencies for feedback concerning mutual aid operations: Dennis Fire Department, Harwich Fire Department, and Orleans Fire Department. Brewster fulfills its mutual aid responsibilities and is a full player in the mutual aid district. Without exception, mutual aid communities contacted feel confident they are getting competent, professional service when Brewster responds to support their community. Brewster also calls for EMS or fire mutual aid from area communities when needed.

Mutual aid should be a shared responsibility, that is, each community must give and receive emergency assistance but not depend on mutual aid for day-to-day incidents.

INSURANCE SERVICES OFFICE (ISO)

The Insurance Services Office's (ISO) Public Protection Classification (PPC) program evaluates communities according to a uniform set of criteria defined in the Fire Suppression Rating Schedule (FSRS). This criterion incorporates nationally recognized standards developed by the National Fire Protection Association (NFPA) and the American Water Works Association (AWWA). Using the FSRS, ISO evaluates the fire suppression capabilities of a community and assigns a PPC classification; a number rating from 1 to 10. Class 1 represents exemplary fire protection (by ISO's standards), and Class 10 indicates that the area or community's fire suppression program does not meet minimum recognized criteria or standards. In most cases, this means there is no recognized fire department or formal fire protection. Any building more than five road miles from a fire station or outside the boundary of a fire protection area is rated 10. Generally, areas of a community that are more than 1,000 feet from a fire hydrant, but within five road miles from a fire station, are rated Class 9.

The FSRS allocates credit for fire protection by evaluating these three major categories (Figure IV-24):

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

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

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

A relatively new addition to the FSRS, the Community Risk Reduction section offers a maximum of 5.5 points, resulting in 105.5 total points now available in the FSRS. The inclusion of this section

for “extra points” allows recognition for those communities that employ effective fire prevention practices, without unduly affecting those who have not yet adopted such measures.

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

- Fire prevention
- Fire safety education
- Fire investigation

FIGURE IV-24: FOUR KEY PARTS OF ISO PPC EVALUATION PROCESS
Source: ISO

Every city, town, or area that provides fire protection services is subject to being graded to establish a PPC. Individual buildings, both residential and commercial, are subject to the community's PPC. When calculating property insurance premiums, insurance companies using the PPC apply a factor that reflects a particular community's PPC. Some individual facilities within a community may also be individually assessed and assigned a specific rating.

Although there may be validity to the argument that this rating is no longer utilized by all insurance companies that issue policies to commercial facilities within Brewster, ISO is still recognized as a comparative benchmark of public fire protection. Moreover, within the past several years, ISO has significantly revised its FSRS, and as a result, the PPC to reflect new

innovations and technology, and the evolving standards and industry best practices within the fire service. Among these changes are:

- Greater reference to nationally accepted consensus standards; NFPA and AWWA.
- Increased recognition of automatic fire sprinklers.
- Greater reliance on technology-based solutions (e.g., GIS, thermal imaging cameras).
- Increased emphasis on fire training activities.
- New reference to national standard safety requirements.
- New reference to accreditation; focus on master/strategic planning.

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

According to ISO, many communities receive split classifications which were revised in 2014 to reflect the risk of loss, more precisely. An example of the split classification is 4/4X. The first number refers to the classification of properties within 5 road miles of a fire station and within 1,000 feet of a creditable water supply. The second number applies to properties within 5 road miles of a fire station, but beyond 1,000 feet of a creditable water supply. ISO generally assigns Class 10 to properties beyond 5 road miles. The X classification replaced the former 9 portions of a split classification, respectively. For example, a community formerly graded as a split 4/9 will change to a split 4/4X.

Based on the most recent November 2019 ISO evaluation (which was effective 3/1/2020), the Brewster Fire Department was awarded **83.11 points** out of a possible 105.5 for a rating of Class **2/2X**. **This placed the Department in the top 5% of fire departments across the country.** This is an excellent rating that reflects the overall quality of the department and the systems that have been put into place. **The Brewster Fire Department should be commended for this accomplishment.** Figure IV-25, below, provides a graphical representation of the rating distribution across the United States while Figure IV-26 shows the same information for Massachusetts.

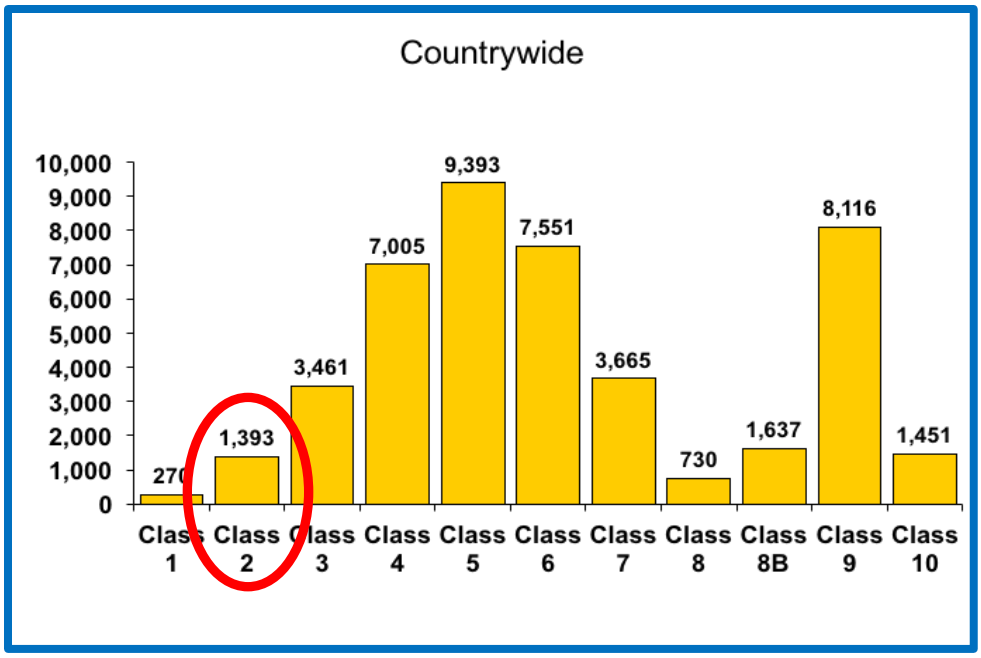


FIGURE IV-25: INSURANCE SERVICE OFFICE RATING DISTRIBUTION CHART - COUNTRYWIDE
Source: ISO

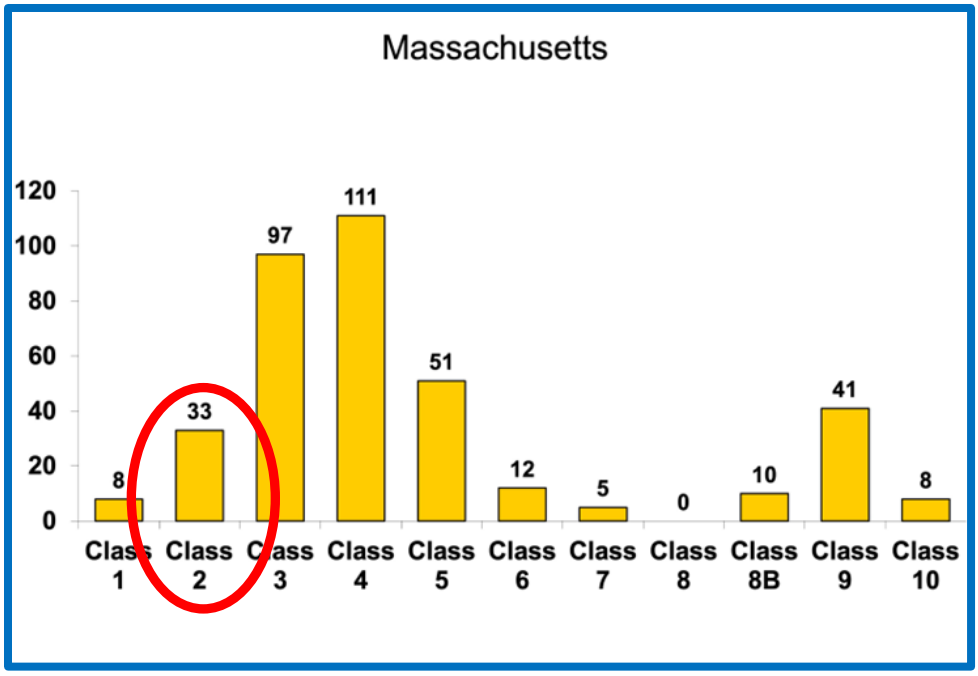


FIGURE IV-26: INSURANCE SERVICE OFFICE RATING DISTRIBUTION CHART - MASSACHUSETTS
Source: ISO

Looking deeper into the ratings, the Brewster Fire Department is currently rated with 35.77 out of a possible 50 points; Emergency Communications (E-911, dispatch and communications) – 9.78 points out of a possible 10 points; and Water Supply is rated at a 38.00 out 40 points (Figure IV-27). This means that the most improvement is possible within the areas of the fire department.

For the 2019 evaluation the areas where Brewster was the weakest and consequently lost the most points was for company personnel, and deployment analysis. Based upon the ISO evaluation if the Town of Brewster adopts future staffing recommendations for the Brewster Fire Department contained within this report, the department should receive additional credit for both Deployment Analysis and Company Personnel.

The Community Risk Reduction section of the FSRS offers a maximum of 5.5 points, resulting in 105.5 total points available in the FSRS. The inclusion of this section for "extra points" allows recognition for those communities that employ effective fire prevention practices, without unduly affecting those who have not yet adopted such measures. In 2019, the Brewster Fire Department received 4.25 points for community risk reduction. This suggests that as indicated in other areas of this report, the Brewster Fire Department has a well-developed and well managed fire prevention function.

FSRS Feature	Credit Granted to Brewster	Credit Available
Emergency Communications		
• Credit for Emergency Reporting	3.00	3
• Credit for Tele-communicators	4.00	4
• Credit for Dispatch Circuits	2.78	3
Communications Total	9.78	10
Fire Department		
• Credit for Engine companies	6.00	6
• Credit for Reserve Pumpers	0.50	0.5
• Credit for Pump Capacity	3.00	3
• Credit for Ladder Service	3.85	4
• Credit for Reserve Ladder, Service Trucks	0.00	0.5
• Credit for Deployment Analysis	3.36	10
• Credit for Company Personnel	9.15	15
• Credit for Training	7.91	9
• Credit for Operational Considerations	2.0	2.0
Fire Department Total	35.77	50
Water Supply		

FSRS Feature	Credit Granted to Brewster	Credit Available
Emergency Communications		
• Credit for Supply System • Credits for Hydrants • Credit for Inspection and Flow Testing	30.00 3.00 5.00	30 3 7
Water Supply Total	38.00	40
Divergence	-4.69	---
Community Risk Reduction	4.25	5.50
Total FSRS Credit	83.11	105.5

FIGURE IV-27: BREWSTER FIRE DEPARTMENT ISO FSRS ANALYSIS – 2019

RECRUITMENT, TRAINING & PROFESSIONAL DEVELOPMENT

It is essential for modern fire departments to maintain state-of-the-art recruitment, training, and professional development initiatives. The Brewster Fire Department has a reputation for having a positive and professional work environment; however, the department has struggled with recruitment and retention as the department is slower than many other Cape departments, the Town has few fires, and the pay scale has significantly lagged behind other area fire departments. The Town is aware of the latter issues and is taking steps to incrementally increase pay to make Brewster's compensation package more competitive, and thus a more desirable place to work.

As a non-civil service agency, the fire department can conduct its own recruiting, background checks, psychological profile, and pre-employment physical examination. Because of difficulties with recruiting personnel who are already firefighter/paramedics, and the time commitment for firefighters to earn paramedic certification (2,000 +/- hours), the department attempts to recruit personnel who are already certified paramedics but not firefighters. The theory is that it is less time consuming to send these personnel to the firefighting academy than vice versa. This is an innovative approach that may be beneficial to the Department's recruitment and retention. Captains are promoted based on the results of an independent third party written examination based upon a reading list designated by the Fire Chief. This is followed by an assessment center examination utilizing independent, outside evaluators along with a review of their education and personnel record.

In order to be eligible for promotion to captain, a firefighter must have served as a Brewster firefighter for at least two (2) years. There are no other pre-requisites at the current time.

The coordination of fire training is assigned to a Captain in addition to their normal shift responsibilities. They prepare a monthly training calendar that is followed by each shift officer daily. This calendar covers all required ISO training, along with an array of other firefighting topics. Although not a formal lesson plan, the training calendar summarizes what should be done and establishes the training objectives that are to be met. Daily training activities are frequently interrupted by emergency calls, which makes it difficult at times for officers to complete the required training regimen each month.

The fire department has the advantage of having its own training facility including a smoke room located in the station. As a result, Brewster firefighters can conduct more extensive drills and exercises than most fire departments of similar size. Mutual aid departments can use the facility on request.

Each Firefighter receives 36 hours of training time annually (July to June). This time is for participation in any department offered training outside the normally required daily training. These funds are included in the overtime budget and are available for any offered or approved third party training. The department received an AFG grant in the amount of $152,674 for overtime and related expenses for Fire Instructor and Fire Officer training that was offered in 2021 and 2022 and was made available to other fire departments in the mutual aid system. The department also provides time off for attending regional and national conferences, seminars, and advanced training programs such as those offered by the Massachusetts Firefighting Academy or the National Fire Academy. In addition, the department brings in third-party experts to conduct hands-on training in Brewster. In 2023, the department hosted training on man in machine, forcible entry, and live fire training opportunities. Dive and technical rescue personnel also train monthly.

As this report was being finalized in August 2023, the BFD was awarded a 2022 AFG grant for $91,579.79. The grant will cover instructor costs, and overtime/coverage overtime for all department personnel to receive 61.5 hours of NFPA/ISO compliant driver training, and pump and aerial operator training provided by the Massachusetts Fire Academy.

The Department's EMS Coordinator offers high-quality EMS training and continuing education to the Department's personnel. This ensures that EMS personnel maintain their skills and acquire the necessary training hours for their biennial re-certification.

FIRE PREVENTION AND COMMUNITY RISK REDUCTION

The core service that a fire department provides to the public it serves begins with fire prevention. As with training in the previous section, fire prevention activities – also referred to today as Community Risk Reduction or CRR activities - likewise are one of the most important missions that the modern-day fire and rescue service is involved in. A comprehensive fire protection system needs to include, at a minimum, the key functions of fire prevention, code enforcement, inspections, and public education. Preventing fires before they occur and limiting the impact of those that do should be priority missions of every fire rescue organization. Educating the public about fire safety and teaching them appropriate behaviors on how to react should they be confronted with a fire is also an important life safety responsibility of the fire department.

Fire suppression and response, although necessary to protect property, have minor impact on preventing fires. Rather, it is public fire education, fire prevention, and built-in fire protection systems that are essential elements in protecting citizens from death and injury due to fire, smoke inhalation, and carbon monoxide poisoning. The fire prevention mission is of utmost importance, as it is the only area of service delivery that dedicates 100 percent of its effort to the reduction of the incidence of fire.

Fire prevention should continue to be promoted as a key component of services provided by the Brewster Fire Department and should be designated as a major aspect of its primary mission. Aggressive fire prevention programs are the most efficient, and cost-effective, way to reduce fire risks, fire loss, and fire deaths and injuries in the community. Fire prevention is a key responsibility of every member of the fire service, and fire prevention activities should, to the extent possible, include all personnel.

Fire prevention should truly be approached in a systematic manner and various community stakeholders have a vested interest and/or responsibility in this endeavor. It has been estimated that 70% to 75% of all the requirements found in building/construction and related codes are related in some way to fire protection and safety.

Figure IV-28: FIVE ES OF PREVENTION IN A COMMUNITY RISK REDUCTION PROGRAM.

Image credit: www.beaherosaveahero.org

Understanding and addressing only one element will not lead to a successful program. All five "E's" must be integrated into every program for it to be effective[21] (Figure IV-28). Strong fire prevention codes have been shown to be extremely effective means to reduce risk in a community. Fire alarm and sprinkler system mandates for not only commercial buildings but all occupancies including single family dwellings dramatically reduces fire risk and increases life safety. Code implementation that does not require these creates an increased risk. Strong code provisions and enforcement have demonstrated a greater ability to decrease fire problems than continuing to acquire more traditional fire department resources.

The Brewster Fire Department does have an active fire prevention and community risk reduction program in place. These include fire prevention and code enforcement functions, along with an all-hazards risk reduction approach to public education. The bureau is responsible for fire safety inspections, fire code compliance, fire protection system plans reviews, fire code permits, the community risk reduction initiative, fire investigations, and public fire safety education. The Fire Prevention Bureau coordinates its activities closely with the town's Building Department and participates in the review of new residential and commercial construction and all projects that go before the Planning Board and the Zoning Board of Appeals.

These activities are carried out by the Department's fire inspector, a position that was vacant at the time of this study. At the time of this assessment the department was in the process of hiring one of the two remaining call personnel to fill the vacancy. In the interim these duties were being handled by the Chief or Deputy Chief.

Public education efforts focus on youth fire prevention education, juvenile fire setter intervention, senior citizen fire and safety education, and overall community health and wellness. The public education program presentations include the state sponsored SAFE and senior SAFE programs, Home Forever Program, ALICE, Stop the Bleed, CPR/AED, Citizens Fire Academy, Fire Extinguisher Training, and the traditional Fire Safety in Schools Programs.

Commendably, the fire department has expanded its fire prevention activities by embracing the relatively new concept of community risk reduction (CRR). CRR is a process to identify and prioritize local risks, followed by the integrated and strategic investment of resources to reduce their occurrence and impact. A CRR program enables the town to identify risks and develop preventive strategies to mitigate those risks. Risk reduction initiatives will help to contain the impact of growth, demographic changes, and climate change (e.g., increase in magnitude and frequency of severe weather events, etc.) on emergency response agencies. Code enforcement and public fire safety education efforts are effective strategies to reduce serious fire events. As

[21] http://www.beaherosaveahero.org/2013/10/community-risk-reduction-crr-overview/ February 5, 2016

existing building stock is replaced, renovated, or updated, it can be brought into compliance with modern building and fire codes, thus reducing risk.

The fire department is ideally positioned to lead the town's CRR efforts because of its knowledge of community risks (natural, manmade, and technological), its track record in fire prevention and public education, and its role in emergency medical services. Guidance on the development and implementation of a CRR program is found in Standard on Community Risk Assessment and Community Risk Reduction Plan Development (NFPA 1300, 2020 edition). The CRR initiative will complement and enhance other strategic planning initiatives, such as economic development, hazard mitigation, emergency management, and capital improvement. The fire department should be given a broad mandate to lead the town's CRR initiative, which should include a wide range of town departments and community stakeholder groups.

DIVERSITY AND CULTURAL AWARENESS

Diversity and cultural awareness are important considerations in communities that wish to provide the highest level of equitable services to all of its citizens. Many fire departments throughout the U.S. have learned the value of a diverse workforce and know that they can provide a higher level of service when its members can self-identify with the population they serve. Customer satisfaction and community acceptance and support generally increase with diversity. In particular, the delivery of emergency medical care has been shown to improve, particularly when barriers such as gender, language, and physical appearance are removed.

Most fire departments in the United States are predominantly white and male, and the Brewster Fire Department is no exception. This is not a criticism, but simply a recognition that the current workforce could face significant challenges as it provides emergency services. However, with three female firefighters which represent 13.0% of the department's operations staffing, the department is ahead of many other departments MRI has evaluated. The Town of Brewster and Brewster Fire Department should be commended for this diversity.

Continuing to increase diversity within the workforce of the Brewster Fire Department and ensuring equity in the delivery of fire department services should be a long-term goal of the town, but the first steps should be initiated immediately. For example, a vision for diversity should be established; recruitment efforts should include enthusiastic outreach to women and community-based minority partners; all personnel, especially supervisors, should receive ongoing training and awareness on diversity and equity; and policies and procedures should be updated to ensure equity in the workplace. Numerous resources for strengthening fire service diversity are available from organizations such as the International Association of Fire Chiefs, International Association

of Fire Fighters, International Association of Women in Fire & Emergency Service, and the U.S. Fire Administration.

ADMINISTRATIVE SERVICES

Fire department administrative services and office management activities are handled by an administrative assistant at fire headquarters. The primary responsibilities of the administrative assistant include, but are not limited to, the following:

- Payroll
- Billing and accounts payable
- Administrative support to the Fire Chief and Deputy Fire Chief
- Fire department and emergency management budget support
- Administrative support to fire prevention bureau (scheduling of inspections, permitting, etc.)
- Grant support
- Answering public inquiries

The administrative assistant performs her functions with a combination of computerized and manual functions. Financial transactions are handled on the town's Munis enterprise resource planning system. Because the Munis system does not recognize the fire department's 42-hour average workweek schedule, payroll must be calculated manually before being submitted to the finance department.

Many of the procedures and activities of the administrative assistant are not documented and backup support when she is on personal leave is limited to the Fire Chief and Deputy Chief.

BREWSTER INTERDEPARTMENTAL RELATIONS

Interviews with the Town Manager, Assistant Town Manager, several other department heads, and the Chairman of the Select Board revealed that the fire department is highly respected within the town government and the Fire Chief and Deputy Fire Chief are known for their cooperation, collaboration, and support of their colleagues. The MRI study team was impressed with the high level of professionalism, collaboration, and mutual respect that was exhibited by all department heads.

RECOMMENDATIONS

IV-1: ***The Brewster Fire Department should continue its practice of utilizing part-time seasonal personnel to maintain/enhance minimum shift staffing particularly during the busy vacation/tourist season.***

IV-2: ***While the Fire Prevention Officer can be utilized to assist with staffing the second or third ambulance, when necessary, during simultaneous or overlapping incidents, he/she should not normally be utilized to maintain minimum shift staffing as this takes him/her away from his/her primary CRR responsibilities.***

IV-3: ***As part of its ongoing statistical analysis of operational performance, the Brewster Fire Department should track the number of call backs that are sounded each year and the number of personnel who respond.***

IV-4: ***The Chief and Deputy Fire Chief, in conjunction with the Town's Human Resources Director, should explore ways to address/improve the underlying organizational culture that can impact internal morale.***

IV-5: ***The Town of Brewster should continue to work to incrementally improve the compensation package for members of the Brewster Fire Department in an effort to make it more competitive with other Cape Cod departments and assist with better recruiting and retaining personnel long-term.***

IV-6: ***The Town of Brewster should continue to evaluate the organizational structure of the Brewster Fire Department in an ongoing matter to ensure that it meets the needs of the community it services, the expectations of the community, and the department itself.***

IV-7: ***The Brewster Fire Department should work with the BCSO RECC leadership to identify any potential ways to reduce call processing time (from receipt of the call to dispatch of the incident) with the goal of attempting to achieve a 90th percentile time of not more than 64 seconds as recommended in NFPA 1710. Reducing call processing time can assist with leading to improved overall response times.***

IV-8: ***The Brewster Fire Department should work with the BCSO RECC leadership to ensure that incident turnout and travel times are recorded separately for each incident to allow proper analysis of response data. In addition, the first unit on scene time for fire incidents should be a fire truck not an ambulance or command/staff officer.***

IV-9: ***After the above recommendation is implemented the Brewster Fire Department should further analyze their response time data, and if necessary, work to identify potential***

ways to reduce incident turnout time with the goal of attempting to achieve a 90th percentile time of not more than 60 seconds for EMS incidents and 80 seconds for fire incidents as recommended in NFPA 1710. Turnout time is the response time component that the agencies have the most direct control over which can lead to reduced overall response times.

IV-10: ***The Brewster Fire Department should enhance their data collection and analysis to include 80th and 90th percentile turnout and travel times as recommended in NFPA 1710. Having these more conservative times available will provide a more accurate response assessment and allow for better long- range master planning.***

IV-11: ***The Brewster Fire Department should enhance its existing pre-fire planning program into a comprehensive one for all structures other than one (1) and two (2) family dwellings. This includes every business, commercial and industrial occupancy (including schools, churches, etc.) in the town. Pre-planning will improve the firefighters' knowledge of the specific tactics needed to handle a fire or other emergency at a facility and will alert them to on-site hazards and risks. Pre-fire/incident plans should be reviewed regularly and tested by periodic table-top exercises and on-site drills.***

IV-12: ***Appropriate pre-planning software – such as the AWARE module for Mobile CAD - should be obtained and installed in apparatus mobile data terminals (MDTs) in all apparatus and command/staff vehicles including ambulances.***

IV-13: ***The Brewster Fire Department should continue to pursue the acquisition of mobile data terminals (MDT's) in all frontline apparatus and supply each unit with reliable mobile internet connectivity such as the AT&T FirstNet network which includes mobile hot spots or routers for in vehicle use throughout the district.***

IV-14: ***The Brewster Fire Department should establish a formal "performance "improvement" process for fire suppression operations. The process should include the adoption of performance standards such as NFPA 1710, including on scene performance indicators such as:***

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

IV-15: ***The Brewster Fire Department should consider revising their EMS response procedures as follows:***

- ***When staffing is at five personnel:***

- ***Two personnel respond on the ambulance to Alpha and Bravo, or Priority 3 calls. The three personnel remaining are now available for fire duty, or can handle a second ambulance call, if necessary. If they require additional assistance, they can request the engine to respond.***
- ***Two personnel respond on the ambulance and three personnel respond on the engine to Charlie, Delta, and Echo, or Priority 1 and 2 calls. If an additional person is needed on the ambulance they can be sent to the hospital with the ambulance crew. The two additional personnel can return to station with the engine and await the arrival of off duty personnel. They can also handle a second ambulance call.***

➢ ***When staffing is at four personnel:***

- ***Two personnel respond on the ambulance to Alpha and Bravo, or Priority 3 calls. If they require additional assistance, they can request the engine to respond. The remaining two personnel are still available for fire duty, or, can handle a second ambulance call.***

- ***Two personnel respond on the ambulance to Charlie, Delta, and Echo, or Priority 1 and 2 calls. The remaining two personnel respond with the engine to assist. If an additional person is needed on the ambulance they can be sent to the hospital with the ambulance crew. The one remaining person can return to station with the engine and await the arrival of off duty personnel. Off duty personnel reporting back for duty would now provide fire response, or response to a second ambulance call.***

IV-16: ***The Brewster Fire Department should consider a procedure that Alpha level, or Priority 3 EMS calls are responded to without light or sirens. Consideration should also be given to making hospital transport calls that are non-emergent and the patient is stable, without lights and sirens. It is safer for responding personnel, general citizens, and the patient, to reduce the number of times that red lights and sirens are utilized.***

IV-17: ***The Brewster Fire Department should work internally to ensure all EMS related incidents are properly classified as either advanced life support (ALS) or basic life support (BLS) criterion, based upon the actual situation found on scene.***

IV-18: ***The Town of Brewster and Brewster Fire Department should consider designating the position of EMS coordinator as a full time, Captain (or Captain equivalent) position which is tested for as part of a promotional process. This position should continue to***

have the requirement that the person holding it must be a currently certified paramedic and hold that certification for the duration of their time in the position.

IV-19: ***The Town of Brewster and Brewster Fire Department should actively explore the feasibility of implementing some type of community based mobile integrated health care (Community Paramedicine) in an attempt to provide better service to the community, and possibly increase their EMS revenue.***

IV-20: ***The Brewster Fire Department should strive to have a minimum of 16/17 firefighting personnel on the scene of every single-family residential structure fire within 8 minutes of the time that units are responding. For fires in multi-family residential buildings and commercial occupancies, a minimum of 27/28 personnel should be on scene within 8 minutes of the time that units are responding in order to be able to establish a full effective response force. Even if additional permanent staffing is added to the BFD as recommended in this report the use of automatic aid and mutual aid will need to continue and should be enhanced, based upon the type of occupancy a reported fire is in. This should be the department's highest priority.***

IV-21: ***The Town of Brewster and Brewster Fire Department should incrementally hire additional firefighters to enhance daily on duty staffing to an eventual level of seven (7) personnel assigned to each shift.***

IV-22: ***The Town of Brewster should authorize the Brewster Fire Department to apply annually over the next several application periods for a federal Staffing for Adequate Fire and Emergency Response (SAFER) grant to fund the incremental hiring of a total of nine (9) additional personnel (two per shift plus a full-time EMS Officer) over the next several fiscal years citing an increasing call volume, a high percentage of senior citizens, loss of the department's call force, and a desire to improve overall operational effectiveness, efficiency, and safety.***

IV-23: ***Even if the application for the SAFER grant is not successful, the Town of Brewster should still provide funding to incrementally increase Brewster Fire Department staffing over the next several fiscal years. A suggested timeline would be:***

- ***FY 2025 – Hire four (4) additional personnel to increase shift staffing to six (6) personnel with a minimum of five (5) on duty (off season only).***

- ***FY 2026 – Hire one (1) additional person to allow for the creation of the full-time EMS officer position and the possible implementation of a MICU/CIP program. Promote four (4) firefighters to the rank of Lieutenant.***

- ***2028 – Hire four (4) additional personnel to increase shift staffing to seven (7) personnel with a minimum of six (6) on duty (off season only).***

IV-24: ***As recommended above, in FY 2026, the Town of Brewster should consider creation of the position of Lieutenant on each shift in the Brewster Fire Department to allow for a continued appropriate span of control as recommended under the Incident Management System (IMS). The position of Lieutenant will also ensure that all persons serving in the capacity of an officer and/or shift commander has an adequate level of training and experience to fulfill the myriad additional duties and responsibilities of officer positions competently and confidently.***

IV-25: ***In FY 2029 and/or 2030, after the above recommended staffing increases are implemented the Town of Brewster and Brewster Fire Department should evaluate the impact of the enhanced staffing levels and its impact on both fire and EMS operations. The purpose of this evaluation will be to determine if seven (7) personnel per shift is adequate, or if additional staffing may still be indicated.***

IV-26: ***At all staffing levels, the Brewster Fire Department should continue to utilize part-time personnel to supplement staffing level and maintain maximum shift staffing during peak season between Memorial Day and the end of September.***

IV-27: ***Even if the Town of Brewster is unsuccessful at its first SAFER application, the Town and Brewster Fire Department should apply again in subsequent years to seek funding for the recommended increase in personnel to provide enhanced operations to the Town.***

IV-28: ***The Brewster Fire Department should implement an operational procedure to have an engine respond immediately (even if it must be requested from mutual aid) with the ambulance on every motor vehicle crash to provide a blocking vehicle to protect the ambulance and personnel operating on the incident scene from being struck by an inattentive motorist. The need for the use of blocking vehicles to help keep emergency responders safe during highway and roadway incidents has become a much more important necessary and significant part of the emergency response system.***

IV-29: ***The Brewster Fire Department should consider the implementation of a company-level inspection program, integrated with a pre-fire/incident planning program as part of its comprehensive community risk reduction program.***

IV-30: ***The Brewster Fire Department should consider the implementation of a voluntary home survey/inspection program with an all-hazards focus. This type of program can be particularly beneficial in a community with a high percentage (35.1%) of senior citizens.***

CHAPTER V
FIRE DEPARTMENT FINANCIAL OPERATIONS

Financial operations in the Brewster Fire Department are not limited to developing and implementing an annual budget. Revenue from ambulance transports provide a significant offset to fire department expenditures but requires oversight of a complex third-party billing system. In addition to ambulance billing revenue, the department receives supplemental Medicaid funding through the MassHealth Ambulance Certified Public Expenditure (CPE) program. The fire department has been highly successful in applying for and receiving grants for equipment and personnel from both federal and state government sources. Fees for various permits that are issued by the fire department provide a modest revenue source.

ANNUAL BUDGET

The town website provides a transparent view of all department budgets and total expenditures for the previous three (3) fiscal years. The budget narrative includes each department's mission statement, previous fiscal year accomplishments, current fiscal year goals and initiatives, and budget highlights. Citizens can easily refer to the "Budget Increase Rationale Forms" in order to understand the reasons for a specific request for increased funding.

The BFD strategic plan (2022-2026) calls for the coordination of departmental budget planning with an annual review of the strategic plan. A three (3) year look-back forms the basis for the proposed fiscal year operating and capital budgets, and department members provide input on major capital acquisitions.

As with any career fire department, the majority of the BFD budget is dedicated to wages and salaries. In the FY 2023 budget, wages and salaries account for 79% of the total budget. Until FY 2023, overtime expenditures have been proportionately stable, accounting for 14% of salaries and wages in FY 2020 and FY 2021, and 13% of salaries and wages in FY 2022. The FY 2023 overtime budget has been increased by $120,000 to $424,700, or 17% of overall wages and salaries (note: $20,000 of the overtime increase was transferred from the part-time wage account). The department has justified this increase with the following rationale:

- Reduced call firefighter staff.
- Need to provide mandatory five (5) man minimum staffing levels [i.e., filling shift vacancies caused by vacations, sick leave, injury, resignations/retirements, etc.].[22]
- Contractual COLA and step increases that impact overtime rates.
- Contractual increase in firefighter elective training time (from 24 to 36 hours).

[22] Bracketed [] language added by MRI study team.

- Cost of regional housing preventing members from living within the required 15 miles living radius requiring additional on duty staff.
- Lack of year-round rental opportunities preventing members from living within the requirement 15 mile living radius requiring additional on-duty staff.
- Reduced numbers of staff available for off-duty callback.

In spite of the increase in overtime wages, the BFD FY 2023 budget reflected just a 0.65% increase over the FY 2022 budget, which is remarkable given the increased labor costs and inflationary increases in equipment and supplies. The MRI study team is concerned that future "level funding" initiatives will result in on-going cuts to discretionary expenditures such as training, equipment, and fire prevention that will result in decreased departmental readiness and skill levels.

CAPITAL PLANNING

Long-range capital planning ensures that apparatus and major equipment is replaced on a timely basis based on usage and condition and in accordance with best practices and nationally recognized standards, such as NFPA 1901, *Standard for Automotive Fire Apparatus*. Fire department capital planning efforts are coordinated with the town's capital planning to ensure that capital budgets are stabilized to avoid large swings from year-to-year. The BFD strategic plan (2022-2026) calls for the department to maintain a comprehensive plan for replacing ambulance, fire service, and support vehicles and equipment.

Fire department capital planning is especially important due to the extended time for delivery of fire apparatus and ambulances, which is currently two (2) to three (3) years. Delivery time frames should be built into the capital acquisition schedule, and higher than inflation cost increases should be anticipated.

AMBULANCE BILLING & REVENUE

The Brewster Fire Department provides both basic life support (BLS) and advanced life support (ALS) emergency medical services. BLS can be provided by personnel who are certified as emergency medical technicians-basic (EMT-B), while ALS can only be provided by paramedics. All Brewster firefighters are certified as EMTs or as paramedics.

Billing rates are aligned with the framework established by the Centers for Medicare and Medicaid Services (CMS) (Figure V-1). The rates were last revised by the town in 2019 and are comparable to the rates charged by neighboring communities.

Type of Charge	HCPCS*	Amount Charged
ALS Non-Emergency Basic Rate	A0426	$ 1,950.00
ALS1 Emergency Basic Rate	A0427	$ 1,950.00
ALS2 Emergency Basic Rate	A0433	$ 3,037.99
BLS Emergency Basic Rate	A0429	$ 1,205.00
BLS Non-Emergency Basic Rate	A0428	$ 1,205.00
Mileage	A0425	$ 32.00
Non-Covered Mileage	A0888	$ 32.00
Specialty Care	A0434	$ 3,462.00

*Healthcare Common Procedures Coding System

FIGURE V-1: BREWSTER AMBULANCE BILLING RATES

The billing categories are defined by CMS regulations found in 42 CFR Ch. IV §414.601 Subpart H:

Advanced life support (ALS) intervention means a procedure that is, in accordance with State and local laws, required to be furnished by ALS personnel.

Advanced life support, level 1 (ALS1) means transportation by ground ambulance vehicle, medically necessary supplies and services and either an ALS assessment by ALS personnel or the provision of at least one ALS intervention.

Advanced life support, level 2 (ALS2) means either transportation by ground ambulance vehicle, medically necessary supplies and services, and the administration of at least three medications by intravenous push/bolus or by continuous infusion, excluding crystalloid, hypotonic, isotonic, and hypertonic solutions (Dextrose, Normal Saline, Ringer's Lactate); or transportation, medically necessary supplies and services, and the provision of at least one of the following ALS procedures:

(1) Manual defibrillation/cardioversion.

(2) Endotracheal intubation.

(3) Central venous line.

(4) Cardiac pacing.

(5) Chest decompression.

(6) Surgical airway.

(7) Intraosseous line.

Basic life support (BLS) means transportation by ground ambulance vehicle and medically necessary supplies and services, plus the provision of BLS ambulance services. The ambulance must be staffed by at least two people who meet the requirements of state and local laws where the services are being furnished. Also, at least one of the staff members must be certified, at a minimum, as an emergency medical technician-basic (EMT-Basic) by the State or local authority where the services are furnished and be legally authorized to operate all lifesaving and life-sustaining equipment on board the vehicle.

Specialty care transport (SCT) means interfacility transportation of a critically injured or ill beneficiary by a ground ambulance vehicle, including medically necessary supplies and services, at a level of service beyond the scope of the EMT-Paramedic. SCT is necessary when a beneficiary's condition requires ongoing care that must be furnished by one or more health professionals in an appropriate specialty area, for example, nursing, emergency medicine, respiratory care, cardiovascular care, or a paramedic with additional training.

The town bills for ambulance transport services in accordance with the above rate schedule. However, Medicare, Medicaid, and private insurance companies establish allowable rates, i.e., the amount that they actually pay, that are significantly lower than the town's rate schedule.

The town has established an ambulance fee waiver policy that establishes the criteria for "writing off" billed amounts based on hardship or other conditions as approved by the Select Board.

Because of the complexities of CMS and state regulations, the wide range of procedures, established by private insurance companies, and the confidentiality requirements of the Health Insurance Portability and Accountability Act (HIPAA), the town has contracted with a third-party billing service that specializes in ambulance billing. The current contractor, COMSTAR Ambulance Billing Service, is paid 2.5% of the amount it collects, which is competitive with similar ambulance billing companies.

The MRI study team reviewed ambulance transport revenues for the past three (3) years. Collection rates improved significantly between FY 2021 and FY 2022. Payments continue to be received for FY 2023, but the most recent revenue numbers indicate that the collection rates are on track to be at least equal to or better than FY 2022. Uninsured individuals account for the greatest amount of uncollected (or written-off) revenue, while the highest proportion of revenue (97.28% over three years) comes from Medicare, Medicaid, and private insurers. The average collection rate based on allowable rates over the past three (3) years is 75.52%.

	PAYMENT TYPE	TRANSPORTS	CHARGES	ALLOWABLE	COLLECTED	% COLLECTED
FY 2021	Insurance	1234	$2,766,320.13	$832,077.78	$751,867.30	90.36%
	Veterans Administration	2	$4,924.00	$4,924.00	$- 0	0.00%
	Self-Pay	136	$315,060.96	$305,987.26	$16,498.39	5.39%
	Total FY 2021	**1372**	**$3,086,305.09**	**$1,142,989.04**	**$768,365.69**	**67.22%**
FY 2022	Insurance	1432	$3,215,136.46	$957,423.36	$914,549.42	95.52%
	Veterans Administration	3	$5,736.00	$5,736.00	$5,736.00	100.00%
	Self-Pay	74	$164,564.95	$153,970.63	$23,906.98	15.53%
	Total FY 2022	**1509**	**$3,385,437.41**	**$1,117,129.99**	**$944,192.40**	**84.52%**
FY 2023	Insurance	1448	$3,330,617.82	$1,076,397.50	$901,006.13	83.71%
	Veterans Administration	4	$10,008.00	$10,008.00	$5,180.00	51.76%
	Self-Pay	68	$154,608.98	$148,035.38	$20,392.78	13.78%
	Total FY 2023	**1520**	**$3,495,234.80**	**$1,234,440.88**	**$926,578.91**	**75.06%**
	3-YR AVERAGE TOTAL	**1467**	**$3,322,325.77**	**$1,164,853.30**	**$879,712.33**	**75.52%**

FIGURE V-2: AMBULANCE TRANSPORT REVENUES

The average total charge per ambulance transport has remained relatively stable over the past three (3) years with a modest increase in FY 2023. The average allowable charge per transport has decreased slightly since FY 2021. FY 2022 saw the highest average collected revenue of the past three years.

FISCAL YEAR	AVERAGE CHARGE	AVERAGE ALLOWABLE	AVERAGE COLLECTED
2021	$2,249.49	$833.08	$560.03
2022	$2,243.50	$740.31	$625.71
2023	$2,299.50	$812.13	$609.59
3-YR Average	$2,264.16	$795.18	$598.44

FIGURE V-3: AVERAGE AMBULANCE CHARGES & COLLECTIONS, FY 2021-2023

Each year, the fire department applies for and receives supplemental Medicaid funding through the MassHealth CPE for Public Ambulance program. This year, the town received **$136,529.00** which was deposited in the ambulance revenue account.

Ambulance transport revenues are robust and offset a significant portion of the fire department annual budget. However, EMS services throughout the United States are facing significant challenges to their financial stability. These challenges include:

- Reduction in allowable amounts paid by private insurance companies.
- Delays in payments by private insurance companies.
- Medicare/Medicaid allowable costs do not keep pace with inflation or operational cost increases.
- Significant increases in the cost of EMS supplies and equipment.
- Significant increases in the cost of new ambulances and ambulance refurbishment.

The fire department and the Town are not immune to these challenges, which in future years could result in reductions in revenue and increases in operational costs that outpace current expectations.

The BFD strategic plan (2022-2026) includes an action plan for ambulance reimbursements, with a focus on staying competitive with ambulance billing rates and fostering a strong relationship with the third-party ambulance billing party.

PERMITS:

BFD issues permits for several types of inspections or hazardous processes that require fire department oversight. A fee of $40 is charged for oil tank inspections, certificates of compliance for smoke and carbon monoxide alarms (required at the time of real estate transfer), and fire alarm installation final inspection. A fee of $10 is charged for open burning permits. A total of $19,320 was collected for permit fees in FY 2023.

GRANTS:

BFD has been aggressive and forward-thinking in seeking and receiving grants for equipment and personnel. Since 2010, the town has received a total of **$2,021,879.71** in grants. The BFD should be commended for these efforts and their success at obtaining these very competitive grants.

The primary source of the grant funds has been the Assistance to Firefighters (AFG) grant program that is administered by the Federal Emergency Management Agency (FEMA). The goal

of the AFG program is to fund critically needed resources to equip and train emergency personnel, enhance efficiencies, and support community resilience. With AFG funds, BFD has obtained communications equipment, personal protective equipment (PPE), personal escape devices and training, self-contained breathing apparatus (SCBA), cardiac monitors, electrically powered ambulance stretchers/loading devices, extrication equipment, a fire safety education trailer. Most impressively, the department received **$152,674.00** for fire instructor and fire officer training that was made available to other fire departments in the mutual aid system.

As this report was being finalized in August 2023, the BFD was awarded a 2022 AFG grant for **$91,579.79**. The grant will cover instructor costs, and overtime/coverage overtime for all department personnel to receive 61.5 hours of NFPA/ISO compliant driver training, and pump and aerial operator training provided by the Massachusetts Fire Academy.

In 2016, BFD was successful in receiving a FEMA Staffing for Adequate Fire and Emergency Responses (SAFER) grant, which supported funding two (2) firefighter/paramedic positions for three (3) years. Future SAFER grants could provide the initial funding for expanding fire and EMS staffing in Brewster.

BFD has also received grant funding from state sources that included a SCBA mask fit decontamination machine, portable radios, mobile communication equipment, rescue saws, and radio software.

The BFD strategic plan (2022-2026) calls for continued efforts to pursue federal and state grant funding, investigate untapped grant funding sources, and utilize the expertise of the town's project manager.

While obtaining grants for essential equipment, training, and staffing is highly commendable, the department and the town should always be prepared to fund these activities with the town budget. There is no guarantee that grant funds will be available in the future at the state or federal level, and there is no guarantee that the town will be a successful applicant.

SOURCES OF ADDITIONAL FUNDING:

The BFD strategic plan (2022-2026) has identified several potential sources of revenue that could be explored by the town:

- Retail marijuana tax directed to offset public safety costs.
- Short-term rental tax.
- Establishment of a community paramedicine program.

In assessing the feasibility of alternative revenue sources, consideration should be given to the cost of administering the collection of revenue, both in terms of direct costs as well as administrative time that detracts from the primary mission of the fire department.

Community paramedicine calls for the use of fire department paramedics to provide in-home follow-up care to patients as an alternative to traveling to a medical facility or doctor's office. Patients may need medical attention post-surgery or due to a chronic condition, and a fire department community paramedicine program is a cost-effective and easily scheduled alternative to treatment in an out-patient facility or live-in nursing home. Community paramedicine pilot programs can be initiated under the auspices of a local hospital and are an effective use of paramedic resources when not responding to emergencies.

RECOMMENDATIONS

V-1: ***The Town of Brewster should continue to closely monitor the use of overtime and identify strategies to contain overtime costs. Such strategies could include the following:***

- ***Calculate the "break-even" point where the establishment of additional firefighter-paramedic positions would make it possible to allow time-off without creating overtime replacements.***

- ***Continue to monitor the appropriate use of sick time. Excessive use of sick time, or identifiable patterns of sick time usage can be indicators of employee performance or health issues that require intervention and support.***

- ***Continue the use of seasonal personnel during peak vacation/tourist seasons which equates to increased response volumes.***

- ***Management of an occupational safety and health program that includes aggressive enforcement of standard operating procedures (SOPs), training, updated PPE, documentation of occupational injuries and illnesses (including incidents involving department-owned motor vehicles), and investigation of job-related injuries and motor vehicle incidents that includes a lessons-learned after-action report.***

V-2: ***The Town of Brewster and Brewster Fire Department should update their ambulance fee schedule (last updated in 2019) based on increases in service delivery costs and consistent with rates charged by EMS services in the region.***

V-3: ***The Town of Brewster and Brewster Fire Department should continue to seek competitive bids from qualified third-party ambulance billing companies every three (3) to five (5) years. This will ensure that the town is receiving the highest possible level of service at the best possible price. Consideration should be given to establishing a group bid with neighboring communities, which increases the potential for further contract cost reductions.***

V-4: ***The Brewster Fire Department should consider requiring additional permits as authorized by the Massachusetts Comprehensive Fire Safety Code (MGL Chapter 148:527 CMR Board of Fire Prevention Regulations). The department should determine what permits should be required based on risk and common practices in the community.***

V-5: ***The Town of Brewster should consider increasing fire department permit fees based on a review of fee schedules that have been adopted by neighboring communities.***

V-6: ***The Town of Brewster and Brewster Fire Department should continue to aggressively pursue grants from federal, state, and private sources for apparatus, staffing, equipment, training, fire prevention and community risk reduction programs, and EMS services to the community. Specifically, the town should apply for a FEMA SAFER grant to fund the additional firefighter-paramedic positions identified in several recommendations including Recommendation IV-22 of this report.***

V-7: ***The Town of Brewster and Brewster Fire Department should explore additional potential ways to generate revenue to offset the fire department's operating costs. Consideration could be given to billing insurance companies for response to motor vehicle accidents; registration fees for fire alarm systems; the aggressive pursuit of non-residents who have been billed for ambulance transportation; and the implementation of a fee for ambulance responses that do not result in a transport.***

CHAPTER VI
SUMMARY OF RECOMMENDATIONS

This chapter contains a listing of the 39 recommendations related to the various chapters in this report. Please refer to the body of the report for additional explanation and justification for each recommendation.

CHAPTER III - BREWSTER COMMUNITY RISK AND HAZARD PROFILE

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

III-2: ***The Brewster Fire Department should develop a compelling public education program that includes discussing the benefits of installing residential fire sprinklers in new one- and two-family dwellings. Although Massachusetts's construction codes do not allow residential fire sprinkler systems to be mandated, there is no prohibition for property owners to install them if they determine that it is in their best interest.***

CHAPTER IV - BREWSTER FIRE DEPARTMENT ORGANIZATION, MANAGEMENT, AND OPERATIONS

IV-1: ***The Brewster Fire Department should continue its practice of utilizing part-time seasonal personnel to maintain/enhance minimum shift staffing particularly during the busy vacation/tourist season.***

IV-2: ***While the Fire Prevention Officer can be utilized to assist with staffing the second or third ambulance, when necessary, during simultaneous or overlapping incidents, he/she should not normally be utilized to maintain minimum shift staffing as this takes him/her away from his/her primary CRR responsibilities.***

IV-3: ***As part of its ongoing statistical analysis of operational performance, the Brewster Fire Department should track the number of call backs that are sounded each year and the number of personnel who respond.***

IV-4: ***The Chief and Deputy Fire Chief, in conjunction with the Town's Human resources Director, should explore ways to address/improve the underlying organizational culture that can impact internal morale.***

IV-5: ***The Town of Brewster should continue to work to incrementally improve the compensation package for members of the Brewster Fire Department in an effort to make it more competitive with other Cape Cod departments and assist with better recruiting and retaining personnel long-term.***

IV-6: ***The Town of Brewster should continue to evaluate the organizational structure of the Brewster Fire Department in an ongoing matter to ensure that it meets the needs of the community it services, the expectations of the community, and the department itself.***

IV-7: ***The Brewster Fire Department should work with the BCSO RECC leadership to identify any potential ways to reduce call processing time (from receipt of the call to dispatch of the incident) with the goal of attempting to achieve a 90th percentile time of not more than 64 seconds as recommended in NFPA 1710. Reducing call processing time can assist with leading to improved overall response times.***

IV-8: ***The Brewster Fire Department should work with the BCSO RECC leadership to ensure that incident turnout and travel times are recorded separately for each incident to allow proper analysis of response data. In addition, the first unit on scene time for fire incidents should be a fire truck not an ambulance or command/staff officer.***

IV-9: ***After the above recommendation is implemented the Brewster Fire Department should further analyze their response time data, and if necessary, work to identify potential ways to reduce incident turnout time with the goal of attempting to achieve a 90th percentile time of not more than 60 seconds for EMS incidents and 80 seconds for fire incidents as recommended in NFPA 1710. Turnout time is the response time component that the agencies have the most direct control over, which can lead to reduced overall response times.***

IV-10: ***The Brewster Fire Department should enhance their data collection and analysis to include 80th and 90th percentile turnout and travel times as recommended in NFPA 1710. Having these more conservative times available will provide a more accurate response assessment and allow for better long- range master planning.***

IV-11: ***The Brewster Fire Department should enhance its existing pre-fire planning program into a comprehensive one for all structures other than one (1) and two (2) family***

dwellings. This includes every business, commercial and industrial occupancy (including schools, churches, etc.) in the town. Pre-planning will improve the firefighters' knowledge of the specific tactics needed to handle a fire or other emergency at a facility and will alert them to on-site hazards and risks. Pre-fire/incident plans should be reviewed regularly and tested by periodic table-top exercises and on-site drills.

IV-12: *Appropriate pre-planning software – such as the AWARE module for Mobile CAD - should be obtained and installed in apparatus mobile data terminals (MDTs) in all apparatus and command/staff vehicles including ambulances.*

IV-13: *The Brewster Fire Department should continue to pursue the acquisition of mobile data terminals (MDT's) in all frontline apparatus and supply each unit with reliable mobile internet connectivity such as the AT&T FirstNet network which includes mobile hot spots or routers for in vehicle use throughout the district.*

IV-14: *The Brewster Fire Department should establish a formal "performance "improvement" process for fire suppression operations. The process should include the adoption of performance standards such as NFPA 1710, including on scene performance indicators such as:*

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

IV-15: *The Brewster Fire Department should consider revising their EMS response procedures as follows:*

- *When staffing is at five personnel:*
  - *Two personnel respond on the ambulance to Alpha and Bravo, or Priority 3 calls. The three personnel remaining are now available for fire duty, or can handle a second ambulance call, if necessary. If they require additional assistance, they can request the engine to respond.*
  - *Two personnel respond on the ambulance and three personnel respond on the engine to Charlie, Delta, and Echo, or Priority 1 and 2 calls. If an additional person is needed on the ambulance they can be sent to the hospital with the ambulance crew. The two additional*

personnel can return to station with the engine and await the arrival of off duty personnel. They can also handle a second ambulance call.

- ***When staffing is at four personnel:***

  - ***Two personnel respond on the ambulance to Alpha and Bravo, or Priority 3 calls. If they require additional assistance, they can request the engine to respond. The remaining two personnel are still available for fire duty, or, can handle a second ambulance call.***

  - ***Two personnel respond on the ambulance to Charlie, Delta, and Echo, or Priority 1 and 2 calls. The remaining two personnel respond with the engine to assist. If an additional person is needed on the ambulance they can be sent to the hospital with the ambulance crew. The one remaining person can return to station with the engine and await the arrival of off duty personnel. Off duty personnel reporting back for duty would now provide fire response, or response to a second ambulance call.***

IV-16: ***The Brewster Fire Department should consider a procedure that Alpha level, or Priority 3 EMS calls are responded to without light or sirens. Consideration should also be given to making hospital transport calls that are non-emergent and the patient is stable, without lights and sirens. It is safer for responding personnel, general citizens, and the patient, to reduce the number of times that red lights and sirens are utilized.***

IV-17: ***The Brewster Fire Department should work internally to ensure all EMS related incidents are properly classified as either advanced life support (ALS) or basic life support (BLS) criterion, based upon the actual situation found on scene.***

IV-18: ***The Town of Brewster and Brewster Fire Department should consider designating the position of EMS coordinator as a full time, Captain (or Captain equivalent) position which is tested for as part of a promotional process. This position should continue to have the requirement that the person holding it must be a currently certified paramedic and hold that certification for the duration of their time in the position.***

IV-19: ***The Town of Brewster and Brewster Fire Department should actively explore the feasibility of implementing some type of community based mobile integrated health care (Community Paramedicine) in an attempt to provide better service to the community, and possibly increase their EMS revenue.***

IV-20: ***The Brewster Fire Department should strive to have a minimum of 16/17 firefighting personnel on the scene of every single-family residential structure fire within 8 minutes of the time that units are responding. For fires in multi-family residential buildings and commercial occupancies, a minimum of 27/28 personnel should be on scene within 8 minutes of the time that units are responding in order to be able to establish a full effective response force. Even if additional permanent staffing is added to the BFD as recommended in this report the use of automatic aid and mutual aid will need to continue and should be enhanced, based upon the type of occupancy a reported fire is in. This should be the department's highest priority.***

IV-21: ***The Town of Brewster and Brewster Fire Department should incrementally hire additional firefighters to enhance daily on duty staffing to an eventual level of seven (7) personnel assigned to each shift.***

IV-22: ***The Town of Brewster should authorize the Brewster Fire Department to apply annually over the next several application periods for a federal Staffing for Adequate Fire and Emergency Response (SAFER) grant to fund the incremental hiring of a total of nine (9) additional personnel (two per shift plus a full-time EMS Officer) over the next several fiscal years, citing an increasing call volume, a high percentage of senior citizens, loss of the department's call force, and a desire to improve overall operational effectiveness, efficiency, and safety.***

IV-23: ***Even if the application for the SAFER grant is not successful, the Town of Brewster should still provide funding to incrementally increase Brewster Fire Department staffing over the next several fiscal years. A suggested timeline would be:***

- ***FY 2025 – Hire four (4) additional personnel to increase shift staffing to six (6) personnel with a minimum of five (5) on duty (off season only).***
- ***FY 2026 – Hire one (1) additional person to allow for the creation of the full-time EMS officer position and the possible implementation of a MICU/CIP program. Promote four (4) firefighters to the rank of Lieutenant.***
- ***2028 – Hire four (4) additional personnel to increase shift staffing to seven (7) personnel with a minimum of six (6) on duty (off season only).***

IV-24: ***As recommended above, in FY 2026, the Town of Brewster should consider creation of the position of Lieutenant on each shift in the Brewster Fire Department to allow for a continued appropriate span of control as recommended under the Incident Management System (IMS). The position of Lieutenant will also ensure that all persons serving in the capacity of an officer and/or shift commander has an adequate level of***

training and experience to fulfill the myriad additional duties and responsibilities of officer positions competently and confidently.

IV-25: ***In FY 2029 and/or 2030, after the above recommended staffing increases are implemented the Town of Brewster and Brewster Fire Department should evaluate the impact of the enhanced staffing levels and its impact on both fire and EMS operations. The purpose of this evaluation will be to determine if seven (7) personnel per shift is adequate, or if additional staffing may still be indicated.***

IV-26: ***At all staffing levels, the Brewster Fire Department should continue to utilize part-time personnel to supplement staffing level and maintain maximum shift staffing during peak season between Memorial Day and the end of September.***

IV-27: ***Even if the Town of Brewster is unsuccessful at its first SAFER application, the Town and Brewster Fire Department should apply again in subsequent years to seek funding for the recommended increase in personnel to provide enhanced operations to the Town.***

IV-28: ***The Brewster Fire Department should implement an operational procedure to have an engine respond immediately (even if it must be requested from mutual aid) with the ambulance on every motor vehicle crash to provide a blocking vehicle to protect the ambulance and personnel operating on the incident scene from being struck by an inattentive motorist. The need for the use of blocking vehicles to help keep emergency responders safe during highway and roadway incidents has become a much more important necessary and significant part of the emergency response system.***

IV-29: ***The Brewster Fire Department should consider the implementation of a company-level inspection program, integrated with a pre-fire/incident planning program as part of its comprehensive community risk reduction program.***

IV-30: ***The Brewster Fire Department should consider the implementation of a voluntary home survey/inspection program with an all-hazards focus. This type of program can be particularly beneficial in a community with a high percentage (35.1%) of senior citizens.***

CHAPTER V - FIRE DEPARTMENT FINANCIAL OPERATIONS

V-1: ***The Town of Brewster should continue to closely monitor the use of overtime and identify strategies to contain overtime costs. Such strategies could include the following:***

- ***Calculate the "break-even" point where the establishment of additional firefighter-paramedic positions would make it possible to allow time-off without creating overtime replacements.***

- ***Continue to monitor the appropriate use of sick time. Excessive use of sick time, or identifiable patterns of sick time usage can be indicators of employee performance or health issues that require intervention and support.***

- ***Continue the use of seasonal personnel during peak vacation/tourist seasons which equates to increased response volumes.***

- ***Management of an occupational safety and health program that includes aggressive enforcement of standard operating procedures (SOPs), training, updated PPE, documentation of occupational injuries and illnesses (including incidents involving department-owned motor vehicles), and investigation of job-related injuries and motor vehicle incidents that includes a lessons-learned after-action report.***

V-2: ***The Town of Brewster and Brewster Fire Department should update their ambulance fee schedule (last updated in 2019) based on increases in service delivery costs and consistent with rates charged by EMS services in the region.***

V-3: ***The Town of Brewster and Brewster Fire Department should continue to seek competitive bids from qualified third-party ambulance billing companies every three (3) to five (5) years. This will ensure that the town is receiving the highest possible level of service at the best possible price. Consideration should be given to establishing a group bid with neighboring communities, which increases the potential for further contract cost reductions.***

V-4: ***The Brewster Fire Department should consider requiring additional permits as authorized by the Massachusetts Comprehensive Fire Safety Code (MGL Chapter 148:527 CMR Board of Fire Prevention Regulations). The department should determine what permits should be required based on risk and common practices in the community.***

V-5: ***The Town of Brewster should consider increasing fire department permit fees based on a review of fee schedules that have been adopted by neighboring communities.***

V-6: ***The Town of Brewster and Brewster Fire Department should continue to aggressively pursue grants from federal, state, and private sources for apparatus, staffing, equipment, training, fire prevention and community risk reduction programs, and EMS***

services to the community. Specifically, the town should apply for a FEMA SAFER grant to fund the additional firefighter-paramedic positions identified in several recommendations including Recommendation IV-22 of this report.

V-7: ***The Town of Brewster and Brewster Fire Department should explore additional potential ways to generate revenue to offset the fire department's operating costs. Consideration could be given to billing insurance companies for response to motor vehicle accidents; registration fees for fire alarm systems; the aggressive pursuit of non-residents who have been billed for ambulance transportation; and the implementation of a fee for ambulance responses that do not result in a transport.***

CHAPTER VII
SUMMARY AND LOOKING TO THE FUTURE

CURRENT STATE OF THE FIRE AND EMS DELIVERY SYSTEM

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

During this assessment of the Brewster Fire Department, MRI observed a highly functional fire and EMS organization that strives to provide a high level of service to the community and the region. The Brewster Fire Department is confronted by multiple challenges; however, those same challenges are facing fire service organizations across America. These challenges include:

- An increasing all-hazards focus.
- Decreased frequency of serious structure fires.
- Increased pressure to reduce resource consumption.
- Increasing technical expectations.
- An increasing focus on documentation, training, and certification of personnel.
- A growing expectation to provide advanced level patient care.
- Increased call volume and simultaneous incidents.
- Lack of a call force to supplement the career staff.

Specific to the Brewster Fire Department, and the 2019 and 2020 response numbers notwithstanding, it is clear that service demand is increasing and that the ability to match resources against the service demand is straining the organization, particularly during the day. As the fire service as a whole has entered into an all-hazards environment, the public has come to expect increased knowledge, skills and abilities from their firefighters. In Brewster, this trend has increased both training and certification requirements.

The Brewster Fire Department appears to be an excellent organization that provides a high-level of service to the town it serves. However, due to increasing requests for service, a defunct on-call force, and limited on-duty staffing, it is struggling to keep up with meeting the growing needs of the community. The department is led by Chief Robert Moran who has been the chief since 2010. Chief Moran is a passionate advocate and energetic leader that is clearly honored to have an exceptional staff and serve his community. Under Chief Moran's leadership the department is trying to get to the proverbial "next level".

The officer corps including Deputy Chief Varley and the Captains appear to work as a team to provide critical, and it appears effective, leadership to the department. All members of the department work as a team to produce a high quality, effective, and efficient response that serves the Town well. Overall, the department works diligently to meet the needs of the community and projects a "can do attitude". This positive attitude translates into the organization being very highly regarded and respected within the community. This high-level of community support is complemented by a most positive internal culture; however, there are some internal culture issues that were previously discussed that do place some negative drag on the organization. That challenge notwithstanding, overall, it is apparent that the Brewster Fire Department is a well-organized, and well-run organization that strives to provide the best possible services with the resources provided.

However, the numerous positive aspects of the department and its operations notwithstanding, MRI's evaluation has identified several areas of risk that we believe the Town of Brewster will need to address in the coming years. These include:

1. The potential for a diminished level of service based on a shortage of available resources, primarily from a career staffing perspective and the annual requests for service continue to increase, coupled with the absence of a viable call force to provide supplemental staffing during fire incidents and times of high activity.

2. A need to continue the widespread use of automatic aid at the time of dispatch to reported structure fires to attempt to assemble an effective response force within the benchmark time frames.

3. Potentially increasing response times based on a growing number of overlapping calls (approaching 20% of annual responses).

STRATEGIC PLANNING (AKA LOOKING TO THE FUTURE)

Strategic planning is an organization's process of defining its direction, and making decisions relative to the optimization of limited resources. A strategic plan also contains tools that can

guide the implementation of the strategy. Strategic planning became prominent in corporations during the 1960s and remains an important aspect of organizational planning. A 2006 Volunteer Fireman's Insurance Service (VFIS) report notes:

> ***"No business is successful without some type of strategic planning – making sure that the business will survive. The ESO is no different. Strategic Plans in business (and ESOs) lay the groundwork for effective organizational management and performance."***[23]

Strategy has many definitions, but generally involves setting goals, determining actions to achieve the goals, and mobilizing resources to execute the actions. A strategy describes how the ends (goals) will be achieved by the means (resources). Strategy can be planned (intended) or can be observed as a pattern of activity (emergent) as the organization adapts to its environment or competes. The strategy currently in place in the Brewster Fire Department is a progressive and forward thinking one. The Brewster Fire Department has an excellent five-year strategic plan that covers the period of 2022 through 2026. **With this report, it is MRI's goal to assist the Town of Brewster and the Brewster Fire Department in moving forward in a planned or intended strategic manner through support for the plan in place with enhancements through the recommendations contained herein.**

Fire and rescue operations and service delivery is dramatically improved in those departments that commit resources to goal setting, master planning, risk assessment, and performance measurement. **The Brewster Fire Department should be commended for their commitment to this process and the development of an excellent document to help them continue to move forward.**

Performance measures should be easily understood and easily calculated. Suggested performance measures for the fire and rescue services often have a range depending on local factors. The point of the performance measures is to identify the community's expectations in a quantifiable way, and to use the measurement of the fire and rescue's performance against these objectives to identify areas, which may need improvement, or require additional resources.

MRI'S VIEW OF THE FUTURE

Looking ahead, the Town of Brewster will continue to experience some limited growth and development, probably about 1% per year. The Town is committed to maintaining its rural Cape Cod character so it is unlikely that any major developments will be approved, especially commercial or industrial projects. While even limited development will have some impact on the Brewster Fire Department, the exact amount is difficult to predict quantitatively and accurately.

[23] http://www.msfa.org/content/recruit/file/CEO%20MANUAL%20ARIAL%20-%20disc.pdf

The five-year data review of Brewster Fire Department responses did not show any definitive pattern; however, that is frequently seen right now with the COVID pandemic having significantly skewed responses for 2020. Our long-term experience suggests it is likely that emergency responses will increase several percent (3% to 5%) annually with the most significant increase in requests for emergency services will be EMS related. As previously noted, people over the age of 65 are considered in a higher risk group both from the perspective of fire and medical emergencies. An aging population group, along with the potential for the number of senior citizens in the age 65 and over group – currently at 35.1% of the population - to increase with new development, or with people who turn what was a vacation home into their permanent retirement residence, also suggests that the number of responses will continue to increase.

As currently configured and staffed, the Brewster Fire Department is struggling to keep up with demand. Just two simultaneous or overlapping end up utilizing all of the on-duty resources. This often effectively leaves the Town without any fire protection capabilities available except from mutual aid departments. In addition, the Town and the Department are facing the following challenges related to the emergency response system.

- The loss of the call component of the Department over the past 10 years. This results in the only emergency response personnel immediately available (not counting mutual aid) being the on-duty personnel. There are no longer call personnel who respond to provide coverage or assist with multiple incidents.

- Housing and rental costs in Brewster and surrounding communities, and to a larger extent Cape Cod in general, are extremely high and thus unaffordable for most public safety personnel especially those who are just starting out. This results in many firefighters living on the other side of the Sagamore Bridge, more than 30 minutes from town and of limited to no value in a call back situation.

- The department has struggled to retain personnel. Frequent vacancies and a constant staffing deployment model has resulted in a high level of mandatory holdover and order-in overtime which can have a significant impact on firefighter health and wellness, as well as morale within the Department.

- As noted above, any future housing or land use development coupled with an aging resident population will most likely result in increased requests for services further straining the system.

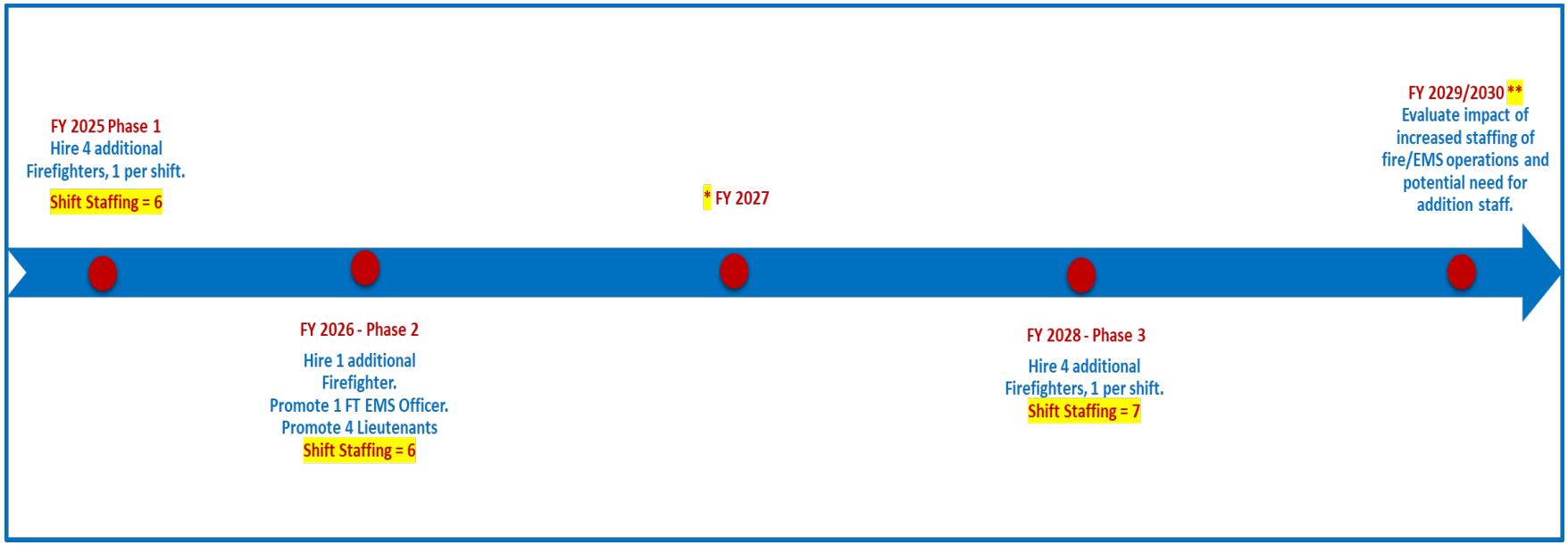
Based upon these factors, and as discussed throughout this report, MRI strongly believes that the Town needs to incrementally increase Brewster Fire Department staffing over the next several

years in order to arrive at what we believe is an enhanced and sustainable organizational and deployment model.

The key recommendations found in this report related to staffing are illustrated below. Please refer to the body of the report for additional explanation and justification for each recommendation.

Figure VII-1 illustrates the suggested timeline for the Brewster Fire Department to increase staffing to seven (7) personnel per shift between FY 2024 and FY 2028. The Town and BFD should apply annually for a SAFER grant. However, **MRI strongly recommends that even if they are not successful at obtaining a SAFER grant FY 2025 that the Town of Brewster and Brewster Fire Department should continue to apply in each subsequent year until they reach recommended staffing levels.** If a later successful SAFER grant award is received this timeline can then be adjusted – and possibly accelerated - based upon that award.

Under this scenario, the number of paramedics will ultimately be decided by the Town of Brewster. MRI strongly recommends that the department have a sufficient number of paramedics to optimally have a minimum of three (3) on duty at all times. This would allow one each for two ambulances and one on the engine giving it ALS capability as well.



***** Consideration to moving FY 2028 Phase 3 hires up to FY 2027 could be given through application for a SAFER grant and/or if the Town's fiscal factors, needs, and priorities permit.

*** *** FY 2029/2030 - Evaluate the impact of the enhanced staffing levels and its impact on both fire and EMS operations. The purpose of this evaluation will be to determine if seven (7) personnel per shift is adequate, or if additional staffing may be indicated.

FIGURE VII-1: RECOMMENDED STAFFING INCREASE TIMELINE

Figure VII-2 shows the recommended BFD organizational structure – illustrated by phase - based upon attempting to achieve the staffing levels recommended in this report. The figure does not show part-time/seasonal personnel. The Brewster Fire Department is encouraged to continue to utilize these personnel to maintain maximum shift staffing levels during peak vacation/ tourist season from Memorial Day through the end of September.

It is also our recommendation that shift minimum staffing levels outside of peak season can be one person below optimal shift staffing level. So, when shift staffing is at six (6) minimum staffing can be five (5); when it is seven (7) it can be six (6). This allows the first vacancy on the shift caused by any type of leave to not be filled with overtime. During peak season the maximum staffing levels should be maintained through a combination of overtime and the use of the part-time seasonal personnel.

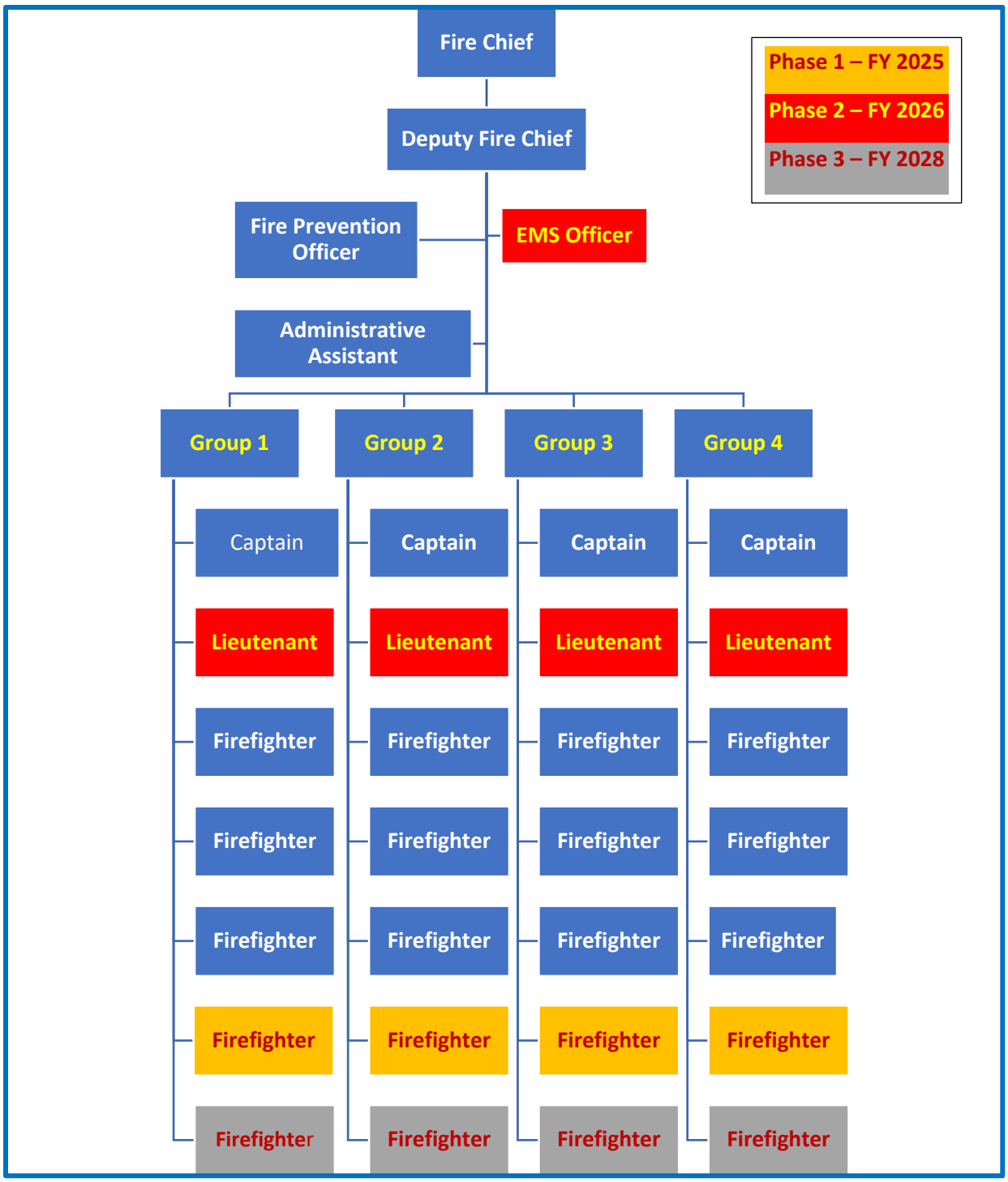


FIGURE VII-2: PHASE 1 – FY 2025 THROUGH PHASE 3 – 2028 STAFFING ORGANIZATIONAL CHART

Once a staffing level of seven (7) is achieved the Brewster Fire Department will be able to staff:

- ✓ Two ambulances with two (2) personnel each.
  - If a third ambulance is needed during the day, it can be staffed with administrative personnel if they are available.
- ✓ One engine with three personnel.
- ✓ For structure fire calls, alarm systems, etc., if all personnel are available then the engine can respond with four (4) personnel and the ladder with three (3).
  - If one ambulance is committed on a call, while less than optimal, the engine can respond with three (3) and the ladder with two (2).

In FY 2029 and/or FY 2030 the BFD should evaluate the impact of the enhanced staffing levels and its effect on both fire and EMS operations. The purpose of this evaluation will be to determine if seven (7) personnel per shift is adequate, or if additional staffing may be indicated at that time. If it is determined at that point that additional staffing may be necessary, the following provides a snapshot of what a staffing level of eight (8) personnel would look like.

- ✓ Two ambulances with two (2) personnel each.
  - If a third ambulance is needed during the day, it can be staffed with staff personnel if they are available and/or a combination of shift and administrative personnel.
- ✓ One engine with four personnel.
- ✓ For structure fire calls, alarm systems, etc., if all personnel are available then the engine and ladder can both respond with four (4) personnel.
  - If one ambulance is committed on a call, the engine and ladder can both still respond with three (3) personnel.

FIRE SERVICE ACCREDITATION

Accreditation is a comprehensive self-assessment and evaluation model that enables organizations to examine past, current, and future service levels and internal performance and compare them to industry best practices. This process leads to improved service delivery.[24] The Center for Public Safety Excellence's (CPSE) accreditation program, administered by the Commission on Fire Accreditation International (CFAI) allows fire and emergency service agencies to compare their performance to industry best practices in order to:

- ➢ Determine community risk and safety needs and develop community-specific Standards of Cover.
- ➢ Evaluate the performance of the Department.

[24] http://www.publicsafetyexcellence.org/agency-accreditation/about-accreditation-cfai.aspx

- Establish a method for achieving continuous organizational improvement.[25]

Particularly for emergency services, local officials need criteria to assess professional performance and efficiency. The CFAI accreditation process provides a well-defined, internationally recognized benchmark system to measure the quality of fire and emergency services.[26]

The Brewster Fire Department is operationally and administratively a well-managed and operated, full-service emergency provider. Based upon that premise, at some point in the future (perhaps after staffing levels are increased), the department, with support from the Town of Brewster, should consider undertaking the accreditation process. Although time consuming and labor intensive it would allow the department to be recognized for its excellence.

CONCLUSION

The Town of Brewster is well served by its fire department. The department provides a highly proficient level of fire and EMS services and has readily adapted to the demands placed on it in an ever-changing environment. Although service demands and capabilities were severely stretched by the impact of the Covid pandemic, the department continued to provide superior service. Unfortunately, staffing levels have not kept up with the increase in emergency calls, and the Town is frequently left with inadequate coverage for both fire and emergency medical incidents. The on-duty staffing structure should be increased, and the Town should move toward staffing two ambulances while not sacrificing continuous fire coverage. The fire department's community risk reduction program (CRR) has the potential for strengthening the town's resilience against all types of threats, both natural and manmade, and for training the public to deal with medical emergencies. Labor-management relations are mostly stable, and the department's training and quality assurance initiatives help to ensure that personnel operate safely and effectively at fire scenes. Self-assessment and strategic planning initiatives will enable the fire department to evaluate its performance in comparison to national standards, best practices, and other fire departments.

The report should be studied in its entirety to gain a complete picture of MRI's recommendations and the rationale behind them. Town and fire department leaders may develop their own priorities; modify the recommendations based on the ever-changing needs of the town and the department; and coordinate solutions based on time, personnel, and fiscal realities.

[25] http://www.publicsafetyexcellence.org/agency-accreditation/about-accreditation-cfai.aspx

[26] http://www.publicsafetyexcellence.org/agency-accreditation/about-accreditation-cfai.aspx

The MRI project team must stress again the citizens of the Town of Brewster should feel confident, and be proud of the fact, that the Brewster Fire Department is an extremely professional and capable public safety organization that is providing a critical service to the community, day in and day out. The team continues to be impressed with the dedication and commitment of its members.

In order to address the 39 recommendations that have been identified in this report, the Town of Brewster and the Brewster Fire Department should:

1. Approach them strategically and systematically.

2. Use them as a roadmap to guide change and improvement within the department focused on service enhancement.

3. Refer to them when making recommendations, check them off as they are accomplished, and most importantly, recognize the positive achievements publicly.

CHAPTER VIII
PROJECT TEAM

The following members of our staff participated in this project:

TEAM LEADER:

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

Chief Finley received his Associate in Applied Science degree from Atlantic Community College in New Jersey, and earned his Bachelor of Science degree in Fire Science/Administration from the University of Maryland. He is a graduate of the National Fire Academy's Executive Fire Officer Program, earning perfect scores on three of his four Applied Research Projects. He was awarded an Outstanding Research Award for his 2002 paper titled, "Residential Fire Alarm Systems: The Verification and Response Dilemma".

Chief Finley holds nearly two dozen state and national certifications and is a member of a number of fire service organizations, including achieving the prestigious Chief Fire Officer designation from the Commission on Fire Accreditation International. He is a member of a number of fire service organizations and is currently serving as President of the New Jersey Career Fire Chiefs Association where he has been involved in the development and administration of fire service promotional examinations. From 2003–2005 he served on the Training and Education Committee of the Governor's Fire Service and Safety Task Force. He also previously served on the state committee that developed New Jersey's first Firefighter I Instructor Manual.

PROJECT TEAM

Donald P. Bliss retired in July 2019 as vice president for field operations at the National Fire Protection Association, Quincy, MA where he oversaw NFPA's international division and NFPA's regional operations in the U.S. and Canada. Prior to joining NFPA, Bliss was a senior project manager and public safety consultant with Municipal Resources, Inc., a municipal management consulting firm based in Plymouth, NH. He also chaired various technical committees at NFPA and served on the NFPA board of directors and the Fire Protection Research Foundation board of trustees.

From 2003 to 2012, he served as the director of the NI2 Center for Infrastructure Expertise, a not-for-profit applied research group based in Portsmouth, NH dedicated to strengthening the security and resiliency of the nation's built critical infrastructure and key resources.

Bliss served as the New Hampshire State Fire Marshal from 1992 until 2003. In the wake of the tragic events of September 11, 2001, he took over responsibility for New Hampshire's emergency management and homeland security efforts. From 1983 to 1992, Bliss served as the fire chief in Salem, New Hampshire. From 1989 to 1992, he served as both fire chief and the town's emergency management director. From 1980 to 1983, Bliss served as the director of the University of Connecticut Fire Department and as fire marshal for the University of Connecticut System. He began his career with the Durham-UNH Fire Department in 1970, rising from call firefighter to fire marshal/deputy chief. During his time in Durham, he also volunteered as an EMT with the Durham Ambulance Corps (now known as McGregor EMS) and served in various leadership positions, including president.

Bliss has served as a subject matter expert on critical infrastructure protection with the Mobile Education Team of the Center for Homeland Defense Studies at the U.S. Naval Postgraduate School and was an adjunct professor in the graduate public administration program at the University of New Hampshire. He currently serves on the Federal Emergency Management Agency (FEMA) National Advisory Council; the board of directors of McGregor EMS; and is a Distinguished Senior Fellow at Northeastern University's Global Resilience Institute. In 2020, he was named to the National Fire Heritage Center's Hall of Legends, Legacies and Leaders.

Bliss received a Bachelor of Arts in political science from the University of New Hampshire in 1973 and a Master of Public Administration degree, also from the University of New Hampshire, in 1979. He has completed numerous courses at the National Fire Academy in Emmitsburg, Maryland.

Brian P. Duggan, Director Fire Services Group, retired from the Fire Department in Northampton, Massachusetts, where he instituted substantial changes to modernize and restructure the entire department including equipment, facilities, personnel, and training. In conjunction with his staff, Brian integrated Emergency Medical Services (EMS) into the organization and created a regional Advanced Life Support (ALS) Program that currently serves 18 communities within the Northampton Area. He formerly commanded the Northborough, Massachusetts, Fire Department, and has significant experience with the Massachusetts Department of Fire Services where over three decades, he held several key positions. Following his retirement, Brian has continued his active fire service involvement by serving as both a volunteer chief fire officer and through continuing to develop training and certification programs as a program Coordinator for the Massachusetts Department of Fire Services.

Mr. Duggan developed and directed the Graduate and Undergraduate Fire Science Programs at Anna Maria College in Paxton Massachusetts from 1995 - 2003. Mr. Duggan has a Business Management/Fire Science degree from Providence College and a Master's Degree of Business Administration (MBA) from Nichols College in Dudley, Massachusetts. He is also a graduate of the National Fire Academy Executive Fire Officer Program and the Senior Executive Program for State and Local Leaders at Harvard University. In December 2012, Mr. Duggan received a Master's Degree in Homeland Security through the Naval Post Graduate School based in Monterey, California, where his thesis entitled "*Enhancing Decision-making during the First Operational Period of Surge Events"* was selected as an outstanding thesis. He was one of the first fire service professionals to be designated as a Chief Fire Officer by the Commission on Fire Accreditation International.

Brian led the Massachusetts fire service through his affiliation as Chairman of the Fire Chief Association of Massachusetts Technology Committee and as a Regional Director on the Massachusetts State Fire Mobilization Committee. Mr. Duggan has authored several publications, inclusive of writing Section 7, Chapter 3, Fire Department Information Systems, in the Nineteenth and Twentieth Editions of the National Fire Protection Association's Fire Protection Handbook. Chief Duggan has been affiliated with MRI as a subject matter advisor since 2002 and he has served as Director of Fire Services since 2015. Currently, Mr. Duggan is regarded as an expert specific to fire service response to photovoltaic and battery energy storage system (BESS) emergencies. He has developed several nationwide training programs providing first responders with new insight on these emerging challenges.