NORTHEAST KINGDOM CONSORTIUM

REGIONAL FIRE SERVICES FEASIBILITY STUDY

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NORTHEAST KINGDOM CONSORTIUM
REGIONAL FIRE SERVICES FEASIBILITY STUDY

I. PROJECT OVERVIEW, PURPOSE, SCOPE, AND METHODOLGY

PROJECT OVERVIEW

The Towns of St. Johnsbury and Waterford in the Northeast Kingdom (NEK) of Vermont were awarded a 2020 Municipal Planning Grant from the Vermont Department of Housing and Community Development in order to join in a consortium of area towns to conduct a feasibility study on regionalizing fire protection services. The towns of Barnet, Concord, Danville, Groton, Lyndon, St. Johnsbury, and Waterford (the "Consortium") appointed member to a steering committee, which contracted with Municipal Resources, Inc. (MRI) to provide an evaluation and review of the manner in which the fire and rescue services are provided within those communities. Using this as a basis, MRI has developed recommendations for improvements that take into consideration the current and future needs of the communities, and recommendations for appropriate modifications to the delivery systems to provide the desired level of fire services.

MRI has developed this report containing recommendations for improvements to organizational practices, recruitment and retention efforts, infrastructure, and on-call staffing. The project team has developed a narrative recommending appropriate modifications to the fire and rescue delivery systems to provide optimum service to the entire community. It has also evaluated the efficient use of resources, and whether the current organizational structure is appropriate or should be modified.

A key component of the basis of this report is that the seven towns are seeking to evaluate opportunities for regional cooperation for Fire Protection and Prevention Services. The current operations of each community have been reviewed to identify the present and future fire service needs of the community, and to provide recommendations that will assist the community with decision making for resource allocation and operational planning.

The task of the project was to conduct a feasibility study to determine the potential to achieve the following benefits:

- Increased efficiency
- Improved effectiveness
- Enhanced or expanded services

- Reduced costs
- Cost avoidance
- Coordination of Regional planning
- Elimination of artificial boundaries
- Standardization of services and program\Potential reduced ISO ratings
- Accreditation
- Impact on future state and federal grant funding

SCOPE OF WORK

This study required the extensive involvement of Consortium leadership to obtain as much data and other information as possible, to be able to give a clear concise report including future models using current accurate data sets.

The study focused on an assessment to determine whether the existing organizational model, staffing, facilities, apparatus, and equipment of the communities are in line with generally accepted standards and benchmarks, and commensurate with communities of like character. The project team reviewed the background information that impacts the consortium and performed a comparative analysis. Items that were considered as part of this evaluation included:

A. Policies that determine staffing levels and types of staffing used
B. Community population and demographics
C. Target fire hazards (residential, industrial, educational, and municipal features of the community)
D. Property values
E. Services provided
F. Special hazards and risks (i.e., nursing homes, assisted living facilities, lakes, rivers and other waterfronts, Northern Vermont University at Lyndon , industrial facilities, hotels, road network, and multi-story buildings)
G. Budgets
H. Deployment strategy of manpower and apparatus by type of incident
I. Call volume
J. Time services were provided
K. Response times

The MRI project team, evaluated the overall operations of the departments to identify what works and what does not work:

- Analyzed resources and equipment
- Reviewed budget and expenditures

- Reviewed practices and policies of the department
- Analyzed call volume against the availability of resources
- Reviewed organizational structure for appropriateness
- Assessed the department's on-call staffing, and recruitment and retention efforts that exist within the community
- Identified major issues and concerns of the community regarding the operations of the Fire Department.
- Achieved an understanding and appreciation of the values and "personality" of the community and the local government
- Formed an understanding of the community's needs, wants, and desires regarding fire services in the future
- Discussed planning for a strong partnership between the community and the Fire Department into the future
- Identified potential areas of risk/liability and made recommendations to reduce those exposures

Much of the research for this report was completed through virtual meetings, based upon the guidance provided by the State of Vermont pertaining to travel and meetings during the Covid-19 pandemic. These virtual meetings were complemented by in person interviews and on-site field visits when possible. Considering the COVID 19 Pandemic, a high percentage of the research and interviews were conducted remotely. Interviews were delayed due to participants taking vacations and therefore the report delayed in its development. The project team spent several hours of time collecting and analyzing data; making observations, inspecting facilities, equipment and records, conducting interviews and when possible touring the departments and the communities. Much of the data received needed to be reviewed in great detail, in order to allow for proper comparison and calculations to be conducted.

METHODOLOGY

The project team conducted a study of the seven communities followed by the development of this report. Upon completion of its review, MRI has made recommendations for improvements that take into consideration the current and future sustainability and needs of the communities and region, appropriate modifications to the delivery systems to provide optimum response time and service to all the towns, how current and future needs will impact the location and/or expansion of physical facilities and equipment, and whether the current fire and rescue staffing is appropriate or should be modified.
Specific items addressed, included but were not limited to, the following:

A. Identified service needs, based on the characteristics of the community, statutory and regulatory requirements for response and delivery, and comparison with

current ability to fulfill the needs and expectations.

B. Identified the public safety risks and prioritize the level of risk that must be covered based on the data and operations of the fire and EMS operations. The type, frequency, distribution, response times, mutual aid and/or contractor provided services, staffing policies, reporting of emergency and routine responses to all services was included.

C. Assessed the current staffing plan for deploying the required number of fire officers and supervisors, along with vehicles and apparatus used and recommended cost-effective alternatives based on the type of incident. Evaluated whether there were recommended changes to improve efficiency and delivery of service.

D. Evaluated the response of personnel, including appropriate operational staffing, supervisors, management, and support staff, starting with the initial call for routine or emergency services.

E. Identified the required staffing levels that meet the needs of the community in the most cost-effective and complete manner including operating costs, personnel impact, and impact on the delivery of service and workload.

F. An evaluation of departmental policies and procedures that impact the efficient operations of the Fire District. Included possible recommendations that may improve the current policies, procedures, training, and delivery of services in the most cost-effective manner.

G. Reviewed and commented on on-call recruitment and retention efforts within the community.

To accomplish these tasks, MRI used eleven work elements involved in this study. The following methodologies were employed:

1. Reviewed pertinent service demand data
2. Reviewed pertinent community data
3. Conducted a review of response activity
4. Evaluated the current level of mutual aid
5. Toured some of the communities and reviewed some of the target hazards
6. Evaluated fire service facilities and equipment
7. Met with and or Interviewed Fire Chiefs and some staff members
8. Reviewed various fire department documents and budgets
9. Developed a series of pertinent Geographic information systems (GIS) Maps
10. Identified pertinent fire service trends

11. Developed study report

During the development of the report, consideration was made as to assure that the current fire departments and staffing are never replaced and are only enhanced. The report will need to be carefully reviewed and remain a local option as to whether any or all the recommendations are followed. The proposed plan and timetable have been developed to allow for flexibility while still moving forward.

To accomplish the goals and objectives this study has been divided into the following fifteen chapters:

I:	Purpose, Scope & Methodology	IX:	Apparatus and Equipment
II:	Make-up of study Communities	X:	Grants
III:	Community Risk Assessment	XI:	Department Needs
IV:	Incident Response and Times	XII:	Mapping Out the Future
V:	Staffing	XIII:	Conclusion and Implementing Change
VI:	Automatic and Mutual Aid Practices	XIV:	Consolidated Recommendations
VII:	On-Call Recruitment and Retention	XV:	Project Team Profiles
VIII:	Budgets		

II: MAKE UP OF STUDY COMMUNITIES

The assigned towns as part of the study are the towns of Barnet, Concord, Danville, Groton, Lyndon, Saint Johnsbury and Waterford. The towns are in the counties of Caledonia and Essex in Vermont. The total study is consisting of approximately 330 square miles in the Northeastern part of the State. The area covers two major US Routes (Routes 91 and 93) as well as many other state and local highways and roads that run the full class of road classifications.

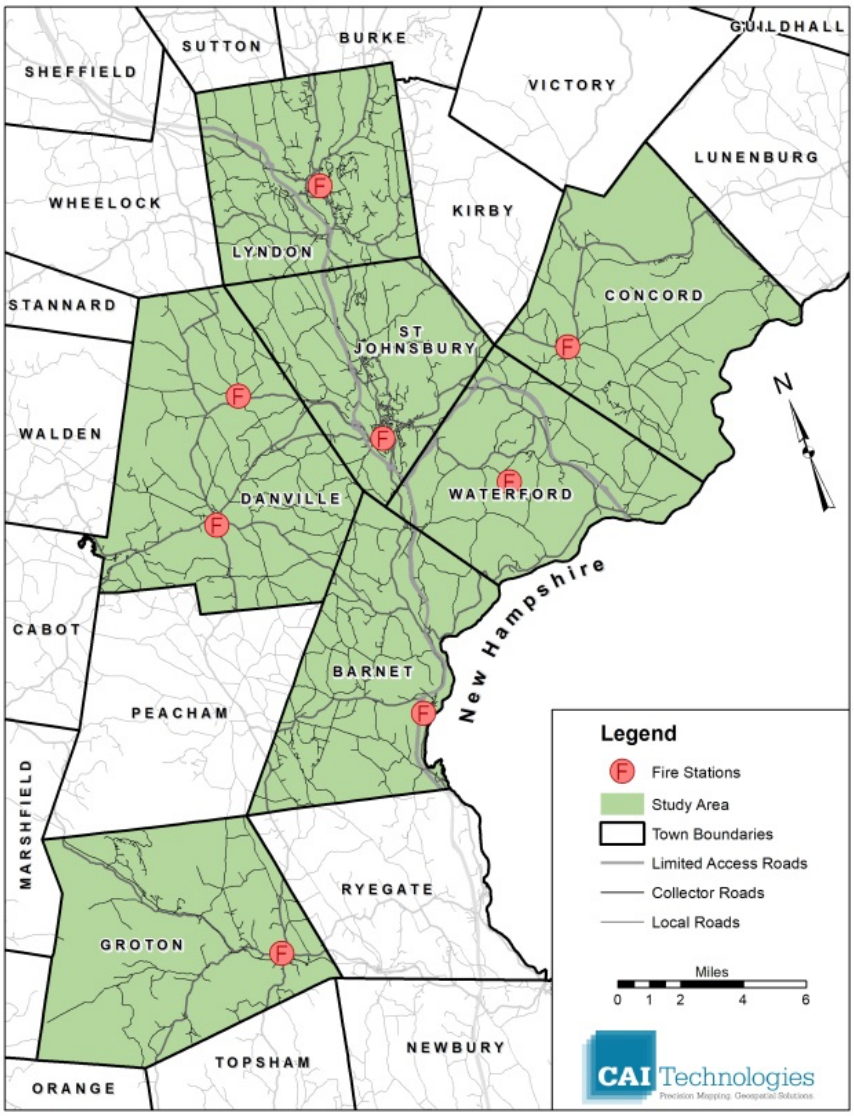


Figure 1
Project Area Map

The latest population data was taken from the 2010 Census and from the NVDA web site followed by the government's results of the 2010 Census and projections for 2030.

	2010 Population	Median Age	Under 5	18 older	65 +
Barnet	1564	45.4	7.2%	81.2%	21.5%
Concord	1284	47.2	3.6	81.2	18.9
Danville	2206	53	2.8	81.4	24.2
Groton	984	42.2	1.6	80.4	24.4
Lyndon	5799	33	6.8	81.3	18.8
St. Johnsbury	7244	45.5	2.6	81.1	19.1
Waterford	1444	45.8	35	77.3	17.2
Total/Average	20525	44.58			

Figure 2
Population and Age by Community

	Pop - 2010	Projected 2030	Difference	% Diff	Pop Density 2010
Barnet	1564	1802	238	15%	39.3/sq. mile
Concord	1284	1116	-168	-13%	23.1/ sq. mile
Danville	2206	2248	42	2%	36/ sq. mile
Groton	984	1142	158	16%	18.6/ sq. mile
Lyndon	5799	6322	523	9%	150.7/ sq. mile
St. Johnsbury	7244	7384	140	2%	206.3/sq. mile
Waterford	1444	1376	-68	-5%	32.2/ sq. mile
Total/Average	20525	21390	865	4%	72.3/ sq. mile

Figure 3
Projected Population

The population charts indicate somewhat static populations for each community; however, each community also has a population fluctuation that is dependent on the time of the year and the events that are happening that draw in what is often an attendance that is larger than the community's own population. Public Safety must be able to adapt to these numbers and be able to plan for the possibilities for response that are inherent with larger crowds. These events can be as normal as a motor vehicle accident or as complex as a large scale Multi Casualty Incident (MCI) and anything in-between.

III: COMMUNITY RISK ASSESMENT

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 very 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 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 isn't really 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 picture of what the hazards and potentials for incidents are, identify who is at risk, and attempt to quantify the expected impacts. 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, etc. Risk relates to the probability of a loss due to exposure to a hazard. People and property can be at risk. Consequences to the community are also factors to consider. Each of these factors is assessed during the community risk process (Figure 4).

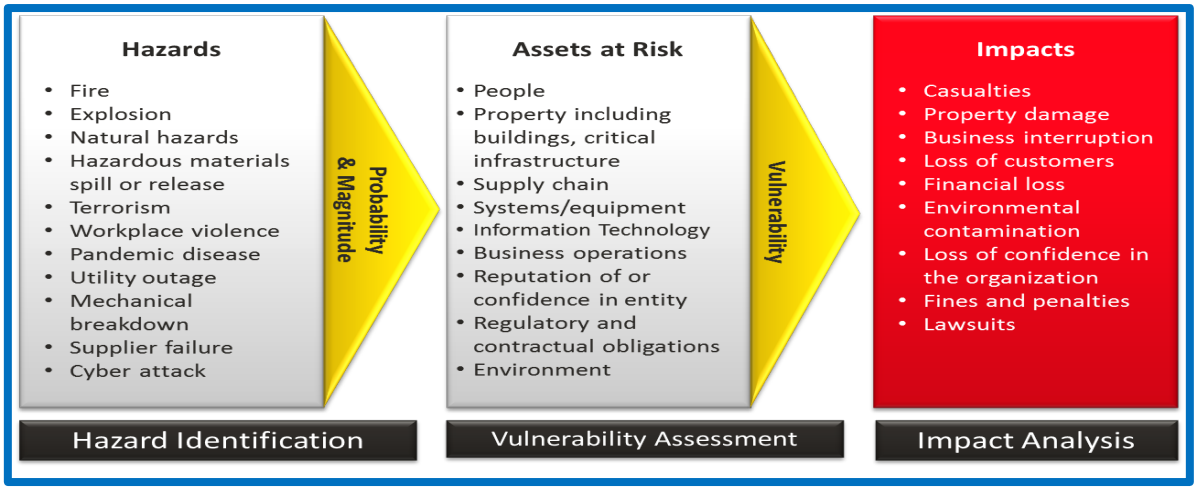


Figure 4
Risk Assessment Process
Image Credit: www.ready.gov/risk-assessment

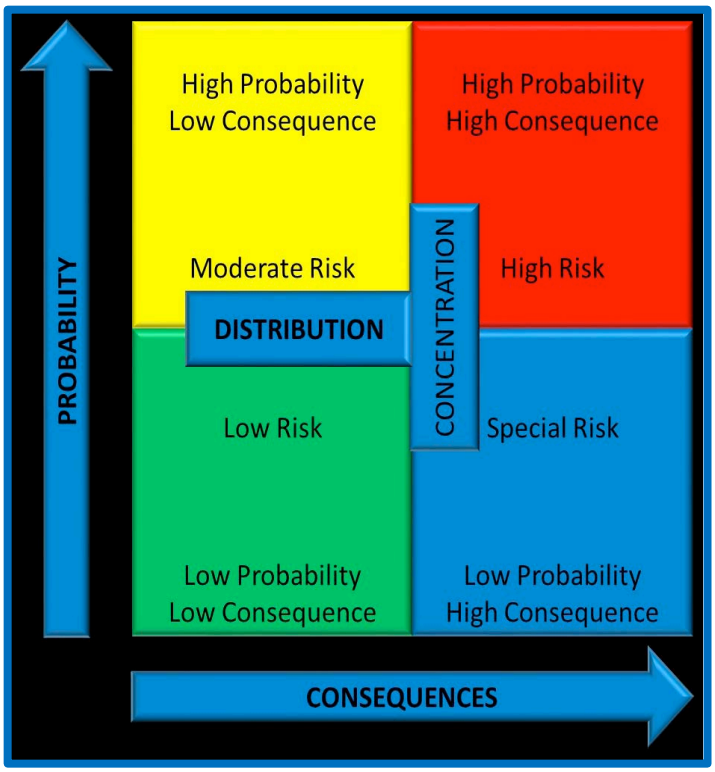


Figure 5
Fire Probability and Consequences Matrix
Credit: Commission on Fire Accreditation Intentional

A more focused 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 the 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.[1] The community fire risk assessment may also include determining and defining the differences in fire risk between a detached

[1] Fire and Emergency Service Self-Assessment Manual, Eighth Edition, (Commission on Fire Accreditation International, 2009), p. 49.

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[2].

The NFPA also identifies a key element of assessing community vulnerability as fire department operational performance which is a comprised of three elements: resource availability/ reliability, department capability, and operational effectiveness[3].

> **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.[4]

The implementation of successful community risk reduction strategies after completion of a community risk assessment are linked directly to prevention of civilian and firefighter line of duty deaths and injuries. In fact, they directly address goals found in firefighter Life Safety Initiatives 14 and 15. Virtually every risk reduction program in the fire and emergency services will have elements of what are called "The 5 Es of Prevention". These include:

Education ▪ Enforcement ▪ Engineering
Economic Incentives ▪ Emergency Response

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

Understanding and addressing only one element will not lead to a successful program. All five "Es" must be integrated into every program for it to be effective[5] (Figure 6). Strong fire prevention codes have been shown to be an extremely effective means to reduce risk in a community. Fire alarm and sprinkler systems mandates, for not only commercial buildings but all occupancies, including single family dwellings, dramatically reduces fire risk and increases life safety. Code implementation that doesn't 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.

Figure 6
Five Es of prevention in a community risk reduction program.
Image credit: www.beaherosaveahero.org

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

INSURANCE SERVICES ORGANIZATION (ISO) *RATING*

The Insurance Services Office (ISO) is an independent risk company that services insurance companies, communities, fire departments, insurance regulators, and others by providing information about the risk. ISO's expert staff collects information about municipal fire suppression efforts in communities throughout the United States. In each of those communities, ISO analyzes the relevant data and assigns a Public Protection Classification – a number from 1 to 10. This Class rating places the community in the middle of having a commendable fire suppression program for its size. A Class 1 community represents an exemplary fire suppression program, and Class 10 indicates that the area's fire suppression program does not meet ISO's minimum criteria.

The Public Protection Classification (PPC) program provides objective countrywide criteria that may prove helpful in connection with fire departments and communities planning and budgeting for facilities, equipment and training. When companies have fewer or lower claims to pay, the premiums they collect can be lower. Therefore, by recognizing the potential effect of improved fire suppression on fire insurance losses, in that respect, the PPC program can often serve as an objective mechanism that can help recognize communities that choose to maintain and improve their firefighting services.

PPC can also be an important factor in overall community resilience and provides a consistent measurement tool that can help in these efforts, from the structural fire response perspective. Given the potential effect on fire insurance rates, the PPC could also be a factor considered by some businesses and developers to determine where to make investments.

While ISO's primary focus is to measure the effectiveness of a community's ability to respond to structure fires for insurance purposes, there are many derivative benefits. These include providing a statistically proven method of measuring performance; a methodology that can help as part of planning, budgeting for and making improvements; a tool that can be used to further the concept of community resilience; and a metric that can help encourage investment in a community. ISO ratings consist of the evaluation of three primary components which are listed below:

- Fire Department (50%)
- Water Supply (40%)
- Emergency Telecommunications (10%)

This rating should be utilized to provide a comparative perspective relative to the level of risk that exists in a community. A listing of the current ISO rating for each Consortium community is listed within Figure 7 on the following page.

Community	ISO Rating
Barnet	9/10
Concord	9
Danville	7
Groton	7/9/10
Lyndon	7/7X
St. Johnsbury	4/4x
Waterford	9

Note: The split numbers in the ratings are indicators of the ratings in different areas (villages) of the town.

Figure 7
Consortium Communities ISO Ratings

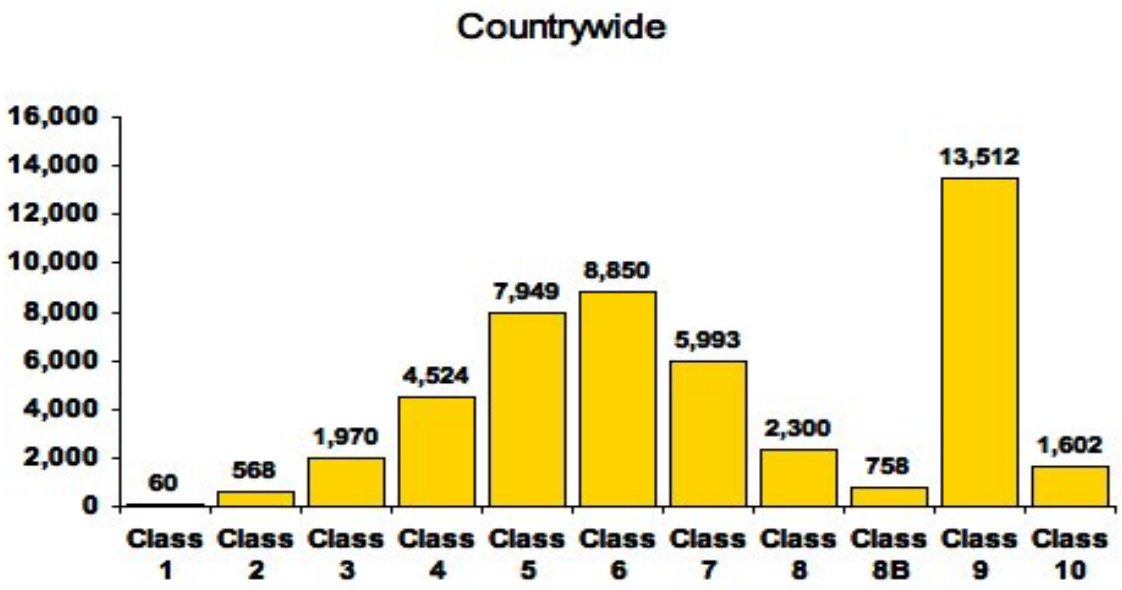


Figure 8
ISO Grading Chart USA
2019

A communities ISO rating provides an opportunity for a community to evaluate the level of risk and based on the points awarded, identify areas of improvement. Each community in the Consortium should utilize the information provided to set incremental goals that move toward a lower rating. Many times, the project team has found that small changes can combine to establish a goal to move the ISO rating from the current class to a lower class over five years, and ultimately, an even lower class within ten years.

The project team believes that often this grade reduction could be accomplished through focusing on the delivery and documentation of high-quality regional training and enhancing water supply inspection and flow testing. The greatest fire safety concern throughout the area covered by the Consortium 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 for an occupant 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.

Although currently not prominent in most of the area, buildings more than three stories in height pose a special risk in an emergency. Fire on higher floors may require the use of ladder trucks to provide an exterior standpipe, to be able to deliver water into a building that does not have a system in place. For victims trapped on higher floors, a ladder truck may be their only option for escape. Buildings six or more floors in height present even more challenges to the Fire Department. Aerial ladder trucks often cannot reach beyond the sixth to the eighth floor (and never higher than the 10th floor) depending upon setbacks, obstructions to placement, etc. Thus, rescue and firefighting activities must be conducted strictly from the interior stairwells. This requires additional personnel to transport equipment up to higher floors. Large area buildings sometimes referred to as horizontal high-rises, such as warehouses, malls, and large "big box" stores often require greater volumes of water for firefighting and require more firefighters to advance hose lines long distances into the building. They also present challenges for ventilation and smoke removal.

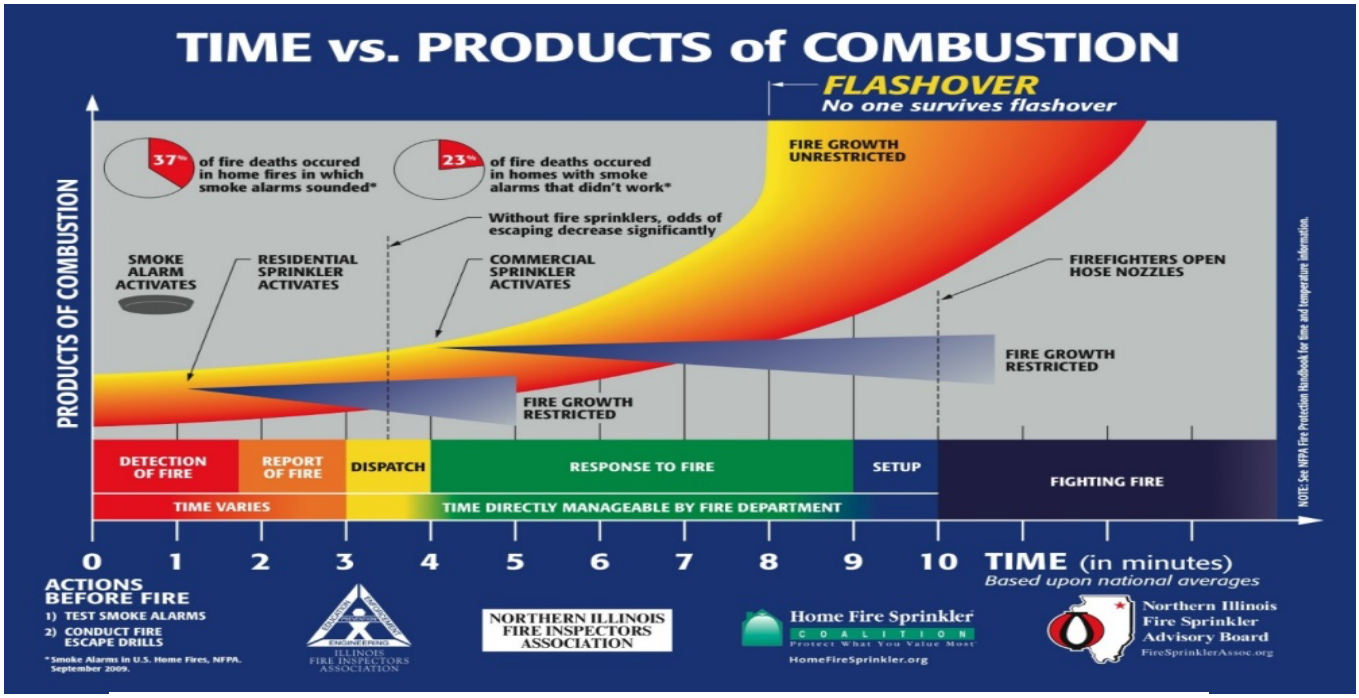


Figure 9

Time versus products of combustion curve showing activation times and effectiveness of residential sprinklers (approximately 1 minute), commercial sprinklers (4 minutes), flashover (8 to 10 minutes) and firefighters applying first water to the fire after notification, dispatch, response and set up (10 minutes).Image credit: Northern Illinois Fire Sprinkler Advisory Board
http://firesprinklerassoc.org/images/newflashoverchart.jpg

Although it is not clear how many commercial and residential sprinkler systems there are in the study area, it is known that 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, and average direct property damage per fire, especially in the likelihood of a fire with large loss of life or large property loss. They do so, much quicker, and often more effectively and with less damage than firefighting operations. No fire safety improvement strategy has as much documented life safety effectiveness as fire sprinklers because they extinguish the fire, or, at a minimum holds it in check and prevents flashover, until the arrival of the Fire Department.

Studies from 2007 to 2011 of fires in all types of structures show, that when sprinklers were present in the fire area of a fire that was large enough to activate the sprinklers in a building not under construction, sprinklers operated 91% of the time[6]. When they operated, they were effective 96% of the time, resulting in a combined performance of operating effectively in 87% of reported fires where sprinklers were present in the fire area and fire was large enough to activate sprinklers[7]. **In homes (including apartments), wet-pipe sprinklers operated effectively 92% of**

[6] U. S. Experience with Sprinklers. John R. Hall, Jr. National Fire Protection Association, June 2013.
[7] U. S. Experience with Sprinklers. John R. Hall, Jr. National Fire Protection Association, June 2013.

the time. When wet-pipe sprinklers were present in the fire area in homes that were not under construction, the fire death rate of 1,000 reported structure fires was lower by 83%, and the rate of property damage per reported home structure fire was lower by 68%.

Like most communities, all the study communities have various types of housing that is older, although still well maintained. Most of these older residential occupancies are wood frame houses. The fire service further assesses the relative risk of properties based on several factors. Properties with high fire and life risk often require greater numbers of personnel and apparatus to effectively mitigate a fire emergency. Staffing and deployment decisions should be made with consideration of the level of risk within each area of a community.

Low Risk: Minor incidents involving small fires (fire flow less than 250 gallons per minute), single patient non-life-threatening medical incidents, minor rescues, small fuel spills, and small brush or outside fires.

Moderate Risk: Moderate risk incidents involving fires in single-family dwellings and equivalently sized commercial office properties (needed fire flow generally between 250 gallons per minute to 1,000 gallons per minute), life threatening medical emergencies, hazardous materials emergencies requiring specialized skills and equipment, technical rescues involving specialized skills and equipment, and larger brush and outside fires particularly if structures are exposed.

High Risk: High risk incidents involving fires in larger commercial properties with sustained attack (fire flows more than 1,000 gallons per minute), multiple patient medical incidents, major releases of hazardous materials, and high-risk technical rescues.

The potential emergency risks present in the towns are not limited to just residential or commercial structural fire incidents. Weather, Transportation, Hazardous Materials, and man-made disasters all add to the overall risk in the community.

It is the project team's assessment that the level of risk differs based on the specific infrastructure and demographics of each community. The level of risk faced by each community and the regional overall can be established based on the information presented within Figure 10.

OCCUPANCY DESCRIPTION	RISK
Single Family Residential (unsprinkled)	*Moderate*
Multi-Family Residential (sprinkled)	*Moderate*
Multi-Family Residential (unsprinkled)	*High*
Institutional-Educational	*Low*
Commercial (Retail and Office) (sprinkled)	*Moderate*
Commercial (Retail and Office) (unsprinkled))	*High*
Industrial	*Moderate/High*
Open Space	*Low*
Transportation Incident	*High*

Figure 10
Community Risk Assessment Hazard index

The weather a community experiences can impact the Fire Department's ability to respond. Snow, ice, and other conditions can slow response. Major storms can create emergency situations that can overwhelm local emergency response forces. The regional area enjoys a moderate climate typical of the New England region. Thunderstorms, strong wind storms, and significant rain events happen several times in an average year. Tropical storms and hurricanes also occasionally impact the area. Snowfall is experienced annually, and occasionally in amounts that paralyzes the region.

The above information is intended to provide a regional "snapshot" of the area. It is not intended to be all-inclusive or comprehensive. For the Fire Department and first responders it serves to put the towns, and their associated hazards and risks, into some context as the Fire Department works to carry out the recommendations of this study. A moderate to high-risk designation should not infer that the risks are eminent safety concerns. The risk designations present themselves based on several factors including what is the potential risk to people based on the factors specific to the target hazard in question.

Ultimately, a comprehensive risk assessment should:

- 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 Budget Committee and Board of Selectmen feels is an acceptable level of risk for the town.

- Define the level of expected emergency response.

Looking ahead, the area will continue to experience a low to moderate increase in growth and development. While this development will have a definitive impact on the Consortium's emergency services, the exact level of increased demand is difficult to quantitatively and accurately predict. Increased commercial 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 services in the region. 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 several 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.

The fire service further assesses the relative risk of properties based on several factors. Properties with high fire and life risk often require greater numbers of personnel and apparatus to effectively mitigate a fire emergency. Staffing and deployment decisions should be made with consideration of the level of risk within each area of the community. The assessment of each factor and hazard as listed below took into consideration the likelihood of the event, the impact on the Community itself, and the impact on Community's fire and EMS providers ability to deliver emergency services, which includes automatic aid capabilities as well. The list is not all inclusive but includes most common incident categories that may occur in the study area.

Low Risk:

- **Automatic Fire/False Alarms**
- **Single patient/non-life threatening BLS EMS Incidents**
- **Minor Flooding with thunderstorms**
- **Good Intent/Hazard/Public Service**
- **Minor fire incidents (fire flow less than 250 gallons per minute) with no life safety exposure**
- **Minor rescues**
- **Outside fires such as grass, rubbish, dumpster, vehicle with no structural/life safety exposure**
- **Small fuel spills**

Moderate Risk:

- **Fires in single-family dwellings and equivalently sized commercial office properties (needed fire flow generally between 250 gallons per minute to 1,000 gallons per minute) where fire and/or smoke is visible indicating a working fire.**
- **Life threatening ALS medical emergencies**
- **Motor Vehicle Accident (MVA)**
- **MVA with entrapment of passengers**
- **Hazardous materials emergencies requiring specialized skills and equipment but not involving a life hazard**
- **Technical rescues involving specialized skills and equipment (such as low angle rescue involving ropes and rope rescue equipment and resources**
- **Larger brush and outside fires, particularly if structures are exposed**
- **Suspicious Substance Investigation involving multiple fire companies and law enforcement agencies**
- **Surface Water Rescue**
- **Good Intent/Hazard/Public Service fire incidents with life safety exposure**

High Risk:

- **Fires in larger commercial properties and target hazards with a sustained attack (fire flows more than 1,000 gallons per minute)**
- **Cardiac/respiratory arrest**
- **Multiple patient medical/mass casualty incidents with more than 10 but less than 25 patients**
- **Major releases of hazardous materials that causes exposure to persons or threatens life safety**
- **High-risk technical rescues**
- **Confined Space Rescue**
- **Structural Collapse involving life safety exposure**
- **High Angle Rescue involving ropes and rope rescue equipment**
- **Trench Rescue**
- **Explosion in a building that causes exposure to persons or threatens life safety or outside of a building**
- **Suspicious Substance incident with injuries**
- **Weather event that creates widespread flooding, building damage, and/or life safety exposure**

Special Risk:

- **Working Fire in a structure greater than three (3) floors**
- **Fire at an industrial building or complex with hazardous materials**
- **Mass Casualty Incident over 25 patients**
- **Rail or transportation incident that causes life safety exposure or threatens life safety through the release of hazardous smoke or toxic material**

Aggressive enforcement of fire and building codes in both new and existing facilities will continue to be a critical factor in managing risk throughout the area. Communications regarding major projects need to be kept open and frequent. Any new development projects that are proposed should be sent to the Fire Department for review and input on fire protection needs and concerns. Unfortunately, some municipalities do not welcome fire department input nearly as readily as others do. In addition, ensuring that existing buildings continue to maintain code compliance is an important component of an overall community's fire protection system.

FIRE AND EMS SYSTEM S.W.O.T. PROFILE

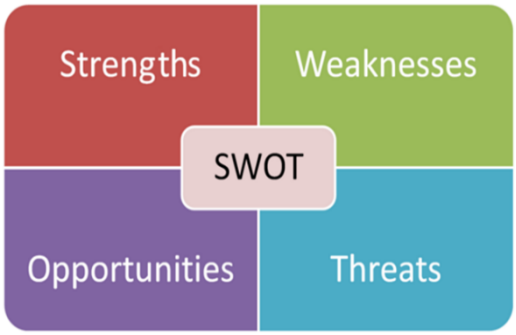


Figure 11
SWOT Analysis

A SWOT analysis is a business term utilized to identify the strengths, weaknesses, opportunities, and threats present within an agency's operating environment. This type of analysis involves specifying the objective or mission of an organization and identifying the internal and external factors that are favorable and unfavorable to achieve that objective.

1. **Strengths:** Characteristics of the agency that allow it to meet its mission, work toward achieving its vision, or provide exceptional service to a community.

2. **Weaknesses:** Characteristics of the agency that may create internal conflict, dysfunction, and/or frustrate organizational performance thus creating a disadvantage to the organization in its efforts to meet the goals established by its mission statement.

3. **Opportunities:** Elements that the organization could pursue or develop to its advantage.

4. **Threats:** Elements in the environment that could create organizational instability or reduce the ability of an agency to fulfill its mission and/or achieve its vision.

A SWOT analysis aims to identify the key internal and external factors seen as important to achieving an organizational objective. SWOT analysis generally groups key pieces of information into two main categories:

1. **Internal factors:** The strengths and weaknesses internal to the organization.

2. **External factors:** The opportunities and threats presented by the environment external to the organization.

Analysis may view the internal factors as strengths or as weaknesses depending upon their effect on the organization's objectives. What may represent strengths with respect to one objective may be weaknesses (distractions) for another objective.
A SWOT analysis can be used to:

A. Explore new solutions to problems.
B. Identify barriers that will limit goals/objectives.
C. Decide on direction that will be most effective.
D. Reveal possibilities and limitations for change.
E. To revise plans to refocus on an organization's mission statement.
F. As a brainstorming and recording device as a means of communication.
G. Creating a series of recommendations in the context of an organizational study.

The SWOT analysis in public safety framework is beneficial because it helps organizations decide whether an objective is obtainable; therefore, enables agencies to set achievable goals, objectives, and steps to further the change, or enhance organizational development. It enables organizers to take visions and produce practical and efficient outcomes that effect long-lasting change. It also helps organizations gather meaningful information to maximize their potential. Completing a SWOT analysis is a useful process regarding the consideration of key organizational priorities.

This process undertaken by the MRI includes an evaluation of both the external environment, as well as the Fire services internal factors and the interrelationship between these two factors.

This was accomplished through virtual interviews, along with the analysis of data obtained from various sources. By approaching the SWOT analysis in this way, the process continues to reinforce a primarily – but not entirely - stakeholder-driven perspective.

Strengths:

- Passion and dedication of all fire and first response personnel – they care and strive to provide excellent service;
- A high degree of mission buy-in and ownership;
- A high regard for the customer and the level of service that they provide;
- Moderate quality apparatus and equipment that is well distributed throughout the Consortium area;
- Moderate support from this study;
- A recognition that the current model of fire service delivery is not sustainable in the long term;
- Support from the public;
- A collective emphasis on developing training programs;
- Strong support to build upon the existing level of coordination of effort;
- Utilization of regional dispatch resources;
- Recognition of current and potential challenges;
- Recognition that there is no one solution;
- A moderate to high level of engagement in this study.

Weaknesses:

- Societal change, and generational differences have changed the value of on-call participation;
- Many active members are aging out;
- An overall reduction in active personnel and response staffing;
- The American fire and EMS services have an increasing risk profile such as cancer, active shooter incidents, and more recently, COVID-19, which may change the level of interest of traditional candidates;
- Increasing training requirements consumes more leisure time;
- Increasing economic pressure on potential responders;
- The need for an increase in fiscal resources;
- Political change in an increasingly divisive society;
- A large gap by the municipal governments in developing a thorough knowledge of what emergency services are delivered to their community;

- Lack of adequate financial support from municipalities relative to the true costs of providing services;
- Although well intentioned, recruitment and retention effort that has had only marginal success;
- Increasing response metrics;
- Lack of education of the public and local officials regarding all facets – including financial – of the fire and EMS delivery systems;
- Continued primary use of traditional response practices for on-call fire response.

Opportunities:

- Use of legislative processes to secure funding at both the local, regional, state, and federal levels;
- The ability to work with the community to identify the current level of service and set realistic service level/cost expectations;
- Development of an enhanced regional collaboration that produces a higher level of service to the Consortium communities;
- Development of pilot programs to identify the most successful practices;
- Implementation of some aspects of Mobile Integrated Health (MIH) Care programs at the community level;
- Create QRF (quick reaction force) model with regional deployment staffed by on-call firefighters paid as per diems and a small cadre of some career staff;
- Development of more intensive local recruitment and retention efforts;
- Development of dual role positions to bolster daytime response;
- Address recruitment and retention consortium-wide, by consolidation of efforts;
- Demonstrate problem solving abilities through programs and by providing a model approach to the declining on-call crisis;
- Consideration of non-traditional and role limited staffing solutions;
- Explore new forms of outreach and marketing to inform the community of the challenges ahead;
- Marketing and communicating the social identity and benefits of being an on-call firefighter in the Fire Department;
- Identify and harness the best practices from across the nation relative to the further development of recruitment and retention strategies;
- Develop new support roles for on-call personnel (tech, social media, marketing, etc.)

Threats:

- The fire services' ability to improvise and get a mission accomplished despite the absence of appropriate financial resources;
- The inability to provide a timely response to multiple overlapping emergency calls;
- The projection of a problem that does not exist, described as **"a crisis without evidence."** ***Meaning that the fire service sees the service gaps, masks the problem so that the public sees and accepts a level of service continuity that goes against the description of the problem;***
- Continued decline of on-call firefighters across the Consortium Area is part of an overall nationwide reduction in volunteerism;
- Continued exodus of younger, trained on-call personnel to career job opportunities;
- The financial costs to communities who will be required to take over or supplement the delivery of fire services in municipalities where providers are not able to generate a sufficient response;
- The fiscal and operational impact of the Covid-19 pandemic which may significantly impact on-call participation;
- Fire and EMS agencies that resist being transparent about their finances even as they request additional public funding;
- Reduction in operational safety based on staffing trends;
- Aging on-call personnel who in many cases keep the lights on and the apparatus responding;
- Generational and cultural differences in the emergency services that is not always as inclusive as they should be;

Looking ahead, each communities' stakeholders should use the SWOT analysis to further define the most critical issues and service gaps facing the fire and EMS services. These service gaps and critical issues will then be utilized as the framework for establishing the priority for implementation of goals and recommendations in this strategic planning document.

After considering the strengths, weaknesses, opportunities and threats present in the communities that constitute the Consortium, the project team believes that regional collaboration is a critical aspect of long-term success. The seven communities that participated in this study have a high level of potential to increase collaboration and develop a regional framework that will ultimately preserve local fire companies and community-based service providers. However, to meet service expectations each community will need to shed parochialism and the political and emotional barriers often created by community boundaries.

Recommendations

III-1: ***Each town or a group of towns should develop a five-year plan to enhance training documentation and water supply inspection, and flow testing to move toward reclassifying the ISO ratings.***

III-2: ***A group of towns should develop a ten-year plan to enhance training, documentation, water supply inspection, flow testing, and emergency telecommunications operations to move toward reclassifying the departments to an even lower ISO rating.***

III-3: ***Each department should conduct a thorough Community Risk Assessment and use the assessment as a tool to move the department into the future. Over the next year, plan should be developed to utilizes strengths to pursue opportunities and address weaknesses while mitigating threats. This should be an ongoing process that has member involvement and is moved forward by the officer core.***

III-4: ***The Consortium should sponsor periodic workshops and focus groups to implement the recommendations in this report and identify opportunities for collaboration and review industry best practice regional initiatives.***

IV: INCIDENT RESPONSE TYPES AND TIMES

From the perspective of effective emergency response, there are three main factors that are used to help determine the deployment of resources:

- **response time,**
- **travel distance,**
- **and call volume.**

When evaluating the effectiveness of fire and first response EMS services, response time is an important measuring instrument to determine how well a fire department or EMS provider is currently performing, to help identify response trends, and to predict future operational needs. Getting effective emergency assistance to the scene of a 9-1-1 caller in the quickest time possible may be critical to the survival of the patient and/or successful mitigation of the incident. Achieving the quickest and safest response times possible should be a fundamental goal of every fire department and EMS provider. It is not just a cliché that during critical life-threatening situations, minutes and even seconds truly do count.

As the study progressed, the project team has worked to identify the service level provided in each community. It is clear that the service level expected consistently throughout the Consortium communities is the rapid response of a single unit. This first response unit would then be followed by additional units as they can be staffed or as they arrive from adjacent communities.

In this section two important factors have been reviewed. The first is the number and type of incidents in each of the three years studied. The second is a series of data that looks at the call volume by times of day as well as the response time. Service demand data is contained within Figure 12 on the following page.

	2018	2019	2020
Barnet	155	161	145
		4%	-10%
Concord	153	147	130
		-4%	-11%
Danville	61	80	63
		13%	-28%
Groton	293	250	278
		-15%	10%
Lyndon	219	213	179
		-3%	-16%
St. Johnsbury	1233	1333	1013
		-8%	-26%
Waterford	93	120	156
		29%	39%
Year Totals	**2207**	**2304**	**1964**
Difference		6%	-17%

Note: Data was provided by dispatch centers and may not include EMS response.
EMS incidents were provided for towns in Bold.

Figure 12
Comparison of Annual Call Volume
Service Demand Data

Based on historic data, the demand for fire and emergency services in most of the United States is increasing at approximately 5% per year. However, within the Consortium there was a minor increase in demand in 2019 and a significant decrease in demand in 2020. It is unclear why the overall numbers dropped from calendar year 2019 to 2020, however, it is likely that call volume has changed due to the impact of the Covid-19 pandemic, response modifications and the reduced activity within each community. Presently the fire response volume within the region averages 5.09 calls per day.

An analysis of the type of incidents the study communities responded to from 2018 thru 2020 was completed with data provided by the two dispatch centers. The table below shows a broad classification of the types of incidents and an average of the number of responses to each over the 3-year period. It is important to understand that not all departments provide the same service. For example, not all towns respond to medical emergencies. It is also important to note that not all the mutual aid provided, was done within the study communities. Regardless of the actual incident address all responses were calculated as it was a service that was

provided by a department. An analysis of mutual aid has been conducted and provided in this document.

	2018	2019	2020	Average
Medical Emergencies	56.25%	54.25%	51.07%	53.85%
Fire Incidents	38.92%	33.54%	33.56%	35.34%
Motor Vehicle Accidents	.50%	9.03%	8.96%	6.16 %
Mutual Aid	2.54%	2.38%	3.63%	2.85%
Assists	1.05%	.32%	.39%	.586%
Not Classified	.19%	.11%	.26%	.186%
Search and Rescue (Quality of life)	0.50%	.37%	.06%	.31%
Natural Disasters	.06%	0%	.06%	.06%

Figure 13
Fire Department Three Year Call Analysis by Incident type

Incidents by time of day and month were also analyzed. The outcome of the data looked at, is very comparable to other departments that have been looked at over the past few years. The results of this analysis can be found within Figure 14 on the following page:

		0000-0359	0400-0759	0800-1159	1200-1559	1600-1959	2000-2359
2020	Barnet	1	2	7	15	8	7
	Concord	7	16	31	30	22	24
	Danville	7	5	11	15	19	6
	Groton	23	31	62	62	58	42
	Lyndonville	4	18	41	44	45	17
	St. Johnsbury	99	114	210	208	237	145
	Waterford	12	17	34	31	38	24
	Total	153	203	396	405	427	265
	Average	21.9	29.0	56.6	57.9	61.0	37.9
2019	Barnet	1	6	9	7	17	4
	Concord	6	23	39	40	19	20
	Danville	4	13	14	22	17	10
	Groton	13	34	62	60	54	27
	Lyndonville	13	16	50	62	46	26
	St. Johnsbury	129	184	280	272	283	186
	Waterford	7	12	23	26	37	15
	Total	173	288	477	489	473	288
	Average	24.7	41.1	68.1	69.9	67.6	41.1
2018	Barnet	1	10	9	7	12	13
	Concord	7	11	35	42	34	24
	Danville	3	4	16	17	13	8
	Groton	25	40	63	54	76	46
	Lyndonville	7	18	53	48	55	38
	St. Johnsbury	83	140	254	278	288	179
	Waterford	4	12	13	26	26	12
	Total	130	235	443	472	504	320
	Average	18.6	33.6	63.3	67.4	72.0	45.7
3 Year Combined	Barnet	3	18	25	29	37	24
	Concord	20	50	105	112	75	68
	Danville	14	22	41	54	49	24
	Groton	61	105	187	176	188	115
	Lyndonville	24	52	144	154	146	81
	St. Johnsbury	311	438	744	758	808	510
	Waterford	23	41	70	83	101	51
	Total	453	708	1291	1337	1367	849
3 Year average	Barnet	1.0	6.0	8.3	9.7	12.3	8.0
	Concord	6.7	16.7	35.0	37.3	25.0	22.7
	Danville	4.7	7.3	13.7	18.0	16.3	8.0
	Groton	20.3	35.0	62.3	58.7	62.7	38.3
	Lyndonville	8.0	17.3	48.0	51.3	48.7	27.0
	St. Johnsbury	103.7	146.0	248.0	252.7	269.3	170.0
	Waterford	7.7	13.7	23.3	27.7	33.7	17.0
	Total	151.0	236.0	430.3	445.7	455.7	283.0
	Average	21.6	33.7	61.5	63.7	65.1	40.4

Figure 14
Incidents by time of day

The time-of-day data indicates that the peak time of service is from 8:00 AM to 8:00 PM, when there is just over an average of 61 to 65 of the calls. This seems to correspond well with the time most of the residents are up and about and doing their daily business.

The second highest time frame was from 8 PM to midnight with 40 calls for service, followed by 4 AM to 8 AM when people are just waking up. Not surprisingly the time frame from midnight to 4 AM, when most people are sleeping indicates the slowest time. What is clear is that the public needs are twenty-four-hour needs, and the departments must be sure that they can efficiently and effectively respond to the incidents all day every day.

Totals and Average over three years (2018-2020)

		Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Avg call per month
Lyndonville	Total	58.0	57.0	45.0	36.0	49.0	44.0	61.0	49.0	55.0	54.0	55.0	48.0	
	Avg	19.3	19.0	15.0	12.0	16.3	14.7	20.3	16.3	18.3	18.0	18.3	16.0	17.0
Waterford	Total	89.0	74.0	80.0	73.0	82.0	81.0	87.0	81.0	87.0	87.0	88.0	71.0	
	Avg	29.7	24.7	26.7	24.3	27.3	27.0	29.0	27.0	29.0	29.0	29.3	23.7	27.2
Danville	Total	15.0	18.0	12.0	12.0	19.0	19.0	20.0	13.0	16.0	9.0	30.0	21.0	
	Avg	5.0	6.0	4.0	4.0	6.3	6.3	6.7	4.3	5.3	3.0	10.0	7.0	5.7
St Johnsbury	Total	338.0	301.0	301.0	276.0	254.0	258.0	306.0	274.0	283.0	327.0	317.0	334.0	
	Avg	112.7	100.3	100.3	92.0	84.7	86.0	102.0	91.3	94.3	109.0	105.7	111.3	99.1
Concord	Total	36.0	25.0	24.0	36.0	42.0	42.0	41.0	32.0	40.0	36.0	38.0	38.0	
	Avg	12.0	8.3	8.0	12.0	14.0	14.0	13.7	10.7	13.3	12.0	12.7	12.7	11.9
Barnet	Total	16.0	7.0	12.0	5.0	16.0	12.0	10.0	14.0	15.0	8.0	4.0	17.0	
	Avg	5.3	2.3	4.0	1.7	5.3	4.0	3.3	4.7	5.0	2.7	1.3	5.7	3.8
Groton	Total	89.0	52.0	49.0	58.0	77.0	91.0	57.0	71.0	59.0	67.0	69.0	82.0	
	Avg	29.7	17.3	16.3	19.3	25.7	30.3	19.0	23.7	19.7	22.3	23.0	27.3	22.8

Figure 15
Incident volume by month

The months of the year was next studied, to see how many calls per month each community responded to and what was the average call for each community over the three-year period of 2018 thru 2020. When looking at this data, it is important to be mindful that not all departments respond to the same type of calls such as medical emergencies, and that the data includes all calls including responses by departments to communities outside the study area. In order to get a better picture of the department's monthly responses the project team looked at two distinctively different average figures.

The average monthly responses over the three-year period for all towns within the study were 26.78 calls per month. When taking Saint Johnsbury with the full-time staff and the highest call volume out of the equation, the average dropped to 14.73 calls per month. This will become an important consideration when looking at staffing alternatives.

Structural firefighting has become far more challenging and dangerous in the last thirty years. A fire can easily at 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 within five to seven minutes of fire ignition and is one of the most dangerous events that firefighters, or trapped civilians, can face. When a flashover occurs, initial firefighting forces are generally overwhelmed and will require significantly more resources to affect fire control and extinguishment.

Heart attack and stroke victims require rapid intervention and care, and transport to a medical facility. The longer the time duration without care, the less likely the patient is to fully recover. Numerous studies have shown that irreversible brain damage can occur if the brain is deprived of oxygen for more than four minutes. In addition, the potential for successful resuscitation during cardiac arrest decreases exponentially with each passing minute that cardio-pulmonary resuscitation (CPR) or cardiac defibrillation is delayed. The true key to success in the chain of survival is the education and early access to the 911 system by civilians. The early notification coupled with the added skills of properly trained EMS staff that arrive quickly, and transport at the appropriate level of care, are all key factors in a positive outcome of patients.

For EMS incidents, nationally the standard of care based on stroke and cardiac arrest protocols is to have a unit on scene at a medical emergency within six minutes from receipt of the 9-1-1 call. Paragraph 4.1.2.1(4) of NFPA 1710[8], which would be applicable to departments that provide first response EMS operations since they are primarily provided by in-station per diem staff, recommends that for EMS incidents, a unit with first responder or higher level trained personnel and equipped with an AED, should arrive within four minutes of response (five minutes of dispatch of the call), and an Advanced Life Support (ALS) unit should arrive on scene within eight minutes (ten minutes of call receipt. Paragraph 4.1.2.2 recommends the establishment of a 90% performance objective for these response times. CAAS[9] recommends that an ambulance arrive on scene within eight minutes, fifty-nine seconds (00:08:59) of dispatch.

Response time is calculated from the time of dispatch to the time of arrival of the first piece of fire/EMS apparatus. It is also important to keep in mind that there are many possible variables to actual response times such as weather, physical location of the incident compared to the location of the station (travel distance) especially during mutual aid responses as well as other simultaneous calls that may be happening. For this calculation only incidents with arrival times in the records provided by the dispatch centers were calculated. The number of incidents used for each of these calculations is in the field next to the average response times listed for each community and calendar year.

[8] 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, 2014 edition (National Fire Protection Association, Quincy, MA), outlines organization and deployment of operations by career and primarily career fire departments.
[9] *The Commission on Accreditation of Ambulance Services (CAAS) is an independent commission that established a comprehensive series of standards for the ambulance service industry.*

	2020		2019		2018	
	Minutes	# Incidents in calculation	Minutes	# Incidents in calculation	Minutes	# Incidents in calculation
Barnet	34	13	23	8	22	8
Concord	19	97	19	125	20	122
Danville	16	60	15	70	14	55
Groton	16	162	18	117	14	167
Lyndon	13	169	14	205	11	215
St. Johnsbury	5	975	5	1261	5	1102
Waterford	17	125	21	90	18	73
Total	120		114		104	
Average	**17**		**16**		**15**	
Average w/o St. Johnsbury	**19**		**18**		**17**	

Figure 16
Average Response time in Minutes

Figure 16 reflects response times which are calculated in minutes from the time of dispatch until the arrival of the first piece of apparatus. This chart uses all of the times provided by the two dispatch centers serving the area. The data in Figure 16 demonstrates the difference between the response of on-call forces and the response of an on-duty quick reaction force in St. Johnsbury. On-call responders need to be toned out and then initiate a response to the station which elongates response times. MRI's research indicates that typical responses for on-call organizations fall into the 10–15-minute range. The communities that routinely exceed a 14-minute average emergency incident response time (other than to remote areas with a travel distance greater than 8 miles), should bring this level of service issue to the attention of the community and work to identify ways to enhance response.

The map in Figure 17 is a GIS heat map indicating in red, the highest incident call volume and green the lowest call incident call volume in the study period. The map in Figure 18 shows the incident location with a red dot for each address. It is important to note that there may be more than one response to an address however only a single response is reflected. To help break this down further, a map for each community has been included in the appendix of this report. This evaluation tool will become key to making future decisions on how if any, merging or regionalization will occur.

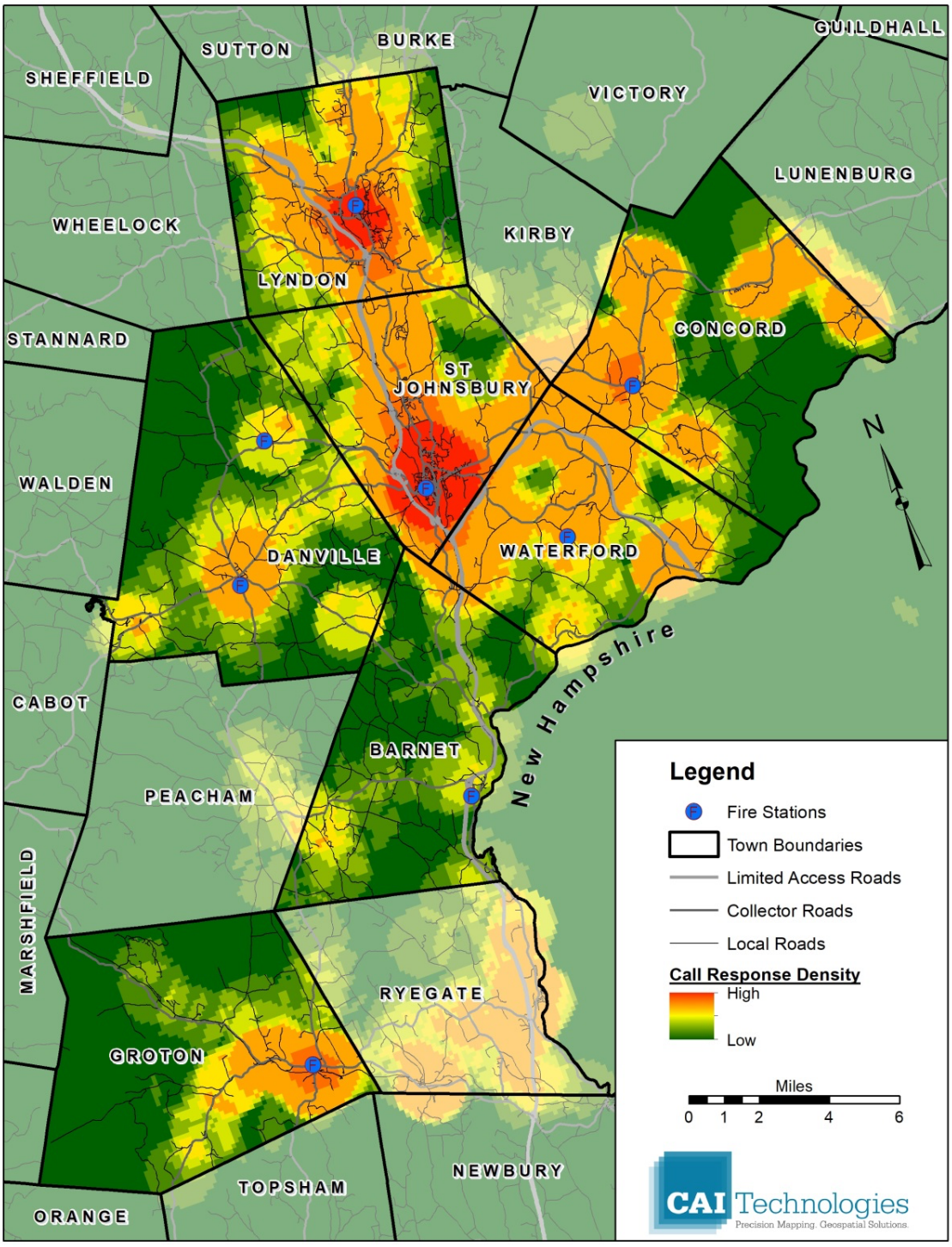


Figure 17
Incident Heat Map

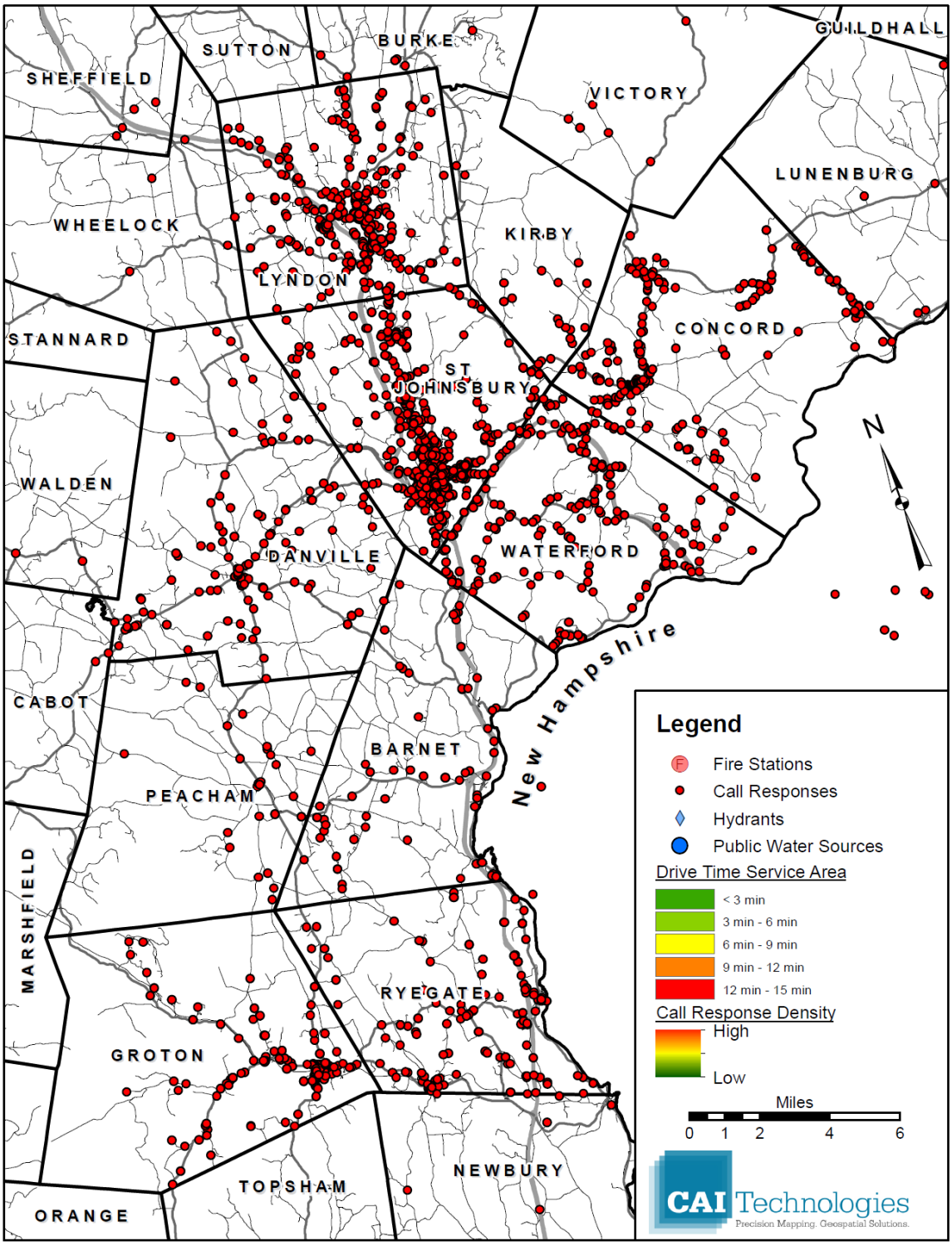


Figure 18
Incident Locations

Recommendations

IV-1: Each community within the Consortium should evaluate response times and work to improve these times to save lives and prevent property damage.

IV-2: Each community within the Consortium should be asked to identify an appropriate service level/Standard of Cover and if service gaps exist these gaps should be quantified and addressed through a collaborative effort by the Consortium.

IV-3: Every effort should be made to preserve the primary responder role of on-call personnel and expand membership within each individual Fire Department.

IV-4: If the average response time to emergencies exceeds the industry standard of 14 minutes (other than to remote areas with a travel distance greater than 8 miles), this service deficit should be brought to the attention of the Board of Selectmen and the community as a whole.

V: STAFFING

Staffing (the response of a sufficient number of personnel to mitigate the incident) is the largest critical success factor associated with fire service operations. The average citizen often has limited interaction with the Fire Department and frequently sees the budget and apparatus set as the primary representations of their fire department. It has often been said that the fire service can have all the best equipment, but that equipment is useless without a properly trained and efficient crew to operate them. Today, call and volunteer firefighters are getting harder and harder to not only recruit but also to retain.

This is a nationwide issue that in many communities is now becoming a crisis. As mentioned previously in this document, this often produces a "crises without evidence" as a less than effective response coupled with mutual aid resources often hide the lack of local responders. The MRI team believes that this situation is on the verge of becoming a very visible crisis within the Consortium communities as responders age out and a lack of operational capability becomes more evident.

The chart below indicates the staffing levels in each of the study departments in the Fall of 2020.

Community	Total	Active	Chief	Deputy	Captain	Lt	FF	Explorer	Support	Other
Concord	**15**	12	1	1	1	1	12	0	0	0
Barnet	**16**	11	1	2	2	0	6	0	0	0
Waterford	**17**	14	1	1	2	2	11	0	0	0
Danville	**19**	15	1	2	2	1	13	0	0	0
Lyndonville	**35**	27	1	2	2	2	26	0	2	0
St. Johnsbury	**19**	14	1	1	2	0	14	0	0	1
Groton	**29**	22	1	2	1	1	10	5	1	0
TOTAL	**150**	**115**	**7**	**11**	**12**	**7**	**92**	**5**	**3**	**1**

Figure 19
Staffing Level by Department

	# EMS		Level of EMS Provider			
Community	Providers		Medic	Advanced	Basic	EMR
Concord	1		0	0	10	0
Barnet	7		0	2	5	0
Waterford	3		0	0	2	1
Danville	0		0	0	0	0
Lyndonville	5		0	2	3	0
St. Johnsbury	17		1	4	11	1
Groton	8		0	0	8	0
TOTAL	41		1	8	39	2

Figure 20
EMS level by Department

Having a high number of people listed on a roster may give a false sense of security. Identifying participation in training and actual response to incidents shows the real numbers and the level of service the department can actually deliver. Data from the last ten on-call/volunteer studies that we have completed indicate that there is a difference between personnel listed on the roster and actual response. The project team often finds 40% of those listed regularly respond to incidents, 20% occasionally respond to incidents, and 40% infrequently respond to incidents.

Most firefighters are not providing the service to the community for money. As an example, MRI has studied a department where 14% of emergency calls received no response from the local community. To address the situation the Board of Selectmen doubled wages but received no corresponding increase in training participation or response. Although this is an extreme case, retention strategies other than wages may be more effective.

It is the hope of most departments to get people interested in performing the services and to keep them as long as they can. This is a difficult goal to achieve, as data shows that for every four new on-call member two remain active for more than two years.

The amount of time that is required to complete training programs should be rewarded. Stipends for making certain benchmarks are another way of compensating staff. A consideration to giving one-time stipends for completing firefighter I, firefighter II, fire officer certifications, and EMS certifications are a way of rewarding people for taking the time and completing programs. These efforts should be coupled with recognition of each members dedication and accomplishment.

NFPA 1720, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public by Volunteer Fire Departments,* 2014 edition outlines organization and deployment of operations by volunteer, and primarily volunteer fire departments. This is the standard that applies to every community in the Consortium other than the Town of St. Johnsbury.

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

1. ***Paragraph 4.3.1 on Staffing and Deployment states that the Fire Department shall identify minimum staffing requirements to ensure that enough members are available to operate safely and effectively.***

2. ***Paragraph 4.3.2 on Staffing and Deployment states that Table 4.3.2*** **(Figure 21) shall be used by the authority having jurisdiction (AHJ) to determine staffing and response time objectives for structural firefighting, based on a low-hazard occupancy such as a 2,000 square foot, two-story, single-family, without basement or exposures.**

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

1 – A jurisdiction can have more than one demand zone.

2 – Response time in this table begins upon completion of the dispatch notification and ends at the time interval shown in the table.

FIGURE 21
Staffing and Response Timetable from NFPA 1720

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

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

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

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

Note: ***While the NFPA standards are nationally recognized consensus standards, it is still the responsibility of the local jurisdiction to determine the acceptable level of risk and corresponding fire protection/EMS services.***

Figure 22
Example of a significant incident requiring the response of several communities.

Some jurisdictions add additional response resources and, in some cases, exceed the specifics of national benchmarking for personnel and other resources particularly when the incident is in a larger structure where the life hazard may be higher and/or the potential fire situation much more complex. Personnel needs for fires involving large, more complex structures, such as large senior citizen, assisted living (Figure 22), and commercial occupancies, of which the study area is projected to have a growing number of these occupancies.

Response to these structures will require a significantly greater commitment of initial personnel, minimally 27/28, according to the 2016 edition of NFPA 1720's companion standard 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*. This should include reported fire incidents in buildings that are fully sprinklered. While sprinklers are highly effective, they are not 100% so. Until such time as the extent and seriousness of the incident can be determined, a full complement of personnel and apparatus should be dispatched.

Figure 23 identifies, and Figure 24 illustrates, the critical tasks and resource deployment required for low to moderate-hazard incidents such as one and two family residential and small commercial structure fires. Although some people advocate that these types of incidents can be handled with less personnel, unless it is a small fire, there is the possibility there will not be enough personnel available to perform all the critical tasks necessitating that some be delayed.

Figure 23
Residential Structure Fire within the Consortium Area

CRITICAL TASK	NEEDED PERSONNEL
Incident Command	1
Continuous Water Supply/Pump Operator	1
Fire Attack via Two Handlines	4
Hydrant Hook-Up, Forcible Entry, Utilities	2
Primary Search and Rescue	2
Ground Ladders and Ventilation	2
Aerial Operator (if Aerial is Used)	1

Establishment of an IRIT (Initial Rapid Intervention Team)	**2**
Effective Response Force	**14/15**

Figure 24
Critical Tasking Low and Moderate Risk Structure Fire

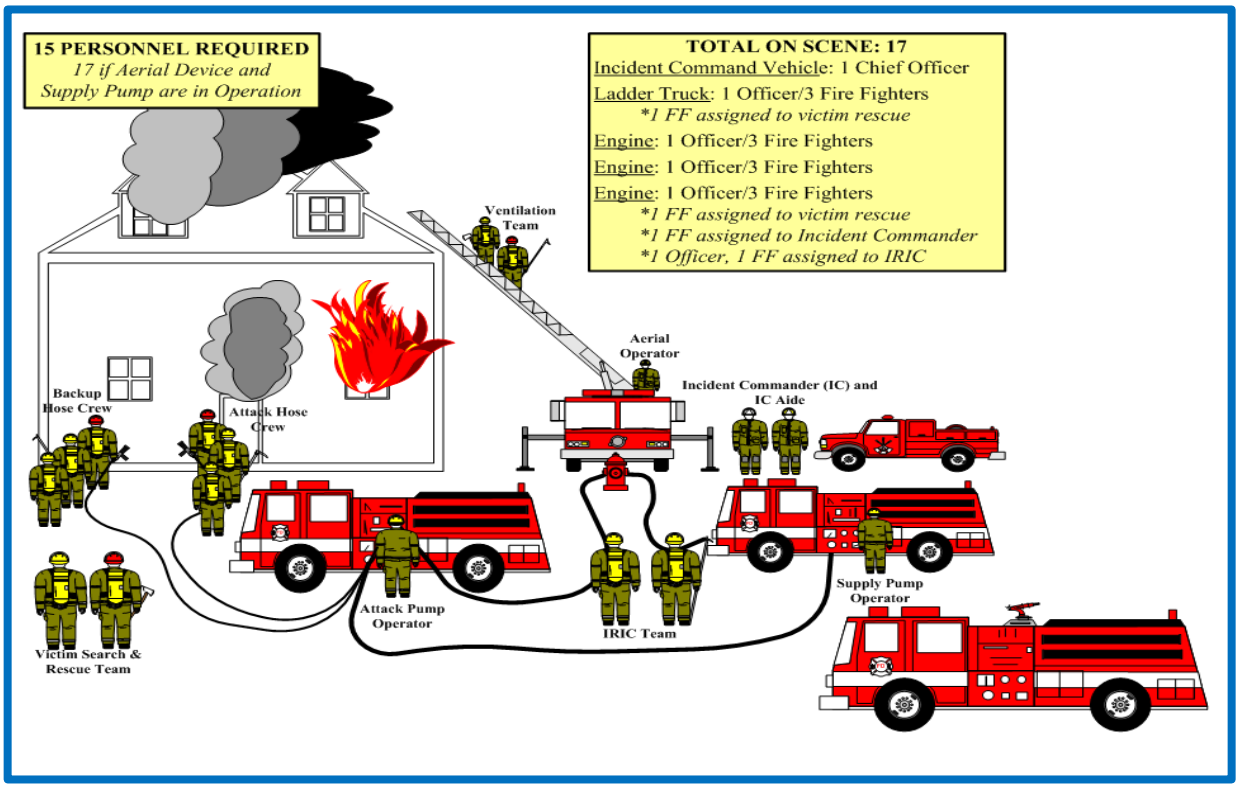


Figure 25
TYPICAL BASIC STAFFING NEEDS FOR A SINGLE-FAMILY DWELLING FIRE.
Image credit: IAFF 266

These tasks meet the minimum requirements of NFPA 1720 for the initial full-alarm assignment to a typical low-risk, 2000 square foot, 2 story residential structure. These are the proverbial "bread and butter" structural fire incidents that fire departments respond to, and which are, by far, the most common type of structure fire. Personnel requirements for fires involving large, more complex structures such as commercial or industrial facilities or multifamily residential occupancies will require a significantly greater commitment of personnel.

Respondents to the fire and EMS questionnaire reported that they achieved NFPA 1720 compliance for structure fire response and average of 60.52% of the time. This ranged from a

low of six percent to a reported high of 100%. The 2016 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 26).

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 26
Critical Tasking: Moderate Risk Structure Fire

Figure 27 identifies critical tasking for fires involving high risk structures such as hospitals, nursing homes, and assisted living facilities. It is recognized that these high hazard occupancies are not present in every consortium community. However, it is important to recognize the resources needed and establish appropriate run cards to provide for the response of sufficient personnel when these infrequent incidents occur. Obviously, an incident of this size that occurs within the Consortium area would result in the response of several communities.

CRITICAL TASK	NEEDED PERSONNEL
Incident Command	2
2 – Independent Water Supply Lines/Pump Operators	2
Investigation/Initial Fire Attack Line	3
Backup Line	3
Secondary Attack Line	3
3 - Search/Rescue Teams	6
2 – Ground Ladder and Ventilation teams	4
Water Supply/Fire Department Connection	2
Aerial Operators (if Aerials are Used)	2
Safety/Accountability	2
Rapid Intervention Team (1 Officer/3 Firefighters)	4
EMS/Medical	4
Effective Response Force	35/37

Figure 27
Critical Tasking: High Risk Structure Fire

In the Consortium area this would be an infrequent event; as structures that meet this definition, would be special use industrial or agricultural buildings. A response of this magnitude would require the utilization of resources from beyond the consortium communities. Figure 28 identifies critical tasking for fires involving high rise structures which are generally considered to be any building more than six stories in height, or more than 75 feet tall. Some chief officers with considerable high-rise fire experience suggest that the actual personnel need for a significant high-rise fire will be around 100 firefighters within about 30 minutes.

CRITICAL TASK	NEEDED PERSONNEL
Incident Command	2
Lobby Control	1
Interior Staging Officer	1
2 - Investigation/Initial Fire Attack Lines – Fire Floor	6
Backup Line – Floor Above	3
2 - Search/Rescue Teams	4
Operations Officer and aide at Fire Floor Entry	2
2 – Evacuation Management teams	4
Elevator Operations	1
Rehab Team (at least 1 ALS provider)	2
Vertical Ventilation	4
Water Supply/Fire Department Connection	1
Fire Pump Room Monitor (if building is equipped)	1
Equipment Transport	2
External Base Operations	1
Safety/Accountability	2
Rapid Intervention Team (1 Officer/3 Firefighters)	4
EMS/Medical (at least ALS provider)	4
Effective Response Force	44/45

Figure 28
Critical tasking: High Rise Fire

There has been much research done by several 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 recent 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, the International Association of Fire Fighters, and the Center for Public Safety Excellence. This landmark study researched residential fires, where most of the 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.*** Key findings of the study include:

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

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

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

The United States 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"*.

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 29). The OSHA rule does provide an exception, however, which states that the rule does not apply in emergency rescue situations where a person is visible and in need of immediate rescue, or there is credible and reasonable information that potentially viable victims are still in need of rescue.

To comply with the "Two-In/Two-Out" rule, a team of four firefighters must be assembled before an interior fire attack can be made when the fire has progressed beyond the incipient stage, except in an imminent life-threatening situation when immediate action could prevent the loss of life or serious injury before the team of four firefighters are assembled. Considering the resources in the Consortium area and extended response times; MRI is concerned that the OSHA "Two-In/Two-Out" rule permits an exception for life hazard or rescue situations.

The reality is that when this exception is utilized, it is one of the most serious life hazard fire situations that can be encountered. In this situation, a firefighter may need to place himself /herself in extreme danger by entering the structure alone. Given the risk this exception should only be utilized to save a life and perform a rescue.

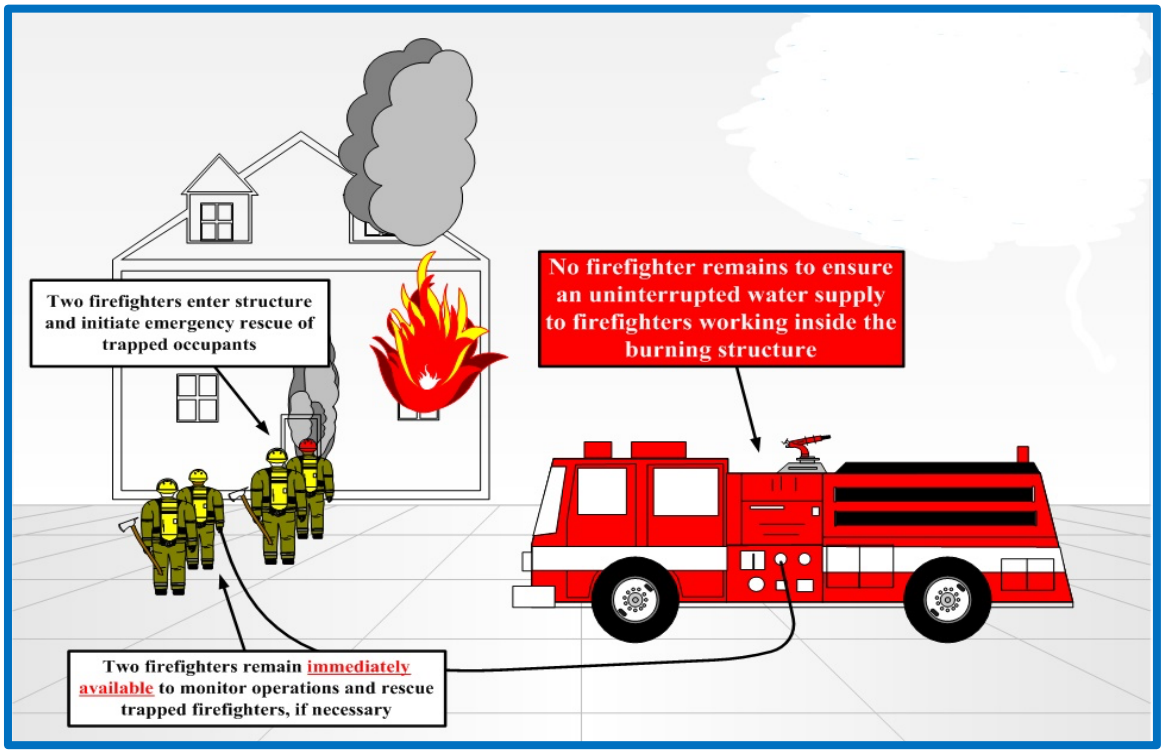


Figure 29
OSHA TWO-IN/TWO-OUT
Image Credit: IAFF 266

Paragraph 4.1, ***Fire Suppression Organization*** in NFPA 1720[10] states, fire suppression operations shall be organized to ensure that the Fire Department's fire suppression capability includes sufficient personnel, equipment, and other resources to deploy fire suppression resources effectively, efficiently, and safely. Paragraph 4.2.2, *Community Risk Management,* states the number and types of units assigned to respond to a reported incident shall be determined by risk analysis and/or pre-fire planning.

The operations necessary to successfully extinguish a structure fire, and do so effectively, efficiently, and safely, requires a carefully coordinated, and controlled, plan of action, where certain operations, such as venting ahead of the advancing interior hose line(s), must be carried out with a high degree of precision and timing. Multiple operations, frequently where seconds count, such as search and rescue operations and trying to cut off a rapidly advancing fire, must also be conducted simultaneously. If there are not enough personnel on the incident initially to perform all 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.

It is important that all communities give and receive mutual aid to fires with appropriate staffing of at least 4 personnel one of which should be an officer. To address this concern and plan for the long-term reliability of fire services, each community will need to make a conscious choice relative to service level through budgetary appropriation.

Assuming that additional funding is provided to implement the recommendations outlined in this document, MRI does not recommend adding additional career personnel unless all other coverage options have been exhausted. When working with a successful on-call organization such as six of the seven communities the project team's focus is to develop and support on-call operations. The rapid introduction of career staff on a 24/7 basis changes the on-call function and relegates on-call personnel to secondary responders often serving as support personnel and tends to rapidly diminish participation.

The federal government has a version of the Staffing for Fire and Emergency Response (SAFER) grant program that pertains strictly to volunteer and on-call firefighters. It provides competitively awarded funds to municipalities to recruit and retain on-call and volunteer firefighters. The grant funds expenses: such as recruitment campaigns, providing money for such expenses as tuition for college curriculums in fire science, for EMT and paramedic training, for health insurance for call members, for physical fitness programs, uniforms, and various tax

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

incentives offered to attract new candidates to join the Fire Department, and then stay for an extended period of time.

MRI recommends that the Consortium should attempt to secure a SAFER grant to recruit and retain on-call members. This grant should note the staffing issue that currently exists and indicate that the grant would be an attempt to meet the NFPA 1720 fire response standard. The goal of developing a viable call force of twenty-five total on-call firefighters would also be a goal to articulate in the grant application. It is quite possible that a portion of the health care program cost described above may be eligible for incorporating in a SAFER grant.

There are no easy or guaranteed solutions to the staffing quandary facing the study communities. The diminishing number of on-call and volunteer firefighters coupled with the retirement of several active members is a challenge facing most fire service organizations across the United States. It is also important to stress that what may work in one community with regards to staffing and call/volunteer recruitment and retention may not work in another nearby community. Each community must individually determine what programs, incentives, and motivations will work, and be most effective in their community.

The following section of text has been inserted into this report as a best practice example and illustration of the trends and challenges facing on-call and volunteer fire service agencies.

THE VANISHING ON-CALL / VOLUNTEER FIREFIGHTER

All the towns in the Consortium have expressed a desire to retain a strong on-call firefighting force. The project team concurs and believes that goal is realistic and achievable for the near future, albeit with changes in traditional operational procedures, and the introduction of a larger career force to supplement the call force. However, achieving this goal will require the implementation of program(s) to recruit; and then perhaps more importantly, retain personnel. This will take strong commitment from the Fire Departments, the municipality and all stakeholders, along with strong leadership within each local fire station.

MRI has found that on average, for every four on-call firefighters recruited, two will remain active after a period of about 24-36 months has elapsed. This fact alone can frustrate recruitment efforts, which in and of themselves are a time intensive endeavor. The task of recruitment and retention is further complicated if the Fire Department and/or the municipalities it serves lacks a true commitment (whether real or perceived) to the on-call firefighters.

Making the challenge even greater, in 2020 the average citizen does not want to spend a great deal of personal time dedicated to the fire and emergency services, especially when family commitments take priority. Other reasons for difficulty recruiting and retaining members include:

A. An overall reduction in leisure time;
B. Employment obligations and the common need to maintain more than one job;
C. The virtual elimination of employers understanding and flexibility relating to this form of community service;
D. Increased family demands;
E. Generational differences;
F. Increasing training requirements;
G. The cost of housing in many affluent communities;
H. Organizational culture;
I. Internal respect;
J. Recognition of personnel;
K. Internal communication;
L. Department leadership styles and commitments;
M. Severe lack of funding;
N. Outdated service delivery models;
O. Political polarization.

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

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

Community Aging: Maintaining an appropriate level of service depends on the fire department's ability to recruit new and younger members. This appears to be a major issue as many long time, senior members are nearing retirement or are faced with health problems (even before COVID-19) that limited their availability.

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

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

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

Most of these issues appear to have growing applicability to the communities and its fire service delivery system as a whole. These warning indicators are not necessarily an indictment of anything wrong in the area; the same problems are facing on-call fire companies and departments across the state and the entire country. The challenge is finding ways to preserve and improve the fire service in the communities for the near future.

In September of 2020 the National Volunteer Fire Council published results of a research that was titled and focused around **"Why Do Volunteers Stop Volunteering?".** In this study former volunteers were surveyed to learn of the reasons they left a department, and these results were compared to the perception of the current volunteer leaders and non-leaders alike. Not surprising to MRI, the results indicated the primary reason for leaving was not money, but was due to the lack of support and the lack of flexibility in dealing with the department requirements and that of a family life. In fact, the primary reason for leaving was due to the department atmosphere being full of cliques and groups that exclude others. The current volunteers in the research conducted indicated that leadership and not focusing on or supporting the needs of members as another of the top three reasons. To round out the top three points of contention current volunteers cited a lack of clear expectations on how much time and effort is required each week or month to meet training requirements. All these items will be discussed in a future section of this report.

Although all the Fire Department included in this study are facing emerging operational staffing challenges, the project team believes that these organizations can remain a successful, primarily on-call organization, with reduce response times, and meeting OSHA "Two-in/Two-out" for at least the next decade. However, continuing the on-call composition of the organization will requires a concerted effort and the deployment of several best practices, and non-traditional strategies. Although the departments have indicated that they are open to new members, a new level of effort needs to be directed toward recruitment and retention initiatives.

While police personnel often have no interest in the other public safety profession; which is often the source a failure of forced public safety pilot programs, encouraging police officers to

consider serving the community as on-call firefighters when off duty. Recruiting off duty public safety professionals should be considered a best practice. It must be recognized that should a full-time police officer that lives in the immediate area become an on-call firefighter he/she would be paid at their police overtime rate for all additional hours based upon the restrictions of the Fair Labor Standards act (FLSA).

Another best practice to enhance the daytime availability of personnel, is to provide preference when hiring Department of Public Works (DPW) Laborers to existing on-call firefighters. In the alternative if no on-call personnel are interested or qualified, the new DPW hire could have the requirement to become and remain active as an on-call firefighter. This strategy has worked in several communities to enhance daytime coverage during the work week when on-call personnel are often least available. An example of this practice was in Hopkinton Massachusetts where at one time several members of the DPW staff were on-call firefighters and would deploy to emergencies if they were not involved in a critical DPW activity. In that community, each DPW utility vehicle had both an emergency and non-emergency lighting package to enable a rapid response and support DPW operations.

SEVEN MOST SIGNIFICANT CHALLENGES FACING CONSORTIUM FIRE AND EMS SERVICES

Based upon the findings and analysis of the project team, the most significant challenges facing the fire and EMS services are:

1. Rapidly diminishing staffing pool for fire operations, part of a nationwide trend. The cost associated with addressing this issue will be the biggest challenge ahead for all the stakeholders, both internal and external.

2. Emerging generational differences that often produce a lack of understanding on both sides.

3. The time commitment required for certifications and continued training.

4. Tapping into the high school aged students and the ability to market the fire service.

5. What level of EMS service will the providers need to maintain in the future?

6. The skill set required in today's high-tech environment will need to be adapted to.

7. The need to train in new work force prior to the active members aging out.

IMPLICATIONS OF NOT TAKING ACTION

The challenges that are facing the fire and EMS services in all the departments in and around the study area have been mentioned previously in this document as, *"a crisis without evidence"*. Make no mistake, there is a crisis that is slowly building, and has been for a considerable period. The reason that many stakeholders – municipal leaders and the general public – do not see "evidence" is the long tradition in both the fire and EMS services of "getting the job done". It has long been known that when people have a problem they don't know how to deal with, they call the Fire Department because two things are certain when they do: 1) the Fire Department will come, and 2) they will figure out how to deal with the problem or find someone that can/will.

Looking ahead, the implications of not taking action will be quite simple: service levels will begin to diminish, and fewer and fewer most likely aging members will be trying to respond to an ever-increasing number of requests for service. On the EMS side, quite possibly a smaller number of service providers will be left to manage a steadily increasing workload.

In the end, **ALL** the various stakeholders need to engage in open, frank, and honest dialogues regarding the fire and EMS delivery systems. There will need to be increased funding allocated to maintain a level even a diminished level of service. Priority should be given to innovative solutions involving the recruitment and retention of on-call personnel. These concepts will have costs associated with them, but it will be money wisely invested. Even with success there, the reality is that the fire and EMS services in the Consortium area are going to evolve into more of a combination system with the need for an increasing number of career personnel to supplement on-call personnel. This too will come with an increase cost. However, this cost will be reasonable, and be money well invested, to help support what remains a quality fire and EMS delivery system. One of the interviews noted that ***"If we lose our on-call fire and EMS personnel the taxpayers will face a very steep price tag."*** This transition could eventually be the ultimate implication of not taking action.

Recommendations

V-1: ***Fire Departments in the Consortium should require firefighters, and strongly encourage its fire officers, to obtain appropriate Pro-board certification levels. Examples of appropriate certification levels are listed in the table below:***

Rank	*Certification Level*
Firefighter	*Firefighter I/II*
Fire Lieutenant	*Fire Officer I*
Fire Captain	*Fire Officer II*
Deputy Fire Chief	*Fire Officer III*
Fire Chief	*Fire Officer IV*

V-2: ***Fire Departments in the Consortium should require that all officers be certified as Incident Safety Officers (ISO). Additional personnel who may be interested should be encouraged to take this training and obtain this important firefighter safety certification.***

V-3: ***As part of the succession planning process, the Fire Chiefs should work to implement a professional development program to ensure that all officers can perform their superior's duties, as well as identify the core future leaders of the department.***

V-4: ***All Departments in the Consortium should continue to foster, support and incent any member to be trained and certified to the Firefighter I and preferably the Firefighter II level.***

V-5: ***Working with the training officer, additional training should be planned delivered and documented. To keep members interested in training the department should be creative and offer training that is outside the normal programs. Making programs fresh, fun and to some degree competitive, may increase the participation by members. If it's the same old training, people will lose interest. Make it so they want to participate and at the same time meet training goals.***

V-6: ***To increase training attendance and participation, Departments within the Consortium should consider providing meals as part of each training program.***

V-7: ***Training content should be consistent and planned through the Consortium. Regional training with mutual/automatic aid partners should be scheduled bimonthly.***

V-8: ***If a member is unable to attend training in their local Department, they should have the flexibility to attend training in another Department. It is essential that the host department welcome participation from other departments.***

V-9: ***In consultation and cooperation with its neighboring departments, all Fire Departments should enter into formal automatic aid agreements that specifies the number and types of resources that should be dispatched immediately to various types of reported emergencies, such as structure fires. These recommendations should be based upon a community-wide risk management process and/or pre-fire/incident plan.***

V-10: ***Although more stringent than the requirements found in Table 4.3.2 of NFPA 1720 for rural communities, through the utilization of automatic aid agreements with neighboring communities, Fire Departments should consider the adoption of an SOC with the goal of attempting to have at least 16 personnel respond to any reported structure fire.***

V-11: ***The Fire Departments should make it a priority to improve its first unit on scene response times, including the adoption of a SOC, for the town. The SOC should be based upon a hybrid of the NFPA 1710/1720 and Commission on the Accreditation of Ambulance Services (CAAS) recommendations.***

V-12: ***The Fire Departments should work with the communities listed on each of the "run cards" to assure the number and qualification of staffing, that will be sent on the assignments. In order to be able to meet a safe level of on scene staffing, it will be important to know not only what the department will be receiving and how long it will take, but also to outline what each town will be sending, when these communities request resources from them.***

V-13: ***Review the department roster and look to the members with low participation and find out what can be done to increase their involvement. Work with these members to increase their participation within a pre-determined time frame.***

V-14: ***The Fire Department should set a minimum criterion for members to remain in active status. This criterion should include both minimum training and response to incidents***

for a determined time period (one year). This criterion should also allow for people to go into an inactive status for a period of time due to approved circumstances. It would be important for inactive-status people to make up any important training prior to being put back on active status.

V-15: *The town should consider encouraging members of Police Departments that live in the area to become on-call firefighters.*

V-16: *The Fire Departments should work with their Road Agents to ensure that on-call firefighters are given preference when DPW personnel are hired. If on-call members are not interested and or qualified the town should hire personnel that are willing to become an on-call firefighter as a condition of employment.*

V-17: *Unless critical DPW operations are underway, DPW personnel that are on-call firefighters should respond to emergencies to supplement staffing and assist in meeting the OSHA Two-in Two-Out Standard.*

V-18: *Towns either individually or jointly should apply for a federal SAFER grant for on-call recruitment and retention. This grant should be utilized to develop a comprehensive marketing program to attract new members, and provide incentives for the retention of those personnel, such as tuition reimbursement, health care benefits, tax abatements, etc. This competitive grant requires a lot of time and dedication to write and to be successful to obtain.*

V-19: *All Consortium Communities should recognize that the only way to develop a more active and properly staffed fire department in the absence of hiring a larger force of career firefighters is to determine what would motivate potential responders; and craft a program of investment that meets these extrinsic and intrinsic needs.*

V-20: *All Consortium stakeholders should jointly convene a focus group to determine what concepts and recruitment and retention strategies are feasible and most attractive to potential candidates.*

V-21: *Fire Departments in the Consortium should set a realistic goal of recruiting at least 6 to 8 new members over the next three years, and simultaneously set a goal of increasing the overall force by a minimum of 10%. These personnel should be required to be properly trained and certified to the Firefighter I/II level, and preferably to the minimum of EMR level.*

V-22: *All Departments should make it a priority to develop an active on-call recruitment*

program led by a Chief Officer. At a minimum, this program should consist of the following elements:

1. ***Developing a recruitment brochure and mailing it to all residents***
2. ***Holding periodic open houses at the fire station***
3. ***Performing public outreach through the local media***
4. ***Contacting community and service groups***
5. ***Developing an eye-catching banner on the town's and fire department's web sites***
6. ***Placing signs recruiting call/volunteer personnel at the main entrances to town***
7. ***Placing a temporary sign board at various locations within the community***
8. ***Placing signs for call/recruiting volunteers in local businesses, particularly high-volume locations***
9. ***Implementing a fire explorer program***
10. ***Radio and media advertisements***
11. ***Although time consuming, consideration should also be given to conducting a door-to-door recruitment campaign of every residence in the town.***
12. ***The proposed SAFER Grant could be utilized to cover many of the above expenses.***

V-23: The Fire Chief within each community should develop a social media presence and involve other members of the department in this endeavor. The use of social media like Facebook and Twitter are what the younger generation use and a very active social media account can reach out to this group of people for hiring.

V-24: The Fire Chief or his designee should create a quarterly "newsletter" that will highlight the positive things that the department has done the prior months. This newsletter should be posted on the town's web page, shared in social media, shared with the Board of Selectmen. It is important that the public is made aware of all the great people and all the good things the department does.

V-25: The towns and the Fire Departments should attempt to enter into partnerships with local businesses to allow their personnel to respond, when needed, to emergency incidents during working hours, without any financial penalty.

V-26: The towns should explore the feasibility of utilizing, and in fact encouraging, town employees to perform "dual roles" by serving not only in their full-time positions, but also serving the town as call firefighters and/or rescue personnel. Caution is needed

here though as there are provisions of the Fair Labor Standards Act that would be applicable, particularly if these personnel respond to incidents during times when they are not working.

V-27: ***Fire Departments should develop a series of team-based activities that build involvement in the organization. Once established on the local level, program should be developed regionally within the Consortium.***

V-28: ***All officer positions, from lieutenant to fire chief, should be filled based upon the person's firefighting/emergency services training, certifications, and experience, commensurate with the position being sought, along with successful completion of a formal, rank appropriate assessment process, and a basic practical skills evaluation.***

V-29: ***The Consortium fire departments should ensure that all department members are trained certified to the minimal NIMS level required for their duties/responsibilities and ranks. In addition to the basic I-100/I-700 training mandated; it is MRI's recommendation that all officers should be trained to the ICS-300 level. All chief level officers should be trained to the ICS-400 level.***

V-30: ***The Consortium should regularly access the National Volunteer Fire Council web site for cooperative programs they have posted. One of the newer programs is looking to attract returning or former military personnel into the fire service.***

VI: AUTOMATIC AND MUTUAL AID PRACTICES

Paragraph 4.1, *Fire Suppression Organization* in NFPA 1720[11] states, fire suppression operations shall be organized to ensure that the Fire Department's fire suppression capability includes sufficient personnel, equipment, and other resources to deploy fire suppression resources effectively, efficiently, and safely. Paragraph 4.2.2, *Community Risk Management,* states the number and types of units assigned to respond to a reported incident shall be determined by risk analysis and/or pre-fire planning.

The overall study has seen an increase in providing and receiving mutual aid from other departments. This is a trend that has been increasing throughout the fire service in the country over the past few years. Most departments are requesting mutual aid sooner; due in large part to the low level of staffing levels to allow for safe operations at incident scenes, and due to the larger fire volume and exposure threats. Experience confirms that to generate an effective response, up to five communities are activated when a structure fire is reported. This represents a dramatic shift and highlights the operational stress experienced by most of the on-call and volunteer fire service agencies.

The chart below is a three year look at how mutual aid has been given and, in some cases, received. For this study purpose; all dispatch records provided by the two dispatch centers were reviewed. Any service provided by a department to an address that was outside the town lines has been considered mutual aid regardless of the type of incident. Only data that was complete was used in the calculations. There were some discrepancies noted when the information provided by the towns as part of the data collection process was compared to the data from the two dispatch centers. Only information that could be validated through the data collected has been used.

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

2020	SENDING		Barnet	Concord	Danville	Groton	Lyndon	St. Johnsbury	Waterford	Outside Study	Total
		Barnet	0	0	0	0	0	0	0	2	2
		Concord	0	0	0	0	0	1	2	8	11
		Danville	0	0	0	0	0	2	0	8	10
		Groton	0	0	0	0	0	0	0	123	123
		Lyndon	0	0	0	0	0	6	0	6	12
		St. Johnsbury	4	3	0	0	6	0	8	5	26
		Waterford	0	4	0	0	0	3	0	0	7
		Total	4	7	0	0	6	12	10	152	191

Commuity Receiving Resources

2019	SENDING		Barnet	Concord	Danville	Groton	Lyndon	St. Johnsbury	Waterford	Outside Study	Total
		Barnet	0	0	1	1	0	0	0	8	10
		Concord	0	0	1	0	0	1	0	14	16
		Danville	0	2	0	0	0	2	0	14	18
		Groton	0	0	0	0	0	0	0	61	61
		Lyndon	0	2	2	0	0	3	0	7	14
		St. Johnsbury	7	5	5	0	5	0	4	2	28
		Waterford	0	7	1	0	0	0	0	1	9
		Total	7	16	10	1	5	6	4	37	86

Commuity Receiving Resources

2018	SENDING		Barnet	Concord	Danville	Groton	Lyndon	St. Johnsbury	Waterford	Outside Study	Total
		Barnet	0	0	1	2	0	2	0	9	14
		Concord	0	0	1	0	2	1	2	20	26
		Danville	0	0	0	0	0	3	0	8	11
		Groton	0	0	0	0	0	0	0	116	116
		Lyndon	0	0	3	0	0	8	0	11	22
		St. Johnsbury	2	1	4	0	3	0	6	5	21
		Waterford	0	0	0	0	0	2	0	1	3
		Total	2	1	8	0	5	14	8	42	80

Commuity Receiving Resources

3 Year Combined	SENDING		Barnet	Concord	Danville	Groton	Lyndon	St. Johnsbury	Waterford	Outside Study	Total
		Barnet		0	2	3	0	2	0	19	26
		Concord	0		2	0	2	3	4	42	53
		Danville	0	2		0	0	7	0	30	39
		Groton	0	0	0		0	0	0	300	300
		Lyndon	0	2	5	0		17	0	24	48
		St. Johnsbury	13	9	9	0	14		18	12	75
		Waterford	0	11	1	0	0	5		2	19
		Total	13	24	17	0	16	32	22	429	553

Commuity Receiving Resources

3 Year Average	SENDING		Barnet	Concord	Danville	Groton	Lyndon	St. Johnsbury	Waterford	Outside Study	Total
		Barnet		0.00	0.67	1.00	0.00	0.67	0.00	6.33	8.67
		Concord	0.00		0.67	0.00	0.67	1.00	1.33	14.00	17.67
		Danville	0.00	0.67		0.00	0.00	2.33	0.00	10.00	13.00
		Groton	0.00	0.00	0.00		0.00	0.00	0.00	100.00	100.00
		Lyndon	0.00	0.67	1.67	0.00		5.67	0.00	8.00	16.00
		St. Johnsbury	4.33	3.00	3.00	0.00	4.67		6.00	4.00	25.00
		Waterford	0.00	3.67	0.33	0.00	0.00	1.67		0.67	6.33
		Total	4.33	8.00	5.67	0.00	5.33	10.67	7.33	143.00	184.33

Figure 30
Mutual aid 2018 thru 2020

The operations necessary to successfully extinguish a structure fire, and do so effectively, efficiently, and safely, requires a carefully coordinated, and controlled, plan of action. In the context of operations there are certain tactical functions, such as venting a roof prior to ahead advancing interior hose line(s), that must be carried out with a high degree of precision and

timing. In addition, during a firefight, multiple operations 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 both building occupants and firefighters. In these situation, increased fire growth should be anticipated.

At the time of this assessment, it appears that most Consortium departments do not have any minimum staffing requirements for their apparatus. As a result, apparatus can respond with just one or two personnel rather than a much more desirable minimum of three or the recommended four. It is the project team's opinion that most departments, with their current personnel resources, will rarely be able to get either sufficient apparatus or firefighters to the scene of a significant incident without turning to their neighboring departments for assistance.

Paragraph 4.7.3 of NFPA 1720 states, the Fire Department shall be allowed to use established automatic aid or mutual aid agreements to comply with the requirements of Section 4.7, *Sustained Firefighting Operations*. Paragraph 4.3.5, *Staffing and Deployment* states, standard response assignments and procedures, including mutual aid response and mutual aid agreements predetermined by the location and nature of the reported incident, shall regulate the dispatch of companies, response groups, and command officers to fires and other emergency incidents.

It is important that all communities give and receive mutual aid to fires with appropriate staffing of at least 4 qualified personnel one of which should be an officer.

VII: ON CALL RECRUITMENT AND RETENTION

All departments have expressed a desire to retain a strong call firefighting force. The project team concurs and believes that goal is realistic and achievable for the near future. However, it will require the implementation of program(s) to recruit and then retain personnel; a strong commitment from the town; and strong leadership in the Fire Department.

As was described in the section titled ***"The Vanishing Volunteer",*** the number of on-call firefighters across the country is rapidly declining, a trend that has been occurring for several decades (Figure 31). To demonstrate this point, the project team utilized Pennsylvania as an example. According to the Pennsylvania Fire and Emergency Services Institute, the number of on-call firefighters in Pennsylvania have declined from around 300,000 in the 1970's, to about 60,000 in the early 2000's. and to 38,000 in 2018. It should be noted also that Pennsylvania has one of the strongest and proudest traditions of on-call firefighters in the United States, and, has more on-call fire companies than any other state.

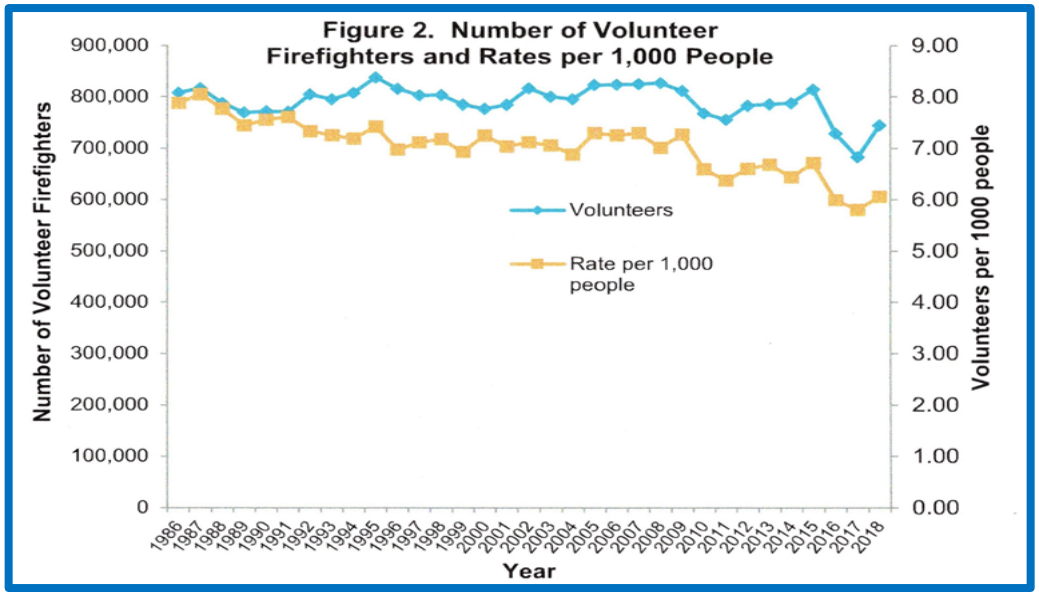


Figure 31
NUMBER AND RATES OF VOLUNTEER FIREFIGHTERS: 1986 – 2018

In March 2004, the International Association of Fire Chiefs (IAFC) issued a report by the Volunteer and Combination Officers Section, entitled ***A Call for Action: Preserving and Improving the Future of the Volunteer Fire Service (Appendix A)***. Among other things, the report highlighted the fact that the ranks of on-call firefighters nationwide are declining due, at

least in part, to an increasing demand for services. There are also various other factors that are prevalent to the reduction in the number of on-call firefighters in communities such as the study departments. Among them is that the demographics of many communities today do not support a sufficient number of the types of person who is attracted to the fire service in the 21st century - someone with time to dedicate to public service, or a young person who wants to make a career of it. The project team has found that on average, for every four on-call firefighters recruited, two will remain active after a period of 36 months has elapsed. The task of recruitment and retention is further complicated when the department lacks leadership and a true commitment (whether real or perceived) to the on-call force.

Community	Total	Active	Chief	Deputy	Captain	Lt	FF	Explorer	Support	Other
Concord	**15**	12	1	1	1	1	12	0	0	0
Barnet	**16**	11	1	2	2	0	6	0	0	0
Waterford	**17**	14	1	1	2	2	11	0	0	0
Danville	**19**	15	1	2	2	1	13	0	0	0
Lyndonville	**35**	27	1	2	2	2	26	0	2	0
St. Johnsbury	**19**	14	1	1	2	0	14	0	0	1
Groton	**29**	22	1	2	1	1	10	5	1	0
TOTAL	**150**	**115**	**7**	**11**	**12**	**7**	**92**	**5**	**3**	**1**

Figure 19 (Repeated for Emphasis)
Ranks by Department

	Barnet	Concord	Danville	Groton	Lyndon	St. Johnsbury	Waterford		Total
Certified FF 1	0	3	0	5	8	18	2		36
Certified FF2	5	1	1	3	19	17	4		50
Certified Fire Officer	0	0	0	0	1	3	0		4
Certified Deriver Operator	0	0	0	5	0	UK	0		5
Completed FF1 Training	5	0	0	5	1	18	0		29
Completed FF2 Training	1	0	11	3	0	17	0		32
Completed Driver Operator Training	0	0	0	5	15	12	0		32
Completed Haz. Mat Operational Training	7	0	0	5	20	18	0		50
Completed Trench Rescue Training	0	0	0	0	0	5	0		5
Completed Swift Water Training	0	0	0	0	12	6	0		18
Completed Rope Rescue Training	4	0	0	0	12	7	0		23
Completed Confined Space Training	0	0	0	0	2	8	0		10

Figure 32
Training and Certification by Department

As mentioned within Chapter Five, these membership numbers may look to be sufficient for the activity level. However, in almost any on-call emergency services organization there is going to be a percentage of members whose names still appear on the "active" roster, yet they no longer truly are, or are minimally so, for a variety of reasons. Factor in that most members of the department have a primary job, other than the Fire Department, that probably limits their

availability to respond, mostly during normal business hours, and the current personnel picture becomes much more of a concern. Based upon the analysis only about three or four of the on-call personnel respond to incidents on a regular basis.

With many members of the department "aging out" in the next three to five years, a significant effort will need to be put forth towards recruitment and retention of on-call personnel. Although the study communities are far from alone in dealing with this reduction in on-call staff, it is essential that addressing this situation is clearly identified as a top priority of the Fire Chief, and be adopted as a shared mission of the entire department.

Most Fire Departments also do not have a formal recruitment and retention program for call personnel and has only very infrequently actively recruited for new members. The MRI project team was informed that most new members of the department are recruited by word of mouth or are "walk ins". There is no mention of the need for additional members on the town or Fire Department's websites, or even a person to contact if someone is interested in joining the department. This is something that is frequently displayed very prominently on the websites of many on-call departments.

It is easy to believe that increasing the number of on-call firefighters can be a cure all to eliminate all staffing, and thus response problems. Unfortunately, in 2020, this is an increasingly difficult problem to overcome. However, there still appears to be a small town feel in most of the study towns, and perhaps more importantly, still a sense of community. These are key attributes that may increase the likelihood of success for any call firefighter recruitment and retention program. Some studies and reports prepared by various entities have noted that many on-call fire departments serving small to medium sized communities anticipate that about one percent of its year-round population, will be members of the Fire Department.

In the smaller government, anti-taxes, and benefits climate of today, many of these benefits can be controversial. However, after considering these strategies, the project team has focused on developing innovative strategies for consideration. One example of an unconventional and innovative best practice that may work is to provide a health insurance package for self-employed, year-round residents, provided they complete training, certification, and provide the town with a high level of immediate response. Typically, this type of program attracts electricians, plumbers, painters, and other trades, as well as self-employed professionals that would be beneficial to the organizations. The town may also want to explore the opportunity to offer a deferred compensation package as another incentive program in a similar fashion as health insurance model.

In August 2017, a fire chiefs association was awarded a SAFER grant for $381,000 for volunteer recruitment and retention. In June 2019, the MRI project team had the opportunity to be

present at a committee meeting which was attended by five members, consisting of two fire chiefs, two firefighters, and a vendor who is providing marketing services. Some of the obstacles to recruitment that have been identified include:

1. Prospective members sometimes have difficulty connecting with local fire departments and feeling welcomed to the organization.

2. Websites often do not market properly. A random sampling of fire department and municipal websites by the MRI project team found that almost none have the need for call firefighters and EMS personnel displayed prominently in a pinned or scrolling heading, on the home page of their websites. Many have a tab, but they are often in with the website's other tabs.

3. Recruitment itself is a very involved, time consuming and labor-intensive endeavor. It needs to be conducted almost continuously and to be successful it must have follow-through and a true commitment to put in the effort.

It was also noted that the Fire Chief needs to be the number one advocate for their organization and be an active participant in recruiting efforts. The chief must also quickly respond to and answer inquiries from prospective members.

An example advertising and marketing campaign called Help Fight Fire (Figure 33). A website dedicated to this effort is located at https://www.helpfightfire.com/. A campaign such as the example depicted could be a valuable resource to the Fire Departments.

Figure 33
Help Fight Fire Website Header

Figure 34
Chester County fire and other emergency responders operate at an incident under a billboard for the Help Fight Fire initiative

Even if the recruitment obstacles can be overcome; hurdles remain before a new member is a productive member of the Fire Department. Once an individual becomes interested in becoming an on-call firefighter, they must achieve a level of ever-increasing specialized skill

that is time-consuming. Often exit interviews reveal that the training commitment alone is daunting and one of the primary reasons that on-call personnel resign. It is also costly to the fire company. To become a certified firefighter takes several hundred hours. Once certified, there are dozens of hours training annually, maintaining firefighter and possibly EMT or paramedic skills and certifications. Younger on-call firefighters frequently use their training and opportunities as a steppingstone to seek employment as full-time firefighters, which often results in their loss to the community.

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

1. Placing a prominent banner or link on the home page of each fire company and municipal website and on all social media platforms. This should be done as a priority that can be accomplished for little to no cost.

2. Conducting a recruitment mailing to all residential properties in each municipality with information about the fire company and recruiting new members.

3. Placement of temporary signboards at various locations throughout the Community in addition to the billboards from Help Fight Fire. At least one fire company does this in their response area.

4. Placement of a recruitment message on the signboard at the various municipal buildings and fire stations.

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

6. Appoint an on-call firefighter “Recruitment and Retention Coordinator” to develop, implement, and coordinate these activities. This should be undertaken as a community endeavor.

7. Provide a reduction in property taxes, or a tax abatement incentive, for von-call service.

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

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

10. Distribute posters to convenience stores, gas stations, restaurants, and other high traffic locations seeking to recruit new members.

Figure 35
On-call recruitment poster from Recruit NY volunteer recruitment program

Figure 36
Recruitment Poster

One of the challenges that many on-call organizations face today is that the motivation of newer members is much different than the older, long-time members. The newer members tend to need to receive something tangible to show that their service is appreciated. An associated concern that the MRI project team often hears is the need for better communications within the fire company. This is usually not referring to the company's formal communications system, but more so, the interpersonal levels of communication that occurs within the company and at the station level.

The perceived lack of communication is frequently an area of concern in on-call organizations as the cultures and ideas of the older members, who have served the company for many years,

often clash with those of the younger, newer members. These intergenerational differences can be even more problematic if those older members, who often no longer respond to calls, are perceived as having an excessive say in company operations. Conversely, there is a perception that the younger members do not take things seriously and show the proper respect for the company and the experience of the senior members. Handling this situation is often a delicate balancing act that the company leadership will need to be able to navigate, if they want to maximize the participation of their most important resource, the active firefighters. Portraying a unified and welcoming environment as part of the recruitment and retention strategy of the fire company is an important component necessary for those efforts to be successful.

As the Consortium communities and the surrounding areas become more diverse, the Fire Departments in the area will need to adjust accordingly to be more inclusive and welcome in new members from different cultures. This is a changing dynamic that the fire companies will need to maintain awareness of as they try to determine the most effective focus of their recruitment, and perhaps more importantly, retention efforts. One of the most important keys to the latter, is that the fire company presents a positive and inclusive atmosphere and there is a sense that the leadership is competent. In addition, disciplined, policy driven on-call organizations are often more successful than those where there is little to no discipline and the attitude is, “we’re only on-call, so leave us alone”.

Some other on-call recruitment and retention programs that have been implemented elsewhere and might be considered include:

A. Connecticut has a property tax relief program in the form of $1,000 a per year abatement on property taxes for on-call emergency services personnel.

B. A program in Wisconsin brings together fire departments, high schools, and a college working to target future on-call firefighters as a recruitment and retention tool. The program, called “Start College Now”, brings together area high schools and fire departments to provide training using firefighting equipment to certify students in firefighting, as well as to get them college credits.

C. In Illinois, a recently enacted law creates a hiring preference for career fire service applicants with at least 600 hours of fire suppression work within the previous 12 months, in a certified apprenticeship program. Program participants can have up to 20 points added onto their eligibility list scores. Several community colleges are working to develop three-year apprenticeship programs.

D. North Carolina provides free hunting licenses to on-call firefighters, a benefit that would probably have significant appeal in Vermont.

The National Volunteer Fire Council has excellent resources on the recruitment of new volunteer personnel. They can be found at https://www.nvfc.org/make-me-a-firefighter-six-steps-to-recruitment-success-2/. The International Association of Firefighter also has resources that can be found at https://www.iafc.org/topics-and-tools/resources/resource/guide-to-best-practices-in-volunteer-firefighter-recruitment-and-retention.

Some of the critical steps to ensuring engagement with potential members during the recruitment process include:

- Keeping prospective members engaged throughout the entire recruitment process with emails and phone calls;
- Clearly articulate expectations;
- Providing them with a clear point of contact if they have any question, concerns or issues that may arise during the recruitment process, or, if they just want additional information or to stay in the loop;
- Invite them to department events, meetings, training sessions, work details, or even just to ride along (if permitted by department policy and insurance regulations.

Once the recruit is accepted into full; or at least probationary membership of the Fire Department, the focus should now shift to creating a positive culture that welcomes them and ensuring *their* success:

A. Consider pairing them with a mentor, an experienced (and positive) member who can help guide them through their fire experience in the fire/EMS service and start to teach them how to do the "job".

B. Create a positive social identity, which translates to creating a group that the recruit would be proud to be associate with.

C. Implement a tracking program to follow the member's progress through their probationary period. Are they engaged and showing interest? Are they hitting the right marks? Where do they need help? Any number of programs can help track key certifications, schedule duty shifts, hold emergency contact information and more.

D. Create a "New Member Guide" with various checklists, progression information, copies of primary response maps, key forms and other critical details they'll need

to know as a member of the fire company. Solicit the **"what",** for the document from both the department's longstanding members (what do they wish new members knew sooner?) and the newer members (what do they wish they had known faster when they first joined?)

The new member making a connection with and feeling welcomed into the company is going to be a major driver in their success and level of involvement with the fire company. If they are successful, the company will benefit as they gain another important asset. To that end, one of the things the Brighton Fire Department near Rochester, New York did to improve their recruitment and retention efforts, was to engage with an executive coach from the business community (without fire service experience) to mentor their officers, and to create and facilitate an advisory team to collect input on big issues and decisions from across the membership; while bringing the key leadership team members together on "organizational culture improvement." Changing the long-standing culture of many on-call fire departments in acknowledgement of the diversification of society, will be critical to the long-term survival of the on-call fire service.

There are no easy or guaranteed solutions to the declining number of on-call firefighters and the related staffing quandary facing communities throughout the country. It is also important to stress that what may work in one community or fire company with regards to staffing and on-call recruitment and retention, may not work in another nearby community or the fire company next door. Each community and fire company must individually determine what programs, incentives, and motivations will work, and be most effective in their community or company. It is also very important to advise the stakeholders in the towns that should they decide to transition from a mostly on-call fire service, to a more combination service, the process may be difficult. However, this situation is one that many fire companies/departments and communities experience during the time of their evolution, and growing pains would not be unique at all to the departments.

One huge unknown for the fire and EMS services is the long-term implications of COVID-19 from a personnel standpoint. The implications here could be particularly acute to the on-call services. In New Jersey, as well as other states, several on-call EMS organizations were forced to suspend operations due to a lack of personnel to provide coverage and response to calls.

As noted previously in this report, on-call emergency services members are aging (the average age for an on-call firefighter in Pennsylvania is 48), so a significant percentage of on-call responders are going to be at, or close to, being higher risk just based upon their age, without factoring in any other underlying health issues. As an example, closer to Vermont, a New England volunteer fire department recently received a complaint that all the responders at an incident were over 65 years of age.

These older personnel may decide it is time to take a well-earned retirement. Younger members with families may find themselves reassessing the risks involved in providing on-call services and conclude that it is too great and step away. The pandemic is also certain to impact future recruitment efforts. The Fire Departments need to monitor this situation and be prepared for whatever the impacts result.

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

MRI recommends that the Consortium or the region should attempt to secure a SAFER grant to recruit and retain on-call members. This grant should note the staffing issue that currently exists and indicate that the grant would be an attempt to meet the NFPA 1720 fire response standard. The goal of developing a viable call force of twenty-five total on-call firefighters, would also be a goal to articulate in the grant application. It is quite possible that a portion of the health care program cost described above may be eligible for incorporating in a SAFER grant.

Once an individual becomes interested in becoming an on-call firefighter, they must achieve a level of ever-increasing specialized skill that is time consuming. Often exit interviews reveal that the training commitment alone is daunting and one of the primary reasons that on-call personnel resign. It is also costly to the department. To become a certified firefighter takes several hundred hours. Once certified, there are the dozens of hours training annually spent maintaining firefighter and EMT or paramedic (if required) skills and certifications. Unfortunately, in 2021, the average citizen does not want to spend a great deal of personal time dedicated to the fire and emergency services, especially when family commitments take priority. In addition, many on-call firefighters in departments that have a career force handling the day-to-day emergencies, find it hard to stay motivated if they are not being utilized frequently. Other reasons are for difficulty recruiting and retaining members include:

- An overall reduction in leisure time
- Employment obligations and the common need to maintain more than one job
- The virtual elimination of employers understanding and flexibility relating to this form of community service
- Increased family demands
- Generational differences and increased family demands

- Increasing training requirements
- The cost of housing in many affluent communities
- Organizational culture
- Internal respect
- Recognition of personnel
- Internal communication
- Department leadership styles and commitments

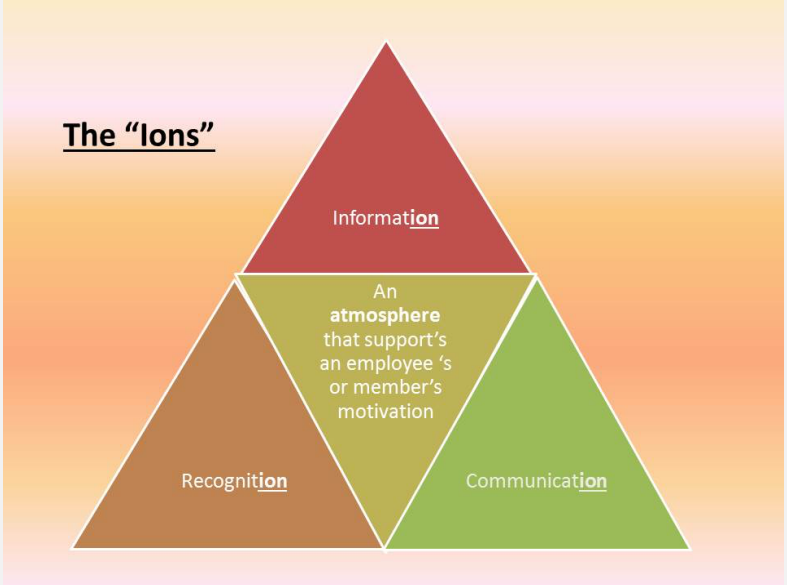
One final thought to be considered and that is of the words from Battalion Chief Robert Avsec (Ret.) served with the Chesterfield (Va.) Fire & EMS Department. His thoughts on how to keep volunteer firefighters active is something well worth considering:

"Create an environment that doesn't just support their individual motivation but makes their motivational fire "grow"! How do you do that? By creating an atmosphere that supports "combustion."

Firefighters learn early in their training on the necessity for fuel, heat, and oxygen to combine in the proper measures for the chemical reaction that we know as combustion or fire to occur. That process has been represented by the fire triangle:

I believe the same principle—combining elements to create a chemical reaction—can be applied by volunteer fire service leaders in creating an "atmosphere" within their organizations that supports motivation. I also believe a volunteer fire department that has a high level of motivation amongst its members is also one that's not losing incumbent members.

My experiences as a fire officer led me to believe that we can motivate another individual. We can teach people how to do their job safely, effectively and efficiently. We can provide a sound organizational structure with policies and procedures that are congruent with an organization's vision, mission, and values. And we can attempt to modify undesirable individual behavior, when necessary, using progressive discipline. But I don't think that we can make anyone do something that they don't want to do.



We can, however, create an "atmosphere" that either supports—or "snuffs"—the "flame" of the motivation that an individual brings to the table. We can do this by focusing on providing an "ion-rich" atmosphere using the organizational elements of information, communication, and recognition.

InformatION

We can start by providing everyone in the organization with a clear picture of:
•Who we are;
• What we stand for; and
• Why we do what we do for the people we serve.
Then we make sure that we provide every individual with a set of clear job responsibilities, the authority to carry out those responsibilities, and measures of accountability (You can

read another of my blogs on Responsibility, Authority, and Accountability. And lastly, we provide the individual with the knowledge, skills, and abilities to do their job.

CommunicatION

We provide effective and efficient lines of communication that work upward and downward in the organization. We effectively use documented policy, procedure, and processes to guide operations throughout the organization; we use those same management tools to make necessary changes in the "way we do business" (No "management by memo!).

We have more "tools" for communicating within our organizations than ever before, but how effectively are we using them? For example, sending an e-mail out is efficient communication, but how often do we find it ineffective? Posting information on organizational websites, on the Internet or on an intranet, may ensure maximum "broadcast", but how do we ensure that the information is received and understood?

Both examples are "one-way" communication; if the receiver doesn't send some kind of response back, the sender has no way of knowing that the message was received, and more importantly, understood. (We practice confirmed communication on the emergency scene, right? So why not practice confirmed communication during the other 95 percent or so of our day?). Does your organization have an internal communications plan to keep its employees or members informed and educated?

RecognitION

Of the three "ions" necessary for an atmosphere that supports motivation, this one is perhaps the least abundant in many organizations. Recognition must start at the "grassroots", i.e., with the first-line supervisor and colleagues. Everyone likes to know that they're doing a good job and that their efforts are appreciated.

Several schools of business, e.g., Harvard Business School and the Wharton School of Business at the University of Pennsylvania, have conducted studies over the years to ascertain what management behaviors have the most positive influence on an employee's work performance.

The #1 Response? Feedback from their first-line supervisor on a regular—daily or weekly—basis (Typically between 60-70 percent of respondents). The follow-up question is typically, "How often do you get such feedback from your supervisor on a regular basis?" The response to that question? Usually only about 30+ percent of survey respondents indicated that they get such recognition.

Now the study looked at an employee/employer relationship, but I submit that its results are just as applicable in a volunteer fire department, perhaps even more so. An employee might be

somewhat mollified in "accepting" their work environment because they need the job and the paycheck that comes with it. But volunteer firefighters don't have a paycheck coming, so they are less inclined to stay where they don't feel valued.

People like to know that their efforts and positive outcomes are acknowledged, and they also want to know when their work is not "up to par" so that they can do better. What they don't like is hearing nothing at all, or only hearing about it during a heated exchange with an officer or colleague because something went wrong.

Resources for Recognizing Volunteer Performance

Creating a variety of means for recognizing the efforts of your department's personnel does not have to be as challenging as it seems. The National Volunteer Fire Council and Fire Corps are two national organizations that "know" volunteer fire departments and volunteers in general. Both of those organizations have a wealth of information and resources on their websites for creating a meaningful volunteer recognition program in your department, as well as developing effective recruitment strategies."

VIII: BUDGETS

The table detailed below provides a summary of the Consortium fire service operational and capital budgets.

		2020	2019	2018
Total Budget	Barnet	$ 49,326.00	$ 49,221.00	$ 49,516.00
	Concord	$ 12,200.00	$ 11,725.00	$ 11,725.00
	Danville	$ 53,400.00	$ 53,700.00	$ 48,900.00
	Groton	$ 122,666.00	$ 119,561.00	$ 126,661.00
	Lyndon	$ 215,083.00	$ 199,633.00	$ 179,379.00
	St. Johnsbury	$ 1,352,860.00	$ 1,331,636.00	$ 1,275,617.00
	Waterford	$ 93,531.00	$ 93,531.00	$ 93,531.00
	TOTAL	**$ 1,899,066.00**	**$ 1,859,007.00**	**$ 1,785,329.00**

Capital	Barnet	$ 10,000.00	$ 10,000.00	$ 10,000.00
	Concord	$ 27,950.00	$ 25,350.00	$ 10,350.00
	Danville	$ 40,000.00	$ 72,000.00	$ 72,900.00
	Groton	$ 14,150.00	$ 18,000.00	$ -
	Lyndon	$ 28,000.00	$ 33,834.00	$ 20,000.00
	St. Johnsbury	$ 110,000.00	$ 141,164.00	$ 130,000.00
	Waterford	$ 46,950.00	$ 46,950.00	$ 46,950.00
	TOTAL	**$ 277,050.00**	**$ 347,298.00**	**$ 290,200.00**

Figure 37
Budget 2020 – 2018

The budgets for the departments appear to be in line for the current operations that are being supported. The inconsistent nature of compensation or even a lack of any compensation for volunteers is the largest formative aspect of each operational budget. The budgets are included in this report as a reference and should be referred to when the report is reviewed, and when implementation of the recommendations contained in this document are being considered.

IX: APPARATUS AND EQUIPMENT

Figure 38
Lyndonville Ladder

The geography, infrastructure, hazards, and construction features within the community all play a major role in determining the composition of each department's unique and individualized apparatus fleet and equipment inventory. The regional response area is primarily rural communities with the expected limited fire potential such communities usually present. However, new single-family dwellings are nearly all built utilizing lightweight construction which presents many safety hazards to firefighters. These factors, as well as projected future needs, must be taken into consideration when specifying and purchasing apparatus and equipment. Every effort should be made to make new apparatus as versatile and multi-functional/capable as is possible and practical.

From the perspective of effective emergency response, there are three main factors that are used to help determine the deployment of resources: response time, travel distance, and call volume. For most evaluations, response time is the most critical factor; an important measuring instrument to determine how well a fire department or EMS provider is currently performing, to help identify response trends, and to predict future operational needs. Getting emergency assistance to the scene of a 9-1-1 caller in the quickest time possible may be critical to the survival of the patient and/or successful mitigation of the incident. Achieving the quickest and safest response times possible should be a fundamental goal of every fire

department and EMS provider. It is not just a cliché that during critical life-threatening situations, minutes and even seconds truly do count.

As noted previously, structural firefighting has become far more challenging and dangerous in the last thirty years. A fire can easily at least 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 within five to seven minutes of fire ignition and is one of the most dangerous events that firefighters, or trapped civilians, can face. When a flashover occurs, initial firefighting forces are generally overwhelmed and will require significantly more resources to affect fire control and extinguishment.

The MRI project team conducted a limited cursory review of the current fire apparatus fleet to determine the average age of vehicles. The average age of the equipment in the inventory is 15 years. The average engine is a 2005, and the range goes from 1998 to 2018. The average tanker is 14 years old and the range of tankers goes from 1989 to2017. At the time of the site visits a newer one was being built but not on site and not counted in this program. Forestry equipment ranged from 1984 to 2008.

Despite the lack of clear guidance in the various NFPA standards, there is a significant body of knowledge that suggests that fire apparatus definitely has a finite lifespan. The reasonable serviceable lifespan of fire apparatus will depend on several variables such as the level of use, local environment, and operating conditions, and very importantly, the scope of preventative maintenance. It is generally accepted that lower use fire apparatus, such as units serving communities that are suburban in nature, might still be mechanically sound after twenty years or more, due to their lower frequency of use. However, after twenty years, technical and functional obsolescence may make the apparatus less desirable to use even if mechanically sound and serviceable. Nevertheless, that does not mean that it will still not be serviceable as a spare or reserve apparatus.

One of the biggest factors that can impact the serviceable life of the apparatus is the level of preventative maintenance that is received. NFPA 1911: *Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Automotive Fire Apparatus* (2012 edition) provides guidance on this important aspect of fire department support operations. Apparatus manufacturers also identify suggested programs and procedures to be performed at various intervals. As apparatus ages, it is reasonable to expect that parts will wear out and need to be replaced. It follows then that maintenance costs and overall operating expenses will increase. As a result, cost history and projected costs for the future must be considered as a factor in determining when to replace or refurbish fire apparatus. In addition, the reliability of the apparatus must be considered. Experiencing low downtime and high parts availability are

critical factors for emergency equipment maintenance and serviceability. A pro-active preventative maintenance program can assist with holding costs to an acceptable level.

A white paper developed by the Fire Apparatus Manufacturer's Association (FAMA) suggests that the front-line lifespan of active-duty fire apparatus in a suburban setting ranges from 16 to 19 years, with the possibility of an additional 9 to 10 years in a reserve, or spare status. The International City/County Management Association (ICMA) suggests that the lifespan of a fire pumper should be 20 years, and the lifespan of an aerial ladder should be 25 years. The National Fire Protection Association suggests 15 years in front line service with an additional five in reserve status.

One common recommended practice is to purchase one major piece of fire apparatus every 5 years. The goal of this strategy is to spread major purchases out over time to allow the governmental entity to maintain a consistent level of debt service. Regardless, the decision is left to each locality and represents a balancing of numerous factors: fire department activity levels, maintenance costs and history, individual vehicle reliability, funding availability, technological changes, firefighter safety, and vehicle use. Fire apparatus must be replaced before it becomes unreliable, but it must be held in service for as long as practical to maximize the benefit of the large initial investment from the community.

As the value of the apparatus or vehicle depreciates, the maintenance costs are evaluated along with the age, mileage, and engine hours so that expected maintenance costs do not exceed the value of the apparatus or vehicle. When considering apparatus usage, hours on the engine and pump must be taken into consideration. Fire apparatus typically spend more time idling while at the scene of emergencies, or when operating the fire pump at a fire. A rule of thumb that can be used is that each hour on the motor is the equivalent of 30 - 35 miles of actual driving mileage.

As newer technological improvements are introduced that increase safety and efficiency for the department, the capital replacement plan should be evaluated in an ongoing manner, and these other factors should be considered as a component in scheduling replacement apparatus. An important component of the plan is that it allows front-line apparatus to be replaced before it is no longer serviceable due to safety or efficiency issues, but still be usable as a reserve or backup unit.

The current apparatus set within the Consortium consists of 10 engines, 6 tankers, 2 aerial ladders and 3 forestry units. In most of the studies that MRI has completed, it has found an abundance of apparatus and significant duplication. In this case the apparatus set is functional but slightly below the average. The departments appear to have an adequate but limited apparatus set for all types of incidents except brush or grass fires where additional small 4wd

vehicles may be better suited for off road response, than a structure piece. Over time, the Consortium should consider slowly expanding this apparatus set and providing a regional reserve engine, forestry unit and tanker that could be shared between the communities when a piece is out of service. This strategy would limit duplication, save fiscal resources and slowly bolster the overall apparatus set.

Engines		Year	Pump	Tank	Supply Line	Supply Feet
		2020	1250	1000	5	500
		2018	1500	1000	5	1050
		2015	1250	1000	4	1200
		2014	1250	1000	5	1000
		2006	1250	750	5	800
		2006	1500	1800	5	1000
		2005	1250	1000	4	1000
		2001	1500	1250	5	1250
		2001	1250	1250	4&5	900/500
		1992	1250	1000	4	1000
Average		2007	1250	1000	5	1000

Tanker		Year	Pump	Tank	Supply Line	Supply Feet
		2017	1500	1500	5	1100
		2015	1250	2500	4&5	250/500
		2008	1250	3000	5	500
		2006	1250			
		2005	1250	1800	4	1200
		2003	1250	2000	0	0
Average		1989	1000	1250	4	1200

Ladder		Year	Pump	Tank
		2013	2000	300
		2010	1500	300

Forestry			
	2008	500	U/K
	2006	250	225
	1984	250	250

Boats	3
Auto X	4
Air Trailer	1
Haz. Mat	1
Tech Rescue	1
Rehab	1
UTV	2

Figure 39
Equipment Inventory

A consideration that is a precursor to determining the number of apparatus is the number of active qualified responders. It is unclear if the Consortium departments have enough properly trained and available staff to operate these vehicles when they are needed. This factor should be evaluated before the apparatus set is expanded on the local level.

A large percentage of the response area within the Consortium communities are out of a pressurized water district. All the departments should continue with designing future apparatus that have sufficient water on board to support an initial fire attack (minimum of 1000 gallons). All these response units appear to be well maintained and in good condition. (A full complete thorough inspection was not conducted as part of this project.)

Recommendations

IX-1: Each department should identify and prioritize its most critical equipment, training and/or operational needs, and apply annually to the Assistance to Firefighters Grant (AFG) program. This should include making applications for apparatus capital replacement projects that will otherwise be funded through the town's capital budget and at town meeting.

IX-2: Towns should actively continue to search for other grant opportunities. Grants for fire protection, fire safety, fire prevention, domestic and emergency preparedness, and homeland security may be available from federal, state, corporate, and foundation sources.

IX-3: Towns should actively seek out businesses that may be interested in establishing public/private partnerships that could provide, or assist with, funding for various programs, projects, or initiatives.

IX-4: Towns should expand its formal replacement plan for equipment. The regular replacement of large cost items such as hose, ladders, PPE, portable radios, AEDs, and even SCBA on an incremental basis will avoid major one-time increases in the annual operating budget where such purchases should be funded. For instance, the hose and ladders on one vehicle can be replaced in one fiscal year, another the following year, etc. The life expectancy of these items can be estimated based on usage and manufacturer's recommendations. Items such as hose and ladders can remain in service indefinitely, provided they continue to successfully pass their annual tests.

IX-5: The Consortium should consider providing a regional reserve apparatus set including an engine, a tanker and a 4-wheel drive brush unit that could bolster the overall apparatus set and avoid duplication as these units could be used by a member community when one of their vehicles is out of service.

X: GRANTS

There are several federal, state, and private grants available for fire departments and communities to consider for supplementing their budgets. If successful in receiving a grant award, most departments can acquire equipment, training, and programs that they would not be able to achieve through the normal budget process. Though the process can be difficult, and time consuming, the outcomes can be very beneficial to the Fire Department.

While the economic challenges of the last decade have had an impact on grants from private entities and foundations, fortunately, the federal grant programs targeted to the fire service, the Assistance to Fire Firefighters Grants for equipment (AFG), the Staffing for Adequate Fire and Emergency Response Grants (SAFER) for personnel, and the Fire Prevention and Safety Grants (FP&S) for fire prevention and public fire education programs, continue to be funded, although not anywhere near their authorized levels.

The AFG program provides financial assistance directly to fire departments to enhance their capabilities with respect to fire and fire-related hazards. The AFG supports fire departments that lack the tools and resources necessary to more effectively protect the life and safety of the public, and their emergency response personnel with respect to fire and all other hazards. Since 2001, AFG has helped firefighters and other first responders to obtain critically needed equipment, protective gear, emergency vehicles, training, and other resources, needed to protect the public, and emergency personnel, from fire and related hazards.

The goal of the SAFER grants is to enhance the Fire Departments' ability to comply with staffing, response, and operational standards, established by NFPA and OSHA (NFPA 1720 and OSHA 1910.134). Specifically, SAFER funds assist the Fire Department to increase their staffing and deployment capabilities in order to respond to emergencies whenever they may occur. SAFER grants are awarded to departments for both hiring of career personnel, and recruitment and retention of volunteer/call personnel. However, a department cannot apply for both categories of grant in the same year.

Fire Prevention and Safety Grants support projects that enhance the safety of the public and firefighters from fire and related hazards. The primary goal is to target high-risk populations and mitigate high incidences of death and injury.

There are several other grants available to fire departments for various purposes. Some grants that may be available to departments are the Fireman's Fund Heritage Grants, Factory Mutual grants for fire investigation, and Wal-Mart community grants. Other large chains, such as Home Depot and Lowes, are frequently willing to provide funding, and/or enter into partnerships for specific projects. The key to success at this level is finding grants for which the department may be eligible, and, ensuring that the application is tailored to the grant program's priorities.

Like most fire departments, the experience within the Consortium indicates that departments have had a limited record of success regarding grants they have applied for. One of the shortcomings in the AFG program is that departments which submit grant applications that are ultimately not successful are notified to that fact, however, they are not informed as to why. Typically, only about 8% of all grant applications submitted are approved and funded. Nearly 50% of the applications fail to make it past the initial computer review where statistical aspects of the application are reviewed to determine their compatibility with the established grant criterion/ priorities. This explanation is not, in any way, meant to cast a negative light on Williamstown applications. It is included to illustrate the long odds of successfully obtaining a grant even with a strong application.

XI: DEPARTMENT NEEDS

As part of the project team's review of the departments; several questions were asked of the Chiefs, in order to gain a better understanding of the local concerns, problems and needs and hopefully be able to address these in some fashion with recommendations for the future.

Although the questions and answers were given to each department it is important to look at each of the following question not only as individual departments but more importantly as the group of departments. The experience from MRI is that not any one department within the study group due to size would be able to have all the right equipment and or staffing to handle each of the specialized events listed.

In the chart below each Chief was asked to rank the overall department level from 0 being none to 10 being proficient or best in equipment and training to handle a variety of non-firefighting activities.

	Barnet	Concord	Danville	Groton	Lyndon	St. Johnsbury	Waterford		Total
Certified FF 1	0	3	0	5	8	18	2		36
Certified FF2	5	1	1	3	19	17	4		50
Certified Fire Officer	0	0	0	0	1	3	0		4
Certified Deriver Operator	0	0	0	5	0	UK	0		5
Completed FF1 Training	5	0	0	5	1	18	0		29
Completed FF2 Training	1	0	11	3	0	17	0		32
Completed Driver Operator Training	0	0	0	5	15	12	0		32
Completed Haz. Mat Operational Training	7	0	0	5	20	18	0		50
Completed Trench Rescue Training	0	0	0	0	0	5	0		5
Completed Swift Water Training	0	0	0	0	12	6	0		18
Completed Rope Rescue Training	4	0	0	0	12	7	0		23
Completed Confined Space Training	0	0	0	0	2	8	0		10

Figure 40
Specialty Program Evaluation

It is clear from the results that there is a great need to increase training and equipment on each of the subjects. There is not a single line with an average that is at or above the middle of the road. This truly is something that a collaborative effort with all the towns involved can be greatly improved upon. Recommendations on how this can be accomplished are forthcoming in this document.

As part of the data collection another set of questions were asked of the Chiefs with combined results listed below.

Question: What are the top three operational concerns with your department?

- *Staffing for daytime incidents*
- *Training*
- *Sufficient trained staff for 24/7 responses*
- *Recruitment of younger people*
- *Sufficient staffing for larger incidents*
- *Lack of Standard Operating Procedures*
- *Larger Budget*
- *Equipment Readiness*

Question: What are the top three training needs for your department?

- *EMS*
- *Firefighter 1*
- *SCBA*
- *MVA*
- *Hazardous Materials*
- *Training props*
- *Specialty training*
- *Customer service*
- *Drafting*
- *Traffic Control*
- *Safe Driving*

Question: What are your top three purchasing needs?

- *Multi Gas Meters*
- *Combi Tool (Extrication tools)*
- *New Engine*
- *Cold Water suits*
- *New Station*
- *Rescue Truck*
- *Cascade system*
- *Training Props*
- *PPE*
- *SCBA*
- *Communication Equipment*

The project team clearly recognizes and appreciates all the comments from the Chiefs in response to the survey. Often these comments are verified by the visits conducted by the

project team and further backed up through data analysis. It is important that each of the items mentioned are included in any implementation plan and that careful consideration is made to assure that each and every departments needs will be in some manner addressed.

XII: MAPPING OUT THE FUTURE

"A Road Map to Success with appropriate timing and funding"

The MRI project team found that there was a common thread to many of the department's needs, concerns and desires. Based on all the information analysis, and discussion MRI proposed the recommendations detailed below. These recommendations have been grouped into seven phases and a means to pace change, evaluate success and provide the necessary resources to support this project.

It is important to keep in mind that these phases are in a particular order, and are dependent on the success of the ones before it. The project team has tried to allow the community's to be able to implement the ideas that work best for the consortium and then to take incremental steps to move toward success. Ultimately, it is up to each community and the consortium as a whole to decide what works best for them and what level of service/fire protection they wish to have.

Regionalization of the fire service is a term that many people are afraid to consider, as there as a thought that the local resources (fire apparatus, fire station and firefighters) will go away, and that the local authority will be diminished. There have been several regionalization discussions that have gone nowhere, and some that have been highly successful. There is also a strong thought that regionalization will cost a community less than they are currently paying and they will get more. Although it is true that regionalizing will no doubt create an economy of scale that can be the foundation of efficient services, it still will come with a cost. In the long term, 10 plus years, there may be an indicator of cost savings or in some areas the development of a revenue stream to offset the overall costs.

To begin the process, stakeholders in each community town and each Fire Chief, should take the time to thoroughly read and understand the information provided within this report. This group should then sit down as an informal group and discuss the many options they have moving forward. It is MRI's hope that this discussion will lead to a basic plan where communities can individually decide if they wish to continue to participate in the process.

The MRI team sees this process moving carefully forward, with the hope that other towns will join in the process thus expanding the footprint of this regional initiative. It is suggested that each of the recommendations be considered individually; then put into a priority that the group decides will work best. To build the collaboration, it is further recommended that the no cost items be pursued initially, and then after establishing a track record of success, move forward with items that will require cost sharing.

It is important to note that not all departments will choose to participate, or in some cases are capable of partaking in all the steps identified in this document. It is essential to realize that it

is not a good practice to put all your capabilities into one or two departments. The Consortium should consider capitalizing on an organization's strengths, resources and skills while at the same time developing a depth of service delivery.

There are some regional service options that have worked in other parts of the Country and the project team has identified these programs as alternatives. As the Consortium considers the next steps, there are three options to choose from.

1) The first and most costly will be to create **one regional department**. This new department would consist of both fulltime and combination staffing. The political challenges with this model far outweigh any advantages and if selected would takes a significant period of time to obtain authorization from all levels of local governments before it could even get off the ground. The challenges of personnel, equipment, stations, response time, and the vast area requiring coverage will all need to be addressed.

2) The second approach would be to consider a **regional support for independent fire departments**. This regional approach would be for training and policy development as well as consideration for regional fire prevention services. This approach will do little if anything to improve on response times, response levels and more importantly to improve the actual services being delivered to stakeholders in each participating community.

3.) **Regional Hub and Spoke Concept (semi regional approach)** which maintains individual fire departments/companies on the local level and amplifies service delivery through regional training, coordination and a single unit quick reaction response force and availability of additional personnel on a recall basis. The MRI recommends that this is the optimal approach for the Consortium. This initiative is modular in that communities can choose the specific services that would be provided. Examples of services that could be provided are listed below:

   - Regional training development and delivery
   - Regional policy and Standard Operating Procedure/Guideline development
   - Fire Prevention and inspection services
   - Quick reaction response (single unit)
   - Reserve force activation
   - Mobile integrated health care services

Considering the options outlined above, MRI strongly advocates that the Consortium move forward with the Regional hub and spoke approach, starting off with small pilot programs and

then build a larger regional footprint based upon demonstrated success. **We believe that developing a hybrid regionalization model that supports existing fire departments is feasible if paced and developed utilizing a phased approach.** The project team has developed a series of seven recommended phases with each phase building on the success of the previous phase. Where practical, the project team produced a reasonable timeline and a cost estimate for the individual and or combined components of a specific phase.

As with any other budget estimate, costs will need to be recalculated and adjusted on at least an annual basis. To further assist with looking at the individual community costs, the project team used a successful hybrid formula to indicate in dollars, as well as percentage of the cost of the program. This is the foundation to identifying an effective means of cost sharing between the Consortium communities.

To provide some options for cost sharing, at the conclusion of this section, MRI has harnessed the project team's experience to provide an overview of a few examples of regional cost sharing methodologies. MRI hopes that other area communities will want to become part of this ongoing collaboration and will help spread the overall costs. This economy of scale would serve to proportionally lower the cost per community.

The MRI project team has proposed a timeline to guide the implementation of objectives, and provide sufficient time to complete each phase before moving forward to the next step. It is clearly understood that there are many factors that may not allow this timeline to be strictly followed. The timeline can be easily adjusted based on the pace that best serves the Consortium.

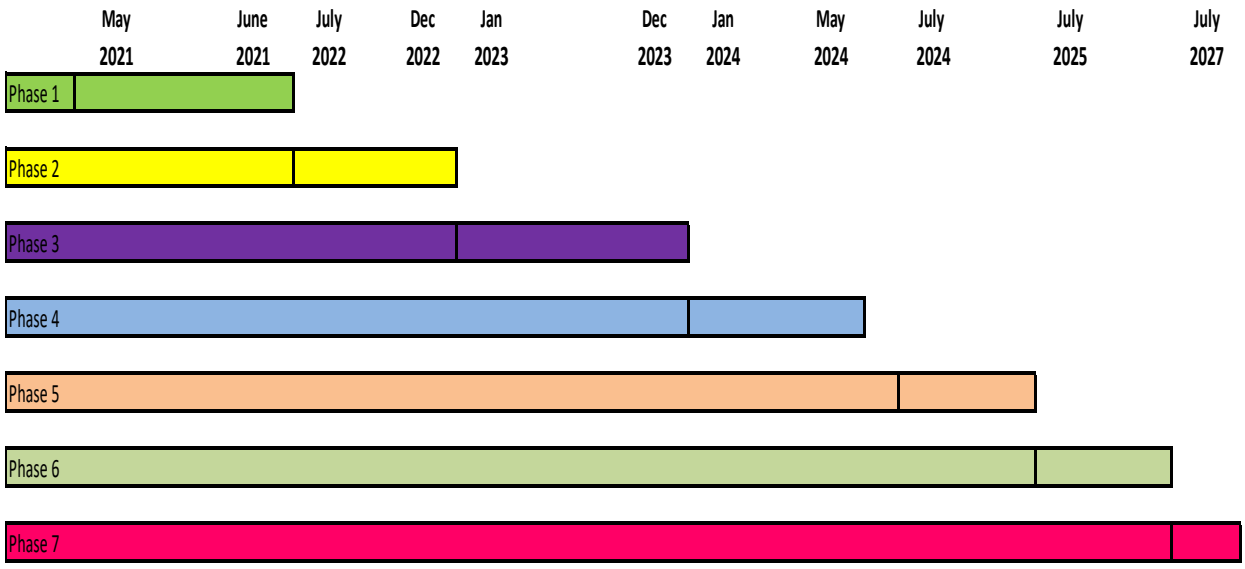


Figure 41
Proposed Implementation Timeline

PHASE 1 - May 2021 – May 2022

Phase one is the foundation of the program. It is within this phase that the expansion of resource sharing and building relationships will serve as a basis for future action. During this phase the cooperation of the departments is truly going to be the key to success. This phase has also been designed as a low-cost phase as budgets will already be in place for the projected operational period.

Objectives:

1) **SOP Development Team** - Create a team to develop Standard Operating Procedures that each community can follow. To start with, these SOP's cover common operational procedures, examples include wearing of PPE, use of SCBA, May Day procedures, and ventilation operations. To assist with the development of this action item, refer to the SOP index and example in Appendix E.

2) **Online Inventory -** Develop an online inventory of resources and assets that can be quickly referenced by Incident Commanders and Dispatchers. This list should be for items such as boats, ATVs, snowmobiles, Rad 57 Meters, multi gas meters, MCI equipment, water rescue equipment, ice rescue equipment, dive teams, air bags and other special operations resources.

3) **Water Supply Plan -** Each community will need to develop and communicate a water supply plan for specific response areas. This project can be a multi town project as the needs, equipment; water supply locations etc. are similar. The dispatch centers should be consulted for formatting purposes and to enhance the consistency of this plan. The plan needs to be shared and when possible reviewed by all personnel that will be involved in response. Once developed each community should host a training session that involves the use and review of this plan.

4) **Enhanced Automatic Aid -** Automatic aid needs to be expanded as discussed earlier in this document. Each community must assure they have adequate staffing on scene or responding to a fire call to ensure the safety of both the responders and the life safety of the occupants. In areas where water supply is a concern, this additional element must be considered early as the time necessary to establish a static water supply can become an operational barrier. Based on the project team's experience MRI recommends that upon the report of a structure fire four communities be toned to respond.

5) **Cooperative Purchasing -** Equipment needs and purchasing. This is one area that can produce a significant cost savings. Most manufacturers and vendors will offer a price discount based on volume (economy of scale). Participation from all communities is the key to making this concept work. Each department should develop a list of typical annual purchases as well as long term or capital purchases. These should be combined and analyzed to combine purchase timing and specifications to obtain better volume-based pricing. It is not uncommon for a list of this type to be sent out to prospective suppliers to be bid on; thus, eliminating a delay in procurement when items are needed.

6) **Part Time Fire Coordinator -** Obtain the services of a part time fire coordinator. This person would keep records, documents and to facilitate meetings and develop regional opportunities that bring the departments together. This position can be an hourly or a salary-based position with an average of 12 hours per week. Some agencies have expanded the responsibility of this position to include significant incident response in support of the local Fire Chief. This operational possibility should only be considered after this position is administratively established.

NOTE: With each phase we have developed a budget with estimated cost that will need to be adjusted to reflect the current year. The indirect costs are the cost to the employer that will need to consider as part of the overall budget. For part time employees it is calculated at 21% and for full time employees it is calculated at 40%.

Phase 1 **Budget** **$9,412.00** **Valuation** **Population**

Town	Grand List	Square Miles	Population	10% fixed	40% total Budget	50% total budget	Total Amount	% of budget
Barnet	11,625,300.00	43.5	1564	$ 134.56	$ 106.64	$ 358.60	$ 599.80	6%
Concord	4,206,100.00	53.45	1284	$ 134.56	$ 38.58	$ 294.40	$ 467.54	5%
Danville	12,845,336.00	61.02	2206	$ 134.56	$ 117.84	$ 505.79	$ 758.19	8%
Groton	11,322,600.00	55.03	984	$ 134.56	$ 103.87	$ 225.61	$ 464.04	5%
Lyndon	143,580,498.00	39.69	5799	$ 134.56	$ 1,317.12	$ 1,329.60	$ 2,781.28	30%
St Johnsbury	216,546,350.00	36.85	7244	$ 134.56	$ 1,986.46	$ 1,660.91	$ 3,781.94	40%
Waterford	10,190,900.00	39.79	1444	$ 134.56	$ 93.49	$ 331.08	$ 559.13	6%

	Hours	Rate	Weeks	Sub Total	Indirect	
Coordinator	12	$ 12.00	50	$ 7,200.00	$ 1,512.00	$ 8,712.00
Phone reimbursement						$ 200.00
Office Supplies						$ 500.00
					Total	**$ 9,412.00**

Figure 42
Phase One Cost Sharing Matrix

PHASE 2 - July 2022 – December 2022

This phase has three components that should be considered. The first is the consideration of two or more towns merging fire departments. Due to the staffing levels in this phase the departments would still maintain their individual fire stations, fire apparatus, equipment and staffing. The intent of this merger would be to facilitate cross training of personnel on each departments equipment to increase response. These two stations would respond as a single unit to pre-established types of calls. The goal would be to have a greater number of responders going to any one of the stations (that may be closer to their response location and or closer to the incident) and provide for more of a proper rapid response.

This second component of this phase takes training to the next level with the creation of standardized training components as well as a wide range of training props that can and should be shared among all departments. The importance of unified training on Standard Operating Procedures id the foundation of effective regional response.

The third and final component would harness the talents of members from all departments and to begin to create a cadre of "Specialty Teams". These specialty teams will be a tremendous asset to the region as there is no one department that has the properly trained staff, proper equipment or fiscal resources to handle these types of incidents alone.

Objectives:

1. **Continue the services of a part time coordinator**. This person would keep records, documents and to facilitate meetings all to develop a regional opportunity to bring the departments together. This position can be an hourly or a salary-based position with an average of 12 hours per week.

2. **Pilot Program – Two Departments share all Personnel** - There has been a great deal of success with departments merging with each other for operational purposes while still maintaining their name and to some degree their own autonomy. In the Consortium, there are some smaller departments that would benefit by a conducting a pilot program of merging. For example, if Concord and Barnet merged, they would increase available staffing, decrease response time to emergency incidents, add additional response resources to the emergency. These two departments would conduct training together, while still maintaining their own equipment and stations. This pilot program could also be developed for the Town of St. Johnsbury and Lyndon. These pilot programs should be pursued as a one-year trial basis with a minimum of quarterly review and discussion that includes input from all the stakeholders. There two examples in the Lakes

Region in New Hampshire that this pilot could be modeled after. The Towns of Campton and Thornton have successful and efficiently merged, and the towns of Tilton and Northfield have merged and can offer some lessons learned.

3. **Emphasize and Expand Firefighter I Training** - is a critical success factor. Although the training may be long it is imperative that all the fire staff have this basic training to keep themselves safe and develop operational capability. Consortium departments should join forces and provide the structure and resources necessary to deliver these programs.

4. **Conduct Frequent Shared Training Sessions** – Each Consortium fire department trainings on similar subjects on a monthly basis. These organizations should join together and offered shared training evolutions on a regular basis. Combining two compartments (or more) at a single training session often adds a new positive dynamic to the training. Training does not need to be mundane and with very little effort it could become a fun active event that people will look forward to doing.

   Training can be done at different stations on different scheduled nights. If the subject matter and the instructors facilitating the training are willing and available, the program could be offered more than once in different locations and all should be encouraged to attend one of the sessions. This would not only foster inter agency relationships, but it would provide firefighters with flexibility.

   The only drawback to this type of training is that of local preference. It must be stated right up front that in most of the training conducted there may be and often there is more than one way of completing the task. Sometimes it is better to have a chang*e of scenery and a look at a different way of doing something while being respectful of the different way at the same time. More importantly* it is ok for people to admit that they do not know something as long as they are willing to learn.

5. **Develop Shared Training Props -** The creation of realistic training props is a common need of departments. For the most part props do not need to cost thousands of dollars. Plans for the development of these props can be found online. If possible, training props should be shared and constructed to be transported to various locations. If props are made to be available to many departments generally, local stores are more willing to donate supplies to

build them (for a little credit). Firefighters can be very creative if given the opportunity to build and operate good safe training props leaving the expensive labor cost out of the equation.

Figure 43
Window Prop

Figure 44
Restrictive Access Prop

Figure 45
Roof Prop

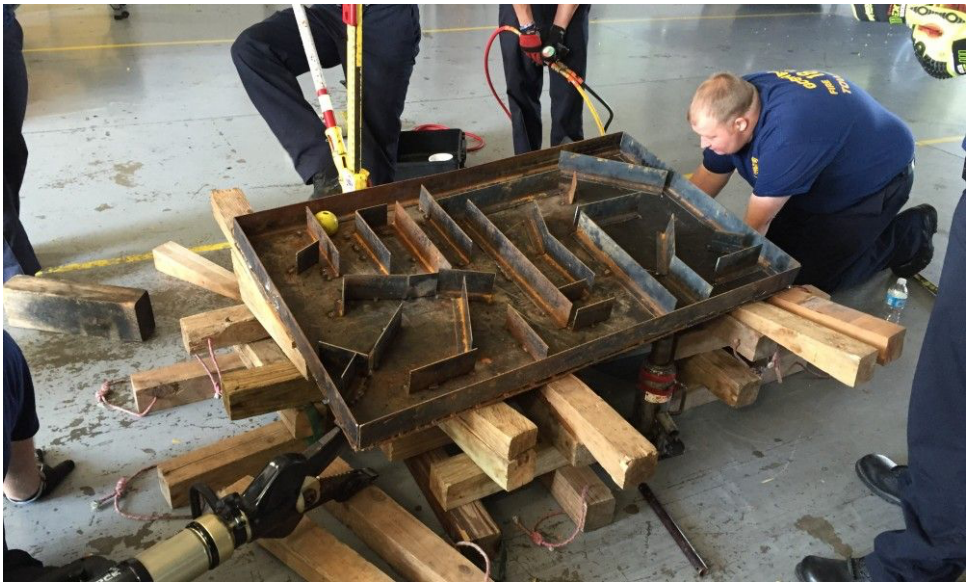


Figure 46
Cribbing Prop

6. **Develop Specialty Response Teams -** These teams should be made up of representatives from all departments that have a desire to training and be proficient at a particular set of skills. Most people have a particular drive or niche in their own "tool box". It is the department's job to discover these and to make opportunities available to capitalize on these talents. Proper training and equipment should be made available for a regional team in the following areas:

    - Ice rescue
    - High angle
    - Trench
    - Swift water rescue
    - Large area search and rescue
    - Spill containment
    - Incident Command Overhead support team
    - Communications group
    - MCI

7. **Deliver Officer Training Programs** - Develop officer training for current and future officers. There is a lot more to be an officer than just the title. Officers need to be proficient at all things fire service related. This does not happen overnight and is very dangerous if conducted by a populous vote and not that of knowledge skills and abilities. For the fire service to succeed mentoring is a necessity. There is a lot of talent in the senior firefighters, the Consortium should develop them into mentors to pass along the knowledge base they have.

8. **Apply for Collaborative Grants-** Apply for a collaborative grant to help fund equipment needs. It has been shown that regional grants tend to be positively reviewed and funded based on the value produced by collaboration. Because a regional grant will produce a higher value and serve fire departments that have collaborated to develop a defined need they have a greater likelihood of being funded.

	Phase 2		Budget	$23,500.00				
Town	Grand List	Square Miles	Population	10% fixed	40% total Budget	50% total budget	Total Amount	% of budget
Barnet	11,625,300.00	43.5	1564	$ 335.72	$ 266.33	$ 895.35	$ 1,497.39	6%
Concord	4,206,100.00	53.45	1284	$ 335.72	$ 96.36	$ 735.05	$ 1,167.13	5%
Danville	12,845,336.00	61.02	2206	$ 335.72	$ 294.28	$ 1,262.87	$ 1,892.87	8%
Groton	11,322,600.00	55.03	984	$ 335.72	$ 259.39	$ 563.31	$ 1,158.42	5%
Lyndon	143,580,498.00	39.69	5799	$ 335.72	$ 3,289.30	$ 3,319.77	$ 6,944.79	30%
St Johnsbury	216,546,350.00	36.85	7244	$ 335.72	$ 4,960.88	$ 4,146.99	$ 9,443.60	40%
Waterford	10,190,900.00	39.79	1444	$ 335.72	$ 233.46	$ 826.65	$ 1,395.83	6%

Figure 47
Proposed Phase 2 Cost Share

The Cost for Phase Two of the program consist of a budget figure of $ 8,500.00 for training props and or the materials to build some of the training props the departments have chosen to build. In addition to the props $15,000.00 has been budgeted to test, repair or purchase new some of the needed technical rescue equipment to begin to build out the cache of regional resources. Assuming the full amount for the coordinator was approved in phase one then these services will already be in place until May of 2023.

PHASE 3 - January 2023 – December 2023

In this phase, daytime staffing will be added for a minimum of a two-year pilot program. MRI recommends an initial staffing pattern of eight-hour shifts Monday thru Friday with a staff of two people being assigned to an existing piece of Consortium Apparatus. One of the two positions should be filled with a fulltime person and the second would be from a pool of part time or per diem staffing. This crew would augment the current response policies of participating departments. **The priority for filling the per diem staffing would be from firefighters from within participating departments.** The pilot program should be under constant review and at a minimum on a quarterly basis a SWOT analysis should be undertaken to further define performance and enhance future opportunities.

Objectives:

1. **Expand Fire Coordinators position** - The logistical work as well as the documentation of the Coordinator should continue to build and the position in this phase will have the hours and rate increased. This person could serve as the fulltime component of the rapid response force listed below.

2. **Create a Regional Rapid Response Force -** With the projected continued increase in response times during the weekday 8-4 hours, the group should look to implement a program that will assist the Consortium with staffing during peak hours. It is recommended that the program have one fulltime

fire EMS person working with a per-diem person, that will be scheduled by the coordinator from an active pool of staff. There will need to be many questions answered before this program starts, some of these questions are listed below:

- What will the actual work hours be (maximum before benefits for per diem staff)?
- How many people will be scheduled to work?
- What will the pay rate pay?
- What vehicle(s) will they use?
- What incidents will they respond to?
- What station will they work out of?
- How will they be paid?
- What community will assume them as employees?
- What will the hiring process be and who will handle this?
- What will the uniforms and PPE be?
- Where do they fit in the organizational chart and who do they report to?
- What other tasks can they do between incident responses?
    a. Truck and equipment checks
    b. Light maintenance
    c. Record keeping
    d. Inspections
    e. Public education
    f. Training development
    g. Preplanning
    h. Target hazard analysis

Phase 3			Budget $130,281.60		Valuation	Population		
Town	Grand List	Square Miles	Population	10% fixed	40% total Budget	50% total budget	Total Amount	% of budget
Barnet	11,625,300.00	43.5	1564	$ 1,861.16	$ 1,476.48	$ 4,963.70	$ 8,301.34	6%
Concord	4,206,100.00	53.45	1284	$ 1,861.16	$ 534.20	$ 4,075.06	$ 6,470.42	5%
Danville	12,845,336.00	61.02	2206	$ 1,861.16	$ 1,631.43	$ 7,001.23	$ 10,493.82	8%
Groton	11,322,600.00	55.03	984	$ 1,861.16	$ 1,438.04	$ 3,122.94	$ 6,422.14	5%
Lyndon	143,580,498.00	39.69	5799	$ 1,861.16	$ 18,235.55	$ 18,404.40	$ 38,501.11	30%
St Johnsbury	216,546,350.00	36.85	7244	$ 1,861.16	$ 27,502.64	$ 22,990.43	$ 52,354.23	40%
Waterford	10,190,900.00	39.79	1444	$ 1,861.16	$ 1,294.30	$ 4,582.85	$ 7,738.31	6%

Figure 48
Proposed Phase 3 Cost Share

The budget figure for this phase includes the costs as outlined below. It should be noted that these are figures that are considered to be average for the time this report was created and may need to be adjusted according to standards that are normal for the time frame.

	Hours	Rate	Weeks	Sub Total	Indirect		
Coordinator	24	$ 15.00	28	$ 10,080.00	$ 2,116.80	$ 12,196.80	(7 Mnths)
FT FF/EMT	40	$ 18.00	52	$ 37,440.00	$14,976.00	$ 52,416.00	
PT FF/EMT	40	$ 16.00	52	$ 33,280.00	$ 6,988.80	$ 40,268.80	
Props						$ 6,200.00	
Tech Rescue						$ 8,000.00	
Uniforms -PPE						$ 10,000.00	
Office Supplies						$ 1,200.00	
					Total	**$130,281.60**	

Figure 49
Phase Three Compensation Plan

PHASE 4 - January 2024

With the build-out of the program to date, MRI recommends that an official structure be established to guide future action. This group can be made up as an Association, a Fire District, or a Board of Directors, or other similar type of organizational structure. The importance of guidance and professional leadership will be key to the success of the next phases. Whatever the name or structure that will lead into the future, they will need to do so as transparent as possible while at the same time assuring that each community and their fire department are players in the decisions that affect them. The following objectives have been stated as a basis to begin to layout this form or organization. To further assist this, MRI has included in the appendix of this document a working example of By-laws for a fire district. Without question legal advice will need to be consulted to assure that all Federal, State and local laws are being followed.

Objectives:

1. **Create a Fire District or Association -** Following the guidance of a legal professional the group should create a "District or Association" that follows Vermont and Federal Laws. Simultaneously the group should create a Board of Directors and develop operational By-Laws for all to follow.

2. **Create a Board of Directors -** Create a Board that will be charged with working with all stakeholders in the creation of the "District".

3. **Identify Composition of the Board of Directors -** The Board will consist of a single member of each town Fire Department and a single member from town government. Each town should have equal representation on the Board so it is recommended that there be a two-person maximum.

4. **Fill Key Positions -** This group will come together and create a mission statement and vote on filling the position of Chairman, Vice Chairman and secretary- treasurer (these may be separate positions.)

5. **Create Appropriate Bylaws -** The newly created board will create By-Laws that will govern the group. The first set of By-Laws should be voted on by the Board. The procedure for future additions, deletions, edits will be part of the By-Laws and should be voted on by the full body.

6. **Evaluate Bylaws -** The By-laws should clearly answer the following questions:

    - Mission and purpose of the group
    - Who belongs to the district (towns), how can a town be included?
    - How is each town represented at the board level?
    - How do other department members have a voice?
    - Will there be a fee structure?
    - Development of a job description for each position on the board
    - How and how often and each position within the board changed
        - For continuity purposes, it is suggested that the Chairman and Vice Chairman are elected with a one-to-two-year separation.

Phase 4			Budget $126,536.00		Valuation	Population		
Town	Grand List	Square Miles	Population	10% fixed	40% total Budget	50% total budget	Total Amount	% of budget
Barnet	11,625,300.00	43.5	1564	$ 1,807.66	$ 1,434.03	$ 4,821.00	$ 8,062.69	15%
Concord	4,206,100.00	53.45	1284	$ 1,807.66	$ 518.84	$ 3,957.90	$ 6,284.40	11%
Danville	12,845,336.00	61.02	2206	$ 1,807.66	$ 1,584.53	$ 6,799.95	$ 10,192.14	18%
Groton	11,322,600.00	55.03	984	$ 1,807.66	$ 1,396.69	$ 3,033.16	$ 6,237.51	11%
Lyndon	143,580,498.00	39.69	5799	$ 1,807.66	$ 17,711.28	$ 17,875.30	$ 37,394.24	67%
St Johnsbury	216,546,350.00	36.85	7244	$ 1,807.66	$ 26,711.94	$ 22,329.49	$ 50,849.08	92%
Waterford	10,190,900.00	39.79	1444	$ 1,807.66	$ 1,257.09	$ 4,451.10	$ 7,515.85	14%

Figure 50
Proposed Phase 4 Cost Share

	Hours	Rate	Weeks	Sub Total	Indirect		
Coordinator	24	$ 15.00	52	$ 18,720.00	$ 3,931.20	$ 22,651.20	
FT FF/EMT	40	$ 18.00	52	$ 37,440.00	$14,976.00	$ 52,416.00	
PT FF/EMT	40	$ 16.00	52	$ 33,280.00	$ 6,988.80	$ 40,268.80	
Props						$ -	
Tech Rescue						$ -	
Uniforms -PPE						$ 5,000.00	
Legal Fees						$ 5,000.00	
Office Supplies						$ 1,200.00	
					Total	$126,536.00	

Figure 51
Phase 4 Compensation Plan

PHASE 5 - July 2024

Building on the program to assist in moving departments to a more consistent training program, as well as to increase the available response hours of the response team by increase of shift hours from eight to sixteen will be optimal. This would provide a staffing level of a coordinator and two personnel during the day and two personnel for evening coverage.

Objectives:

1. **Increase Rapid Response Force (RRF) Staffing to Two FTEs** - Increase the fulltime response staffing to 2. One will be scheduled to be on duty at a time working with a per-diem staff member. A 40-hour week will be scheduled.

2. **Increase Per Diem Shifts and Staffing Level to Four Personnel.** Increase the number of available shifts for per-diems to work.
3. **Create fulltime Fire Coordinator Position**- Increase the hours of the coordinator from part time to full time and to take a more active role in

operations (training and meetings) and to assist with developing additional regional opportunities to bring the departments together.

4. **Continue Training Program Development** - Continue to fund Training programs. RRF should deliver all regional training programs.

5. **Continue Technical Rescue Program Development -** Continue to fund Tech Rescue program

Phase 5 **Budget $248,985.60** Valuation Population

Town	Grand List	Square Miles	Population	10% fixed	40% total Budget	50% total budget	Total Amount	% of budget
Barnet	11,625,300.00	43.5	1564	$ 3,556.94	$ -	$ 9,486.32	$ 13,043.26	5%
Concord	4,206,100.00	53.45	1284	$ 3,556.94	$ -	$ 7,788.00	$ 11,344.94	5%
Danville	12,845,336.00	61.02	2206	$ 3,556.94	$ -	$ 13,380.32	$ 16,937.26	7%
Groton	11,322,600.00	55.03	984	$ 3,556.94	$ -	$ 5,968.38	$ 9,525.31	4%
Lyndon	143,580,498.00	39.69	5799	$ 3,556.94	$ -	$ 35,173.38	$ 38,730.32	16%
St Johnsbury	216,546,350.00	36.85	7244	$ 3,556.94	$ -	$ 43,937.92	$ 47,494.85	19%
Waterford	10,190,900.00	39.79	1444	$ 3,556.94	$ -	$ 8,758.47	$ 12,315.41	5%

Figure 52
Proposed Phase 5 Cost Share

	Hours	Rate	Weeks	Sub Total	Indirect		
Coordinator	40	$ 17.00	52	$ 35,360.00	$14,144.00	$ 49,504.00	
FT FF/EMT	40	$ 18.50	52	$ 38,480.00	$15,392.00	$ 53,872.00	
FT FF/EMT	40	$ 18.50	52	$ 38,480.00	$15,392.00	$ 53,872.00	
PT FF/EMT	80	$ 16.00	52	$ 66,560.00	$13,977.60	$ 80,537.60	
Props						$ -	
Tech Rescue						$ -	
Uniforms -PPE						$ 5,000.00	
Legal Fees						$ 5,000.00	
Office Supplies						$ 1,200.00	
					Total	**$248,985.60**	

Figure 53
Phase 5 Compensation Plan

PHASE 6 - July 2025

In this phase MRI is proposing that the Coordinator works Monday – Friday, days (40 hours) and the RRF program move to a 24-hour seven day a week model utilizing three work groups each and full-time staff member and a per-diem member working each shift (24/7).

Phase 6			Budget $433,072.16		Valuation	Population		
Town	Grand List	Square Miles	Population	10% fixed	40% total Budget	50% total budget	Total Amount	% of budget
Barnet	11,625,300.00	43.5	1564	$ 6,186.75	$ 4,908.07	$ 16,499.98	$ 27,594.80	50%
Concord	4,206,100.00	53.45	1284	$ 6,186.75	$ 1,775.77	$ 13,546.02	$ 21,508.53	39%
Danville	12,845,336.00	61.02	2206	$ 6,186.75	$ 5,423.16	$ 23,272.99	$ 34,882.90	63%
Groton	11,322,600.00	55.03	984	$ 6,186.75	$ 4,780.28	$ 10,381.06	$ 21,348.08	38%
Lyndon	143,580,498.00	39.69	5799	$ 6,186.75	$ 60,618.11	$ 61,178.64	$ 127,983.49	231%
St Johnsbury	216,546,350.00	36.85	7244	$ 6,186.75	$ 91,423.49	$ 76,423.19	$ 174,033.42	314%
Waterford	10,190,900.00	39.79	1444	$ 6,186.75	$ 4,302.49	$ 15,234.00	$ 25,723.23	46%

Figure 54
Proposed Phase 6 Cost Share

	Hours	Rate	Weeks	Sub Total	Indirect		
Coordinator	40	$ 17.00	52	$ 35,360.00	$14,144.00	$ 49,504.00	
FT FF/EMT	48	$ 18.50	52	$ 46,176.00	$18,470.40	$ 64,646.40	
FT FF/EMT	48	$ 18.50	52	$ 46,176.00	$18,470.40	$ 64,646.40	
FT FF/EMT	48	$ 18.50	52	$ 46,176.00	$18,470.40	$ 64,646.40	
PT FF/EMT	168	$ 16.00	52	$139,776.00	$29,352.96	$169,128.96	
Overtime				10000	$ 4,000.00	$ 14,000.00	
Props						$ 1,500.00	
Tech Rescue						$ 1,500.00	
Uniforms -PPE						$ 1,000.00	
Legal Fees						$ -	
Office Supplies						$ 2,500.00	
					Total	$433,072.16	

Figure 55
Phase 6 Compensation Plan

PHASE 7 - July 2026 to June 2027

The Coordinator would continue to work Monday – Friday, days (40 hours). This phase would provide a three-person crew on duty 24 hours a day 7 days a week. This crew would be a three-person compliment made up of 1 Fulltime Firefighter-EMT and 2 per-diem firefighters EMT preferred.

Phase 7			Budget $601,953.92		Valuation	Population		
Town	Grand List	Square Miles	Population	10% fixed	40% total Budget	50% total budget	Total Amount	% of budget
Barnet	11,625,300.00	43.5	1564	$ 8,599.34	$ 6,821.94	$ 22,934.37	$ 38,355.65	6%
Concord	4,206,100.00	53.45	1284	$ 8,599.34	$ 2,468.22	$ 18,828.47	$ 29,896.03	5%
Danville	12,845,336.00	61.02	2206	$ 8,599.34	$ 7,537.88	$ 32,348.61	$ 48,485.83	8%
Groton	11,322,600.00	55.03	984	$ 8,599.34	$ 6,644.31	$ 14,429.30	$ 29,672.95	5%
Lyndon	143,580,498.00	39.69	5799	$ 8,599.34	$ 84,255.66	$ 85,036.07	$ 177,891.07	30%
St Johnsbury	216,546,350.00	36.85	7244	$ 8,599.34	$ 127,073.36	$ 106,225.44	$ 241,898.13	40%
Waterford	10,190,900.00	39.79	1444	$ 8,599.34	$ 5,980.21	$ 21,174.70	$ 35,754.25	6%

Figure 56
Proposed Phase 7 Cost Share

	Hours	Rate	Weeks	Sub Total	Indirect		
Coordinator	40	$ 17.00	52	$ 35,360.00	$14,144.00	$ 49,504.00	2 wks vacation
FT FF/EMT - Sr.	48	$ 19.00	52	$ 47,424.00	$18,969.60	$ 66,393.60	2 wks vacation
FT FF/EMT	48	$ 18.00	52	$ 44,928.00	$17,971.20	$ 62,899.20	1 wk vacation
FT FF/EMT	48	$ 18.00	52	$ 44,928.00	$17,971.20	$ 62,899.20	1 wk vacation
PT FF/EMT	336	$ 16.00	52	$279,552.00	$58,705.92	$338,257.92	
Overtime				$ 10,000.00	$ 4,000.00	$ 14,000.00	
Props						$ 1,500.00	
Tech Rescue						$ 1,500.00	
Uniforms -PPE						$ 1,000.00	
Office Supplies						$ 2,500.00	
Contingency Fund						$ 1,500.00	
					Total	$601,953.92	

Figure 57
Phase 7 Compensation Plan

The total budget amount for all Phases:

Phase	Amount	Start Time
1	$ 9,412.00	May 2021
2	$ 23,500.00	July 2022
3	$ 130,281.60	January 2023
4	$126,536.00	January 2024
5	$248,985.60	July 2024
6	$433,072.16	July 2025
7	$601,953.92	July 2026
Total	$ 1,573,741.28	

Figure 58
Cumulative Consortium Budget Projection

If the Consortium continues to develop this program past July of 2027, emphasis should be placed on providing 24/7 four person RRF staffing in the eighth phase of this program.

Cost Sharing Options:

If the communities all agree to move forward with a program that is a combination of any of the above recommendations, it will require that there be some type of funding. The simplest way of coming up with the community cost would be to divide the budget figure equally by the number of towns.

There are many other ways to calculate a fee to divide up a budget into a reasonable cost per community. There are also many variables that could be considered when doing the calculations for this purpose. Some models that consider population served or number of structures are relatively easy to utilize while other models that incorporate call volume or dollar loss are more complex. For this project MRI has calculated a fee schedule four different ways; all using the budget figure of $100,000.00 and uses all other data from 2019. MRI does not favor one method over another and is using the types of calculations below, to give the communities examples of other ways that the costs could be looked at. Obviously if another community that is not part of the study would like to join this program, then the overall percentage and costs for each community would go down.

The far-right column in each of the first three charts indicates the percentage of the total fire department budget each community would pay.

Population Only				
Barnet	1564	$	7,619.98	8%
Concord	1284	$	6,255.79	6%
Danville	2206	$	10,747.87	11%
Groton	984	$	4,794.15	5%
Lyndon	5799	$	28,253.35	28%
St Johnsbury	7244	$	35,293.54	35%
Waterford	1444	$	7,035.32	7%
Total	**20525**	**$**	**100,000.00**	**100%**

Figure 59
Cost by Population

Dwelling Units				
Barnet	950	$	9,331.11	9%
Concord	816	$	8,014.93	8%
Danville	1268	$	12,454.57	12%
Groton	639	$	6,276.40	6%
Lyndon	2406	$	23,632.26	24%
St Johnsbury	3522	$	34,593.85	35%
Waterford	580	$	5,696.89	6%
Total	**10181**	**$**	**100,000.00**	**100%**

Figure 60
Cost by Residential Structures

Call Volume (2020)				
Barnet	40	$	2,151.69	2%
Concord	130	$	6,993.01	7%
Danville	63	$	3,388.92	3%
Groton	278	$	14,954.28	15%
Lyndon	179	$	9,628.83	10%
St Johnsbury	1013	$	54,491.66	54%
Waterford	156	$	8,391.61	8%
Total	**1859**	**$**	**100,000.00**	**100%**

Figure 61
Cost by Incident Volume

Hybrid								
				Fixed	Valuation	Population		
Town	Grand List	Square Miles	Population	10% fixed	40% total Budget	50% total budget	Total Amount	% of budget
Barnet	11,625,300.00	43.5	1564	$ 1,428.57	$ 1,133.30	$ 3,816.16	$ 6,378.03	6%
Concord	4,206,100.00	53.45	1284	$ 1,428.57	$ 410.03	$ 3,132.96	$ 4,971.56	5%
Danville	12,845,336.00	61.02	2206	$ 1,428.57	$ 1,252.24	$ 5,382.64	$ 8,063.45	8%
Groton	11,322,600.00	55.03	984	$ 1,428.57	$ 1,103.79	$ 2,400.96	$ 4,933.32	5%
Lyndon	143,580,498.00	39.69	5799	$ 1,428.57	$ 13,997.03	$ 14,149.56	$ 29,575.16	30%
St Johnsbury	216,546,350.00	36.85	7244	$ 1,428.57	$ 21,110.15	$ 17,675.36	$ 40,214.08	40%
Waterford	10,190,900.00	39.79	1444	$ 1,428.57	$ 993.47	$ 3,523.36	$ 5,945.40	6%
Total	**410,317,084.00**	**329.33**	**20525**	$ 9,999.99	$ 40,000.00	$ 50,081.00	$ 100,080.99	100%

Figure 62
Cost by Hybrid Formula

All of the above charts are easy to follow except for the last one referred to as a Hybrid Formula that requires a more detailed explanation. This formula has been used in a regionalized area for many years and works well. The Hybrid formula for community assessment is arrived at using a method that takes into account fixed costs (10% of the total budget), property valuations (40%) and population (50%) of each community.

- **Fixed Costs is 10%** of the total budget and is divided by the number of communities in the cost share program.

- **Valuation Factor is 40%** of the assessment value (Grand List) on a community's total property value. A formula has been arrived at, that takes these different figures into account and ensures an equitable assessment to each town based on the fact that each one is different.

- **Population Factor is 50%** of the assessment value based on a community's population. The population factor is arrived at, by dividing 50% of the total budget by the total population of all member communities.

The chart on the following page presents a side-by-side comparison of the results of the different formulas used to calculate the cost sharing of the $100,000.00 budget for each community. It is the project team's feeling that there is no one single way that is best and that as long as there is an appropriate methodology to sharing the costs it is up to the communities to agree on how the sharing should be done. It should be noted that the formula for cost sharing should be included in the written agreement that is signed each year.

Town	Population	Dwelling Units	Call Volume	Hybrid
Barnet	8%	9%	2%	6%
Concord	6%	8%	7%	5%
Danville	11%	12%	3%	8%
Groton	5%	6%	15%	5%
Lyndon	28%	24%	10%	30%
St Johnsbury	35%	35%	54%	40%
Waterford	7%	6%	8%	6%

Figure 63
Comparison of Formula types

With the increase in cost to provide this program, the project team has been looking at regional programs that could complement fire service operations, provide a needed service to the public and produce a revenue stream that could offset some of the operational cost. Mobile Integrated Health Care utilizes paramedics to deliver non-emergency health care services to the patient in their home. Developing this service provides a direct benefit to the patient and can offset operational costs by 25-50%.

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."*** These services are provided through community paramedicine programs, that utilize trained on-duty staff. These programs have become more prevalent as they can accomplish the following:

- Provide direct care to the patient in their local environment
- Reach patients that are not ambulatory
- Reduce health care costs
- Reduce EMS system demand
- Reduce hospital service demand
- Reduce exposure to infectious disease

MIH programs have become multi-faceted providing a collaborative approach and partnership between local EMS providers and other public health organizations, that create atypical delivery systems. MIH/CP programs can 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. These programs can provide pre- and post-hospital services that deliver a coordinated continuum of care that supports the patients' needs in the community and provides an innovation delivery model that addresses any gaps in service in order to prevent any unnecessary hospitalizations.

The benefits of MIH/CP are therefore two-fold. These programs could 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. This is an opportunity that the communities and its member agencies, in cooperation with the State and local Emergency Service providers should actively, and collaboratively, explore.

Looking to the future, it is anticipated that EMS reimbursements will be tied, at least partially, to patient outcomes. Determining service levels will also be tied more closely to patient outcomes than traditional data points, like response times.

RECOMMENDATIONS:

XII-1 Working collaboratively the Consortium should explore the feasibility of developing a pilot program to implement a regional-based Mobile Integrated Healthcare (MIH) program. The purchase of needed equipment could be accomplished through a lease in arrears. Utilizing this fiscal strategy, the first payment for vehicles or equipment would be one year after delivery enabling revenue to accumulate from MIH services. This program could be incrementally be expanded based on the proven success of the pilot program.

XII-2 Initial staffing of this MIH unit should be Monday to Friday from 8:00 AM to 8:00 PM during peak hours. It should be staffed with one fulltime Basic EMT and one fulltime Paramedic who could be cross trained to staff a portion of the RRF.

XII-3 The current emergency responders serving the 7 towns that makeup the Consortium are dedicated individuals who have provided an immeasurable service to their communities. This resource should not be overlooked. Any response from a regional resource should still incorporate the tiered first response from local responders to begin initial assessment, treatment, and care prior to the arrival of any MIH units.

XII-4 The 9-1-1 Communications Centers should meet with the Medical Director and review all Computer Aided Dispatch cards and protocols. All emergency medical calls for service into the Communications Center are vetted through Emergency Medical Dispatch (EMD).

XII-5 The collaborating communities should establish a fund for collection of revenue for any response by MIH resources. These funds for service should be available to be put towards future operations of a possible fire-based EMS system and not back into the general fund of any one community.

XII-6 Any EMS providers who are not doing third party billing for MIH or EMS services should implement a policy to do so ASAP, in order to provide a revenue offset to their operating expenses.

XIII: CONCLUSIONS AND IMPLEMENTING CHANGE

Based upon the project team's analysis of the current day operations of the departments within the study, MRI has found organizations that are currently strained to meet the service expectations of their communities. Developing effective solutions to the operational challenges faced by each Consortium community has been elusive and resulted in the discussion of regional solutions.

The project team's research found that all the departments within the Consortium are well respected and viewed as a potential source for innovation. During the team's time speaking with stakeholders, we heard how much the departments provide for the communities and how much they are appreciated. The value that each organization provides should not be underestimated.

We believe that developing a hybrid regionalization model that supports existing fire departments is feasible if paced and developed utilizing a phased approach. Many regional initiatives fail based on lack of direct control over programs and resources, cost sharing methods, internal resistance and in some cases personalities. Despite these obstacles, the potential for the Consortium to create a successful fire service augmentation system is very high. This project provides each organization with an opportunity to consider solutions and develop a forward-looking vision that will foster a strategy to translate vision into reality. Utilizing a collaborative approach, the Consortium can consider collaborative solutions that will augment the fire service delivery system and better meet the needs of each participating community.

The culture of the fire service is very resistant to change. This is not something new and certainly not exclusive to the Fire Departments in the Consortium. The project team identified ten essential elements of success which were considered as we developed the seven-phase plan implementation plan outlined in this document.

- Communication and involvement of stakeholders;
- The use of pilot programs;
- Anticipation of barriers and resistance;
- A slow progression toward significant change;
- Pacing change to match the Consortium's tolerance and operational needs;
- Developing a realistic fiscal model and cost sharing model;
- Evaluation of programs;
- Recognizing and publicizing success;
- Communication directly (e-mail newsletter) to every community leader and fire department member;

- Development of a marketing plan to inform residents and business owners within the Consortium area.

In conclusion, the missions performed by the Fire Department are some of the most basic and fundamental functions of government; to ensure the safety and protection of its residents and visitors. The real issue facing the Fire Departments, as it is for every community, is to determine an acceptable level of risk, and then define an appropriate level of service for the community. There is no "right" amount of fire protection or EMS delivery in any community. It is a constantly changing level based upon the expressed needs of the community. Determining the appropriate level of service also involves deciding upon the municipalities' fiscal ability, and willingness, to pay for the desired level of service. These are decisions that the citizens of the town and the board of selectmen will ultimately need to make. The fire service augmentation strategy outlined in MRI's implementation plan uses the hub and spoke regional model to amplify the level of protection and preserve the staffing model currently in use within the Consortium.

The COVID-19 pandemic required that we pursue a virtual presence during much of this project. MRI would like to recognize the tremendous cooperation that the project team received from Irene Nagle, the staff of the Northeastern Vermont Development Association (NVDA) and from the Consortium stakeholders. This level of support allowed us to develop a detailed assessment and provide the information and recommendations included in this document.

XIV: CONSOLIDATED RECOMENDATIONS

Chapter III

III-1: Each town or a group of towns should develop a five-year plan to enhance training documentation and water supply inspection, and flow testing to move toward reclassifying the ISO ratings.

III-2: A group of towns should develop a ten-year plan to enhance training, documentation, water supply inspection, flow testing, and emergency telecommunications operations to move toward reclassifying the departments to an even lower ISO rating.

III-3: Each department should conduct a thorough Community Risk Assessment and use the assessment as a tool to move the department into the future. Over the next year, plan should be developed to utilizes strengths to pursue opportunities and address weaknesses while mitigating threats. This should be an ongoing process that has member involvement and is moved forward by the officer core.

III-4: The Consortium should sponsor periodic workshops and focus groups to implement the recommendations in this report and identify opportunities for collaboration and review industry best practice regional initiatives.

Chapter IV

IV-1: Each community within the Consortium should evaluate response times and work to improve these times to save lives and prevent property damage.

IV-2: Each community within the Consortium should be asked to identify an appropriate service level/Standard of Cover and if service gaps exist these gaps should be quantified and addressed through a collaborative effort by the Consortium.

IV-3: Every effort should be made to preserve the primary responder role of on-call personnel and expand membership within each individual Fire Department.

IV-4: If the average response time to emergencies exceeds the industry standard of 14 minutes (other than to remote areas with a travel distance greater than 8 miles), this service deficit should be brought to the attention of the Board of Selectmen and the community as a whole.

Chapter V

V-1: ***Fire Departments in the Consortium should require firefighters, and strongly encourage its fire officers, to obtain appropriate Pro-board certification levels. Examples of appropriate certification levels are listed in the table below:***

Rank	*Certification Level*
Firefighter	*Firefighter I/II*
Fire Lieutenant	*Fire Officer I*
Fire Captain	*Fire Officer II*
Deputy Fire Chief	*Fire Officer III*
Fire Chief	*Fire Officer IV*

V-2: ***Fire Departments in the Consortium should require that all officers be certified as Incident Safety Officers (ISO). Additional personnel who may be interested should be encouraged to take this training and obtain this important firefighter safety certification.***

V-3: ***As part of the succession planning process, the Fire Chiefs should work to implement a professional development program to ensure that all officers can perform their superior's duties, as well as identify the core future leaders of the department.***

V-4: ***All Departments in the Consortium should continue to foster, support and incent any member to be trained and certified to the Firefighter I and preferably the Firefighter II level.***

V-5: ***Working with the training officer, additional training should be planned delivered and documented. To keep members interested in training the department should be creative and offer training that is outside the normal programs. Making programs fresh, fun and to some degree competitive, may increase the participation by members. If it's the same old training, people will lose interest. Make it so they want to participate and at the same time meet training goals.***

V-6: ***To increase training attendance and participation, Departments within the Consortium should consider providing meals as part of each training program.***

V-7: ***Training content should be consistent and planned through the Consortium. Regional training with mutual/automatic aid partners should be scheduled bimonthly.***

V-8: ***If a member is unable to attend training in their local Department, they should have the flexibility to attend training in another Department. It is essential that the host department welcome participation from other departments.***

V-9: ***In consultation and cooperation with its neighboring departments, all Fire Departments should enter into formal automatic aid agreements that specifies the number and types of resources that should be dispatched immediately to various types of reported emergencies, such as structure fires. These recommendations should be based upon a community-wide risk management process and/or pre-fire/incident plan.***

V-10: ***Although more stringent than the requirements found in Table 4.3.2 of NFPA 1720 for rural communities, through the utilization of automatic aid agreements with neighboring communities, Fire Departments should consider the adoption of an SOC with the goal of attempting to have at least 16 personnel respond to any reported structure fire.***

V-11: ***The Fire Departments should make it a priority to improve its first unit on scene response times, including the adoption of a SOC, for the town. The SOC should be based upon a hybrid of the NFPA 1710/1720 and Commission on the Accreditation of Ambulance Services (CAAS) recommendations.***

V-12: ***The Fire Departments should work with the communities listed on each of the "run cards" to assure the number and qualification of staffing, that will be sent on the assignments. In order to be able to meet a safe level of on scene staffing, it will be important to know not only what the department will be receiving and how long it will take, but also to outline what each town will be sending, when these communities request resources from them.***

V-13: ***Review the department roster and look to the members with low participation and find out what can be done to increase their involvement. Work with these members to increase their participation within a pre-determined time frame.***

V-14: ***The Fire Department should set a minimum criterion for members to remain in active status. This criterion should include both minimum training and response to incidents for a determined time period (one year). This criterion should also allow for people to go into an inactive status for a period of time due to approved circumstances. It would***

be important for inactive-status people to make up any important training prior to being put back on active status.

V-15: The town should consider encouraging members of Police Departments that live in the area to become on-call firefighters.

V-16: The Fire Departments should work with their Road Agents to ensure that on-call firefighters are given preference when DPW personnel are hired. If on-call members are not interested and or qualified the town should hire personnel that are willing to become an on-call firefighter as a condition of employment.

V-17: Unless critical DPW operations are underway, DPW personnel that are on-call firefighters should respond to emergencies to supplement staffing and assist in meeting the OSHA Two-in Two-Out Standard.

V-18: Towns either individually or jointly should apply for a federal SAFER grant for on-call recruitment and retention. This grant should be utilized to develop a comprehensive marketing program to attract new members, and provide incentives for the retention of those personnel, such as tuition reimbursement, health care benefits, tax abatements, etc. This competitive grant requires a lot of time and dedication to write and to be successful to obtain.

V-19: All Consortium Communities should recognize that the only way to develop a more active and properly staffed fire department in the absence of hiring a larger force of career firefighters is to determine what would motivate potential responders; and craft a program of investment that meets these extrinsic and intrinsic needs.

V-20: All Consortium stakeholders should jointly convene a focus group to determine what concepts and recruitment and retention strategies are feasible and most attractive to potential candidates.

V-21: Fire Departments in the Consortium should set a realistic goal of recruiting at least 6 to 8 new members over the next three years, and simultaneously set a goal of increasing the overall force by a minimum of 10%. These personnel should be required to be properly trained and certified to the Firefighter I/II level, and preferably to the minimum of EMR level.

V-22: All Departments should make it a priority to develop an active on-call recruitment program led by a Chief Officer. At a minimum, this program should consist of the following elements:

1. ***Developing a recruitment brochure and mailing it to all residents***
2. ***Holding periodic open houses at the fire station***
3. ***Performing public outreach through the local media***
4. ***Contacting community and service groups***
5. ***Developing an eye-catching banner on the town's and fire department's web sites***
6. ***Placing signs recruiting call/volunteer personnel at the main entrances to town***
7. ***Placing a temporary sign board at various locations within the community***
8. ***Placing signs for call/recruiting volunteers in local businesses, particularly high-volume locations***
9. ***Implementing a fire explorer program***
10. ***Radio and media advertisements***
11. ***Although time consuming, consideration should also be given to conducting a door-to-door recruitment campaign of every residence in the town.***
12. ***The proposed SAFER Grant could be utilized to cover many of the above expenses.***

V-23: ***The Fire Chief within each community should develop a social media presence and involve other members of the department in this endeavor. The use of social media like Facebook and Twitter are what the younger generation use and a very active social media account can reach out to this group of people for hiring.***

V-24: ***The Fire Chief or his designee should create a quarterly "newsletter" that will highlight the positive things that the department has done the prior months. This newsletter should be posted on the town's web page, shared in social media, shared with the Board of Selectmen. It is important that the public is made aware of all the great people and all the good things the department does.***

V-25: ***The towns and the Fire Departments should attempt to enter into partnerships with local businesses to allow their personnel to respond, when needed, to emergency incidents during working hours, without any financial penalty.***

V-26: ***The towns should explore the feasibility of utilizing, and in fact encouraging, town employees to perform "dual roles" by serving not only in their full-time positions, but also serving the town as call firefighters and/or rescue personnel. Caution is needed here though as there are provisions of the Fair Labor Standards Act that would be applicable, particularly if these personnel respond to incidents during times when they are not working.***

V-27: ***Fire Departments should develop a series of team-based activities that build involvement in the organization. Once established on the local level, program should be developed regionally within the Consortium.***

V-28: ***All officer positions, from lieutenant to fire chief, should be filled based upon the person's firefighting/emergency services training, certifications, and experience, commensurate with the position being sought, along with successful completion of a formal, rank appropriate assessment process, and a basic practical skills evaluation.***

V-29: ***The Consortium fire departments should ensure that all department members are trained certified to the minimal NIMS level required for their duties/responsibilities and ranks. In addition to the basic I-100/I-700 training mandated; it is MRI's recommendation that all officers should be trained to the ICS-300 level. All chief level officers should be trained to the ICS-400 level.***

V-30: ***The Consortium should regularly access the National Volunteer Fire Council web site for cooperative programs they have posted. One of the newer programs is looking to attract returning or former military personnel into the fire service.***

<u>Chapter IX</u>

IX-1: ***Each department should identify and prioritize its most critical equipment, training and/or operational needs, and apply annually to the Assistance to Firefighters Grant (AFG) program. This should include making applications for apparatus capital replacement projects that will otherwise be funded through the town's capital budget and at town meeting.***

IX-2: ***Towns should actively continue to search for other grant opportunities. Grants for fire protection, fire safety, fire prevention, domestic and emergency preparedness, and homeland security may be available from federal, state, corporate, and foundation sources.***

IX-3: ***Towns should actively seek out businesses that may be interested in establishing public/private partnerships that could provide, or assist with, funding for various programs, projects, or initiatives.***

IX-4: ***Towns should expand its formal replacement plan for equipment. The regular replacement of large cost items such as hose, ladders, PPE, portable radios, AEDs, and even SCBA on an incremental basis will avoid major one-time increases in the annual operating budget where such purchases should be funded. For instance, the hose and ladders on one vehicle can be replaced in one fiscal year, another the following year, etc. The life expectancy of these items can be estimated based on usage and manufacturer's recommendations. Items such as hose and ladders can remain in service indefinitely, provided they continue to successfully pass their annual tests.***

IX-5: ***The Consortium should consider providing a regional reserve apparatus set including an engine, a tanker and a 4-wheel drive brush unit that could bolster the overall apparatus set and avoid duplication as these units could be used by a member community when one of their vehicles is out of service.***

<u>Chapter XII</u>

XII-1 ***Working collaboratively the Consortium should explore the feasibility of developing a pilot program to implement a regional-based Mobile Integrated Healthcare (MIH) program. The purchase of needed equipment could be accomplished through a lease in arrears. Utilizing this fiscal strategy, the first payment for vehicles or equipment would be one year after delivery enabling revenue to accumulate from MIH services. This program could be incrementally be expanded based on the proven success of the pilot program.***

XII-2 ***Initial staffing of this MIH unit should be Monday to Friday from 8:00 AM to 8:00 PM during peak hours. It should be staffed with one fulltime Basic EMT and one fulltime Paramedic who could be cross trained to staff a portion of the RRF.***

XII-3 ***The current emergency responders serving the 7 towns that makeup the Consortium are dedicated individuals who have provided an immeasurable service to their communities. This resource should not be overlooked. Any response from a regional resource should still incorporate the tiered first response from local responders to begin initial assessment, treatment, and care prior to the arrival of any MIH units.***

XII-4 ***The 9-1-1 Communications Centers should meet with the Medical Director and review all Computer Aided Dispatch cards and protocols. All emergency medical calls for***

service into the Communications Center are vetted through Emergency Medical Dispatch (EMD).

XII-5 The collaborating communities should establish a fund for collection of revenue for any response by MIH resources. These funds for service should be available to be put towards future operations of a possible fire-based EMS system and not back into the general fund of any one community.

XII-6 Any EMS providers who are not doing third party billing for MIH or EMS services should implement a policy to do so ASAP, in order to provide a revenue offset to their operating expenses.

XV: Team Profiles

Director of Fire Services

Brian P. Duggan 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.

Project Manager

David Houghton is a devoted fire and emergency management professional who has recently retired from the Wayland Massachusetts Fire Department after a distinctive 38-year career from being a call firefighter and rising through the ranks to Fire Chief. Along with dedicating his service to the Town of Wayland, he continues to work for the Massachusetts Department of Fire Services as both an instructor and in the Special Operations Division doing special projects. In 1999 he was given the challenge by the State Fire Marshal to develop and implement what today is known as Special Operations. This development included designing, building and implementing specialized equipment and staffing to respond to Emergency and planned incidents throughout the Commonwealth. This program was a shared vision between David and the Fire Marshal and today has been shared in whole or in part in other areas of the country. David has a B.S. degree in Fire Science, an A.S. Degree in Fire Science and Technology, and has completed a Local Government and Management program with Suffolk University and the Massachusetts Municipal Association. David has a diverse background Firefighting, EMS (ALS and BLS), Dispatch, Fire Prevention, Emergency Management and operations. He is a nationally certified Firefighter, Fire instructor, Fire Inspector, Fire Officer. He is a certified Emergency Medical Technician both at the National Level and in the Commonwealth of Massachusetts.

David has most recently continued his fire service career by being appointed as a call firefighter with the Town of Moultonborough Fire Rescue, and is a certified New Hampshire Emergency Medical Technician. He continues to be active with the Commonwealth of Massachusetts Fire and Ambulance Mobilization team in the continuous updating and redevelopment of the program. Prior to his retirement as Fire Chief, David was an active member in the Massachusetts Fire District 14 where he was a driving force behind the creation of the District Operational budget, an operations manual and the formalizing of the various specialized teams within the district. David was also selected as the Chief overseeing the Fire District communications team and equipment as well as serving on several other progressive programs within the district. He is a member of the Fire Chiefs Association of Massachusetts, and the International Association of Fire Chiefs.