

**Town of
Moultonborough
Fire - Rescue**

**FIRE DEPARTMENT
STAFFING NEEDS ASSESSMENT**



**January
2023**

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Acknowledgements

The Town of Moultonborough has a tremendous support and respect for its Fire Rescue Department that is continually shown at town Meeting and throughout the year. Members of the department are proud to be able to provide a high level of service to all those that live, work and travel through our community.

Without the support from the Board of Selectmen, the Town Administrator, and many other town department and boards we would not be able to provide the level of service the residents both need and deserve to have.

This report has been developed by members of the fire department to educate the residents on the current and future level of service the department provides and compares these statistics to local, regional, and national standards.

A lot of time has been taken to develop and provide statistical data from department records to demonstrate current and future staffing needs for the town. The department is and has always been very conscious of the cost of providing these services and strives to do so in an effective and efficient manner.

The command staff on the department are there to answer your questions. We feel that it is our duty and responsibility to educated public and to provide the information in a transparent manner.

Please call, email, or stop by Moultonborough Public safety Building and speak to us. We are here for you!

Executive Summary

Moultonborough Fire Rescue today is referred to as an “All-Hazards Response Department” as it has responsibility for fire prevention education, inspection, response to fires, hazardous materials incidents, medical emergencies, and rescues both on and off the water. Over the years the types of fires, types of hazardous materials incidents, technical rescue challenges and demands, response to single and Mass Casualty Incidents, medical emergencies are forever changing, and departments must change to meet the challenges that every community faces. The challenges with responding to our day to day calls for service changed dramatically with the inception of COVID-19 and even today continue to challenge us with newer strains of viruses that we not only need to treat but also need to provide proper training and equipment to keep first responders healthy and safe so they can continue to do the job.

Although Moultonborough Fire Rescue does not provide transportation to the hospital our members that are certified by the State of New Hampshire, provide Emergency Medical Care on a first response level and transfer care to our contracted services currently provided by Stewarts Ambulance Service in Meredith. The department strives to provide initial care with our EMS partners and often (especially in the areas on and around Moultonborough Neck) are on scene prior to an ambulance arrival. When available an ambulance from Stewarts responds from our central fire station on Whittier Highway or a mutual aid ambulance from as far away as Laconia.

The increasing decline in the number of on call firefighters, a nationwide trend, is having an impact on the operational structure currently in place within Moultonborough. Like many communities across the United States, the growth in population, an increase in the aging population requiring emergency medical services, and a decline in the recruitment, retention, and availability of paid on-call first responders is not uncommon. The once always available, effective group of paid-on-call first responders has been in a steady decline in recent years. Often, fulltime work mandates, family commitments, increasing training requirements, required certifications, and other competing interests has diminished the availability of responders and ultimately affect an organization’s ability to provide a timely response to emergencies. In addition, younger generations tend to prioritize leisure time which can reduce the level of interest in becoming an on-call firefighter. Statistics indicate that the highest levels of response are from older members. Moultonborough is not immune to this dilemma and is part of a nationwide problem in the on-call and volunteer fire service.

The department is truly at a crossroad and this document is intended to provide the community an understanding on what the current level of service the department can safely provide and what is needed to assure a minimal level of response 24 hours a day 7 days a week can be maintained. The community is not alone and must take the appropriate steps to assure a responsible level of public safety can be maintained.

Recommendations

Short Term

- 1) *The department is in need to have a minimum of two fully qualified firefighter / Emergency Medical technicians on duty twenty-four hours a day seven days a week operating out of the Central Fire Station.*
- 2) *Continue to recruit and retain call firefighters to be able to have the optimal number of certified staff on scene with the fulltime firefighters and or to respond to simultaneous calls and to cover the stations when the full-time staff is committed to an incident in town or as part of our mutual aid structure.*
- 3) *Continue to mentor and develop future officers for the department to allow for continuity of operations as senior members retire.*
- 4) *Continue to monitor the value, efficiency, and effectiveness of staffing models as they are implemented.*

Long Term

- 1) *Continue to monitor statistical data and trends and prepare the town to make changes as appropriate.*
- 2) *Evaluate the future of EMS for the community and if needed and desired by the residents, implement a transport Emergency Medical Service.*

The following pages are the facts and figures to help the administrative staff and the citizens understand the current level of operations and what is needed in order to maintain this level. It is important to look back and to look at the trends moving forward. For this reason, the project team has taken data from 2019 to 2021 and averaged out the data and displayed it with the most recent 2022 data. The data sets collected and displayed in the same formats and are very telling of the department's activities over the past several years.

We encourage people to review the material and ask questions. The Chief and his staff are always available to answer questions and to assist people in understanding the risk and benefits of funding the recommendations.

Please email the Chief at dbengtson@moultonboroughnh.gov or call the station 603-476-5658.

Evaluation of Current Conditions

Town of Moultonborough

The Town of Moultonborough covers 75.1 square miles with 59.7 square miles of land and 15.4 square miles of water all within Carroll County. According to the 2020 census, the Town has a resident population of 4918 residents with a population density of 82.4 persons per square mile.

¹ This population greatly fluctuates by the thousands depending on the time of year. The actual number of people visiting the many popular sites in town has a tangible impact on the fire departments staffing.

Year	Population
1800	857
1850	1748
1900	901
1950	880
1960	840
1970	1310
1980	2206
1990	2956
2000	4484
2010	4044
2020	4918

Figure 1
Population Chart

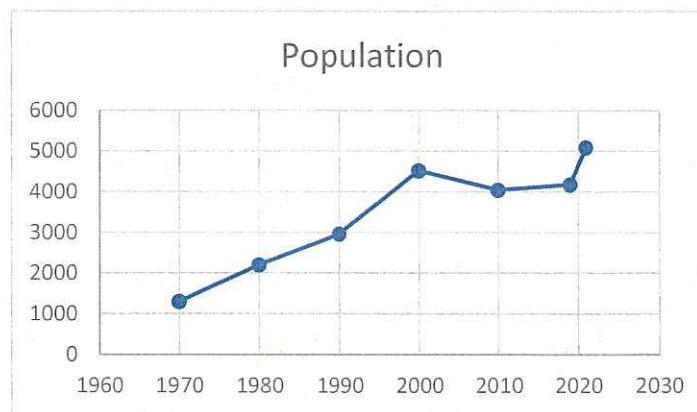


Figure 2
Population Chart

¹ U.S. Census Bureau, "Moultonborough New Hampshire", 2022

Fire Rescue Department

Moultonborough Fire Rescue provides a wide variety of fire and rescue services. Services provided include both firefighting and rescue services such as vehicle extrication and limited technical rescue. First responder medical service is provided by the Fire Department with transportation and Advanced Life Support care (ALS) provided by Stewarts Ambulance Service Inc., a separate organization. The Department operates out of two fire stations. The central station is collocated with the police department at the Public Safety Building on Whittier Highway. This facility is currently staffed Monday through Friday 8AM to 5PM. A second unstaffed station is located at 948 Moultonborough Neck Road. This station has fire apparatus in a constant state of readiness and is used by the call firefighters who come from home to respond to calls in all areas of the town.

Organizational Structure

The structure of any organization or entity, whether public or private, establishes and illustrates the important hierarchical relationships necessary between various personnel and supervisors/subordinates within the organization, that allows it to function properly, operate effectively, and efficiently in its daily operations or the pursuit of its mission. Critical to the organizational structure is the leadership team that moves the organization forward. Currently the leadership team of fire officers of the Moultonborough Fire Rescue dedicate a significant amount of time and foster a strong level of commitment to the organization. The fire officers of the department have service time which ranges from 5 years to 40+ years. This is a commendable service history for an organization of this size. However, with that amount of experience is the observation that these fire officers are “aging out”; as many are within a few years of retiring from Fire Department. This will certainly leave a leadership gap that should be addressed now rather than after the retirement of these members. Some of the younger members of the organization expressed concern with this gap not only in leadership, but also in fireground experience.

Having a rank structure which allows for movement within the organization with increasing responsibilities, and which provides a succession ranking should someone leave the organization, is critical in maintaining the chain of command and continuity of the organization. The Fire Chief continues to take action to encourage and develop members to be future leaders of the organization. A true succession plan is dependant upon determining what the future staffing level will be moving forward.

The Department has served the community with distinction over the decades. They have been able to meet the needs of the Town given the resources and spirit of volunteerism from their

members. They have also contributed to public safety within the Lakes region and beyond through participation as a member of the Lakes Region Fire mutual aid system.

Fire service organizations are mission driven organizations. The mission often becomes part of a fire departments organizational culture. It is a normal sense of one's duty, responsibility, and service, that provides the hallmark for fire and emergency services, and drives a sense of community pride and involvement, which are both proud traditions. However, because of the changing dynamics of today's fire service, organizations are looking to explore various alternatives to the traditional model of fire service delivery. These alternatives include broader sharing of resources through automatic aid agreements, establishing regional partnerships in applying for federal grant funding, and developing economies of scale, through shared purchasing initiatives.

Staffing is the biggest key to the success of any Fire and EMS service response. For the most part, the average citizen only sees the amount of fire trucks and ambulances a department has and sees that as 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 good and efficient crew to operate it. In today's world, call and volunteer firefighters are getting harder and harder to recruit, and to retain. This is a nationwide issue that is now becoming a crisis in many communities.

Having several people listed on a roster may give a false sense of security and be misleading. Their participation in training, working shifts, and actual response to incidents show the real numbers and the level of service the department can deliver.

Most firefighters and EMTs are not providing the service to the community for money. As an example, Municipal Resources Inc 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 associated increase in participation and response. Although this is an extreme case, other retention strategies may be more effective. Most departments hope to get people interested in performing the services and to keep them as long as they can.

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 four and often eight 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 3). The OSHA rule does provide an exception, however, and 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. The serious concern of the Moultonborough Fire Rescue project team is that the OSHA “two-in/two-out” rule permits an exception for life hazard or rescue situations. The reality is that in one of the most serious life hazard fire situations that can be encountered, trapped civilians, a firefighter may need to place himself/herself in extreme danger by entering the structure alone.

The OSHA “two-in/two-out” rule is an essential component of operational safety and should be the basis of fire service operations within the study communities. Despite the rural nature of the area, and the reality of some elongated response times, interior operations beyond a visible rescue should not be initiated until four personnel arrive on the incident scene.

Insurance Service Organization (ISO) Rating

The Town currently has an Insurance Services Office (ISO) rating of 9/10 which is not a positive number. 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. Moultonborough is one of 13,512 communities that is classified as a Class 9/10 community. This Class rating places the community on the lower end of having a 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.

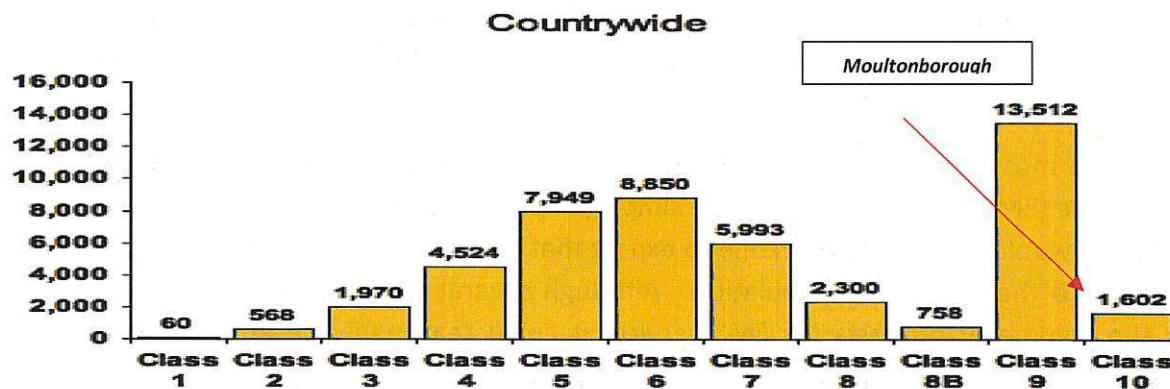


Figure 3
ISO Grading Chart USA

While ISO's primary focus is to measure the effectiveness of a community's ability to respond to first alarm 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.

While the PPC grading can provide insurance underwriters with a snapshot of a community's risk, it also provides a community with a comparative perspective on fire service capability within the community. The Fire Department grading accounts for 50% of the total classification. ISO focuses on a fire department's first alarm response and initial attack capability that could minimize a potential loss. The rating for the Fire Department includes equipment, staffing, training, geographic distribution of fire companies, operational considerations, and community risk reduction.

Further information on the ISO rating system is located at:

<https://www.isomitigation.com/ppc/fsrs/>.

The fire service further assesses the risk profile based on several factors. Properties with high fire and life risk often require the response of greater numbers of personnel and apparatus to effectively mitigate an emergency. Staffing and deployment decisions should be made with consideration of the level of risk within each area of a community.

Looking Forward

Looking ahead, the Town of Moultonborough will continue to experience an increase in growth and development, as seen with the number of building permits issued and new construction beginning. While this development will have a definitive impact on the Town's emergency services, the exact amount is difficult to predict quantitatively and accurately. Increased development of any type will mean an increase in the number of people living, working, and traveling within the area. Each of these will reasonably be expected to result in an increased number of requests for services from the Fire Department. They can also impact response times through increased traffic and congestion.

It is likely, the most significant increase in requests for emergency services will be emergency medical service (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. Although several demographic factors ultimately impact the volume of requests for EMS service, 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 EMS incidents. While Moultonborough Fire Rescue does not currently provide emergency medical transport and provides limited first responder assistance.

As part of the review of the current and future operations of the department the idea of the department providing an ambulance service on its own was investigated. It was determined that even with adding the staff as recommended by this study, Moultonborough Fire is currently not able to be able to provide a full ambulance service along with the current fire and EMS response that it provides today. If the Community decides to increase the full-time response level as recommended, the idea of providing a fire-based EMS transport service should be investigated in 3 to 5 years with the expectation that the staffing levels may need to increase again at that time. Should the town in the future decide to provide EMS transport services it will be important to increase staffing to maintain a reasonable intown response crew. The average turnaround time for an ambulance to respond to a call, transport to the hospital, transfer the patient, assure the ambulance is clean and decontaminated, is 60 to 90 minutes for destinations like Laconia and Huggins in Wolfeboro. Even longer times for patients needing transport direct to Concord Hospital in Concord.

Moultonborough Fire Rescue is like many smaller Town Fire Department is at a crossroads. For decades the Moultonborough Fire Rescue has used the dedication and service of volunteers and as time progressed, Fulltime Day staffing was hired to meet the needs of the community. Many of the day-to-day activities (emergency responses, fire inspections, permits, reports, checking apparatus, cleaning the station and equipment) required of the Department would be completed when personnel had time to complete them. Volunteer personnel often worked in town and could leave their place of employment to complete fire service tasks or respond to emergencies.

Today, the expanded role that Moultonborough Fire Rescue plays in the community, coupled with decreasing member availability, often results in a shortage of available responders. Consequently, it is not unusual to have a limited number of first responders in the Town of Moultonborough during the weekday daytime hours. This shortage of human resources is the most prominent issue that will face the town in the coming years. A theme revealed through interviews found that member's ability to allocate time to the Fire Department was becoming more difficult. The Covid-19 pandemic has further complicated this issue as personnel navigate this unique public health crisis.

Another important point related to having sufficient personnel to respond to emergencies, is that the public assumes when they see a fire apparatus responding to an emergency, that there is a full crew of four firefighters on an engine or ladder. The reality is that the greater majority of time, it is a driver only or a driver and another firefighter that staff this apparatus. Often times, there is a significant delay in getting enough manpower to fight a fire and to meet the minimum number of firefighters on scene to comply with both the OSHA "Two In and Two Out" Standard, and NFPA 1720, which is the standard for the organization and deployment of fire suppression operations by on-call and volunteer fire departments.

Moultonborough Fire Rescue has expressed a goal to retain a strong and viable on-call firefighting force. **Moultonborough Fire Rescue should now become a combination department, where career staff are the primary responders on a 24/7 basis.** However, to meet service expectations, it is necessary to introduce a different staffing model which will provide consistency in service delivered to the public. This will take a commitment from the community, and strong leadership in the Fire Department.

The National Volunteer Fire Council (NVFC) www.nvfc.org issued a fact sheet <https://www.nvfc.org/wp-content/uploads/2019/04/NVFC-Fact-Sheet-2019.pdf> that provides the current status of today's Volunteer Firefighter statistics.

Among other things, the fact sheet highlights that the ranks of volunteer/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 in the reduction in the number of volunteer and on-call firefighters in communities such as Moultonborough. Among them is that the demographics of many communities today do not support a sufficient number of the type of people who are 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. It has stated that on average, for every five on-call firefighters recruited, two will remain active after a period of 48 months has elapsed.

A number of fire departments throughout New England are adapting to this growing problem by adding fulltime firefighters to fill the gaps that develop when the majority of on-call personnel are not available. This staffing transition supports the delivery of a timely response, during the day and night, when call members are least available.

Service Demands

Moultonborough Fire Rescue has been a staple in the Community for many years and from as early as 1972 the department has seen a tremendous change in the calls for service from as few as 18 to as many 1111 in 2022. The service demand has a true correlation between the population and the number of incidents and type of incident the department responds to. As a community that has a daily, weekly, and monthly actual population swing that is all dependent on the weather and the time of the year the department must be properly and reasonably prepared to handle the swings in incidents. The population swings are caused by "summer residents", summer camps, local and regional activities including ice and snow events and activities and the recent up tick of hiking the many trails in the area that are all publicized "destination" locations.



Figure 4
Incident growth chart 1972 to 2021

Incidents 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. For most evaluations, response time is the most critical factor; an important measuring instrument to determine how well a fire department or first response 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 first response EMS provider. It is not just a cliché that during critical life-threatening situations, minutes and even seconds truly do count.

Type of Incidents

An analysis of the type of incidents Moultonborough Fire Rescue responded to in 2019, 2020, 2021 and 2022 was completed with the data provided. The table below shows a broad classification of the types of incidents as reported to the National Fire Incident Reporting System (NFIRS) and an average of the number of responses to each for 2019 to 2021. The fire Department reports this and other data to the State of New Hampshire monthly and as a result are part of the National Incident Reporting System and national statistics. Regardless of the actual incident address, all responses were calculated as it was a service that was provided by the Fire Department.

NFIRS Reporting System	2019		2020		2021		3 Year Average		2022	
	# Calls	% of Calls	# Calls	% of Calls	# Calls	% of Calls	# Calls	% of Calls	# Calls	% of Calls
100 Series- Fires	32	4%	40	4%	26	2%	33	3%	43	4%
200 Series - Ruptures / Explosions	6	1%	9	1%	9	1%	8	1%	12	1%
300 Series - Rescue / EMS	516	57%	540	58%	621	58%	559	58%	598	54%
400 Series - Hazardous Condition	33	4%	40	4%	47	4%	40	4%	86	8%
500 Series - Service Call	109	12%	101	11%	100	27%	103	17%	123	11%
600 Series - Good Intent	90	10%	86	9%	98	9%	91	9%	120	11%
700 Series - False Alarm	122	13%	122	13%	166	16%	137	14%	129	12%
800 Series - Severe Weather	1	0%	0	0%	0	0%	0	0%	0	0%
900 Series - Special Incident	0	0%	0	0%	0	0%	0	0%	0	0%
TOTAL	909		938		1067		971		1111	

Figure 5
Fire Department by Incident Type

The highest demand for service is for medical emergencies with a three-year average of 58% of the total call volume. Service calls at 17% and False alarms at 14% round out the top three types. Fires themselves reflect 3% of the response volume during the years of the study.

One of the other components in the New Hampshire and the National Fire Incident Reporting system is the dollar loss per year in each for the Community. Last year was a significant high dollar loss year for the town. This loss includes structures and vehicle fires and not any wind or weather-related events. In 2022 we saw just over a million dollar increase over the average of the past three years and 1.4 million increase in damage from 2021.

Property Loss		2019	2020	2021	3 Year Average	2022
Dollar Loss	Total Loss	\$ 47,685.00	\$ 356,780.00	\$ 38,751.00	\$ 147,738.67	\$ 1,485,121.00

Figure 6
Community wide dollar loss

Incidents by Month, Day, Time, and District

Incidents by month, day of the week, and time of day were also analyzed. The incidents by month are as anticipated as being higher during the months of July, August and October and pretty level the balance of the year.

Incidents by Month	2019		2020		2021		3 Year Average		2022 up to 10/31	
	# Calls	% of Calls	# Calls	% of Calls	# Calls	% of Calls	# Calls	% of Calls	# Calls	% of Calls
January	64	7%	57	6%	62	6%	61	6%	67	6%
February	54	6%	65	7%	77	7%	65	7%	55	5%
March	52	6%	67	7%	71	7%	63	7%	67	6%
April	46	5%	57	6%	79	7%	61	6%	54	5%
May	74	8%	78	8%	105	10%	86	9%	101	9%
June	80	9%	73	8%	100	9%	84	9%	110	10%
July	134	15%	117	12%	132	12%	128	13%	151	14%
August	90	10%	119	13%	124	12%	111	11%	98	9%
September	80	9%	73	8%	80	7%	78	8%	113	10%
October	89	10%	77	8%	93	9%	86	9%	66	6%
November	63	7%	68	7%	69	6%	67	7%	81	7%
December	83	9%	87	9%	75	7%	82	8%	148	13%
TOTAL	909	100%	938	100%	1067	100%	971	100%	1111	100%

Figure 7
Analysis by Month

The day of the week was looked at next to see if there was a trend for call volumes and response requests. The chart below indicates that the day of the week has little or no bearing on the call volume as statistically the volume is spread pretty evenly.

Incidents by Day of the week		2019		2020		2021		3 Year Average		2022	
		# Calls	% of Calls	# Calls	% of Calls	# Calls	% of Calls	# Calls	% of Calls	# Calls	% of Calls
Monday		149	16%	145	15%	159	15%	151	16%	157	14%
Tuesday		138	15%	141	15%	163	15%	147	15%	168	15%
Wednesday		115	13%	116	12%	149	14%	127	13%	130	12%
Thursday		127	14%	124	13%	160	15%	137	14%	163	15%
Friday		145	16%	130	14%	122	11%	132	14%	204	18%
Saturday		121	13%	137	15%	150	14%	136	14%	174	16%
Sunday		114	13%	145	15%	164	15%	141	15%	115	10%
TOTAL		909	100%	938	100%	1067	100%	971	100%	1111	100%

Figure 8
Analysis by Day of the Week

The time-of-day data indicates that the peak time of service is from 8:00 AM to 9:00 PM. This seems to correspond well with the time most of the residents are up and about taking care of their daily tasks. Not surprisingly, the time frame from midnight to 6 AM, when most people are sleeping, indicates the slowest time. What is truly clear is that the needs of the public are 24 hours a day. It is important to be able to respond efficiently and effectively to the incidents all day, every day.

Incidents by Time of Day		2019		2020		2021		3 Year Average		2022	
		# Calls	% of Calls	# Calls	% of Calls	# Calls	% of Calls	# Calls	% of Calls	# Calls	% of Calls
0000-0300		40	4%	52	6%	54	5%	49	5%	55	5%
0301-0600		57	6%	41	4%	77	7%	58	6%	52	5%
0601-0900		108	12%	110	12%	124	12%	114	12%	119	11%
0901-1200		174	19%	171	18%	205	19%	183	19%	194	17%
1201-1500		190	21%	219	23%	190	18%	200	21%	200	18%
1501- 1800		160	18%	137	15%	187	18%	161	17%	207	19%
1801-2100		104	11%	137	15%	157	15%	133	14%	176	16%
2101- 2400		76	8%	71	8%	73	7%	73	8%	108	10%
TOTAL		909	100%	938	100%	1067	100%	971	100%	1111	100%

Figure 9
Analysis by Time of Day

Incidents by Response District		2019		2020		2021		3 Year Average		2022	
		# Calls	% of Calls	# Calls	% of Calls	# Calls	% of Calls	# Calls	% of Calls	# Calls	% of Calls
Central		691	76%	710	76%	810	76%	737	76%	711	64%
Neck		198	22%	181	19%	221	21%	200	21%	357	32%
Out of Town		20	2%	47	5%	36	3%	34	4%	32	4%
TOTAL		909	100%	938	100%	1067	100%	971	100%	1108	100%

Figure 10
Analysis by Response District

Response Times

Structural firefighting has become far more challenging and dangerous in the last 30 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.

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 cardiopulmonary 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 for patients.

The Commission on Accreditation of Ambulance Services defines the Response Time Standards that an agency shall meet. Section 301.01.03 states:

"The agency, in collaboration with the Medical Director, shall have established response time metrics based on internal and or external standards, as well as dispatch acuity for all levels of service provided..... For all life-threatening requests, the default total response time standard will be eight minutes and fifty-nine seconds 90% of the time unless the Medical Director and the oversight agency have agreed a different response standard is appropriate due to system design that can document qualified EMTs arrival on scene prior to the responding unit.

Moultonborough Fire Rescue is a State of New Hampshire Licensed non transport Emergency Medical Service provider. We know that in a percentage of our responses, time for definitive assessment and treatment can make a difference in the overall outcome of the patient. With the size of the community and therefore the response time to arrive at an incident varies greatly. We do know that the overall response and on scene time when we have the current staffing on duty Monday through Friday 8-5 is 10 minutes and 35 seconds and that when we rely on the Call firefighters for nights, weekends and holidays the response time is much greater at an average of 18 minutes and 12 seconds. Please review the response time section of this document for greater details.

Although NFPA 1720 provides essential benchmarks, fire departments often measure baseline performance in terms of *total response time*, which is the time it takes from the call to be received at the Public Safety Answering Point (PSAP) until the first unit arrives on the scene of the emergency incident. Total response time should be measured and reported for all first-due units *and* the effective response force (ERF) assembly. Total response time is composed of call-processing time, turnout time, and travel time:

- *Call processing time* – the elapsed time from the call being received at the PSAP to the dispatching of the first unit.
- *Turnout time* – the elapsed time from when a unit is dispatched until that unit changes its status to “responding.”
- *Travel time* – the elapsed time from when a unit begins to respond until its arrival on the scene.

The response travel 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 travel 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. It is also important to note that the response time of fire staff for non-EMS incidents is typically higher. Before staff leaves the station, they should be wearing all their personal protective equipment (boots, pants, hoods, and coats).

Response times and Response shift		2019	2020	2021	3 Year Average	2022
Reaction Time						
Day Staff	2:25	3:13	2:29	2:42	2:04	
Night-Weekends	4:53	6:16	6:09	5:46	6:58	
Response Time(tone to scene)						
Day Staff	9:55	10:48	10:02	10:15	10:35	
Night - Weekends	12:09	13:51	14:27	13:29	18:12	
Incident Count						
Day Staff	392	396	426	405	450	
Night - Weekends	488	522	611	540	661	

Figure 11
Call Analysis – Response Travel Times

From the analysis done there is clearly a much shorter response time by having people in the station (like the current Monday through Friday Day model). With the added time for people to respond to the station from home to get the apparatus there is a much greater response time and that of course is very dependent on weather conditions.

Staffing Levels

As mentioned before, staffing and participation levels of call firefighters are at an all-time low for the department. With the current staffing model of 2 fulltime staff Monday through Friday day we are keeping up with weekday responses as well as our daily workload. During this time frame we are guaranteed to have two responders on the initial call responding in under 3 minutes. With the reduction in available on call staff we are never sure if we are getting additional responders or in the case of nights and weekends there is no guarantee we will get anyone to respond as we saw approximately 166 times (14%) in 2022.

Staffing Levels		2019		2020		2021		3 Year Average		2022	
		Roster	Active	Roster	Active	Roster	Active	Roster	Active	Roster	Active
Full Time		3	3	3	3	3	3	3	3	3	3
Admin		1 PT	1 PT	1 FT	1 FT						
Call		38	19	37	15	35	12	37	15	24	9
TOTAL		41	22	40	18	38	15	40	18	27	12

Figure 12
Staffing Levels

Figure 13 below demonstrates the activity level for both incident response and training for all department staff (fulltime and call). The activity level for the vast majority of the call staff fall below 11% of the incidents.

2022 Incident Activity			2022 Training Activity		
% Incident Response	# People	% of people	# of Training Session	# People	% of people
0%	3	14%	No Attendance	3	14%
1-5%	6	27%	1 to 10 Sessions	8	36%
6-10%	4	18%	11-20 Sessions	2	9%
11-20%	3	14%	21-30 Sessions	3	14%
21-30%	3	14%	31 to 40 Session	2	9%
31 plus	3	14%	41 Plus sessions	4	18%
22			22		

Figure 13
2022 MFR staff Activity Levels

Staffing across the nation has been a challenge and this challenge has been made greater since the inception of the COVID 19 pandemic. Moultonborough, the Lakes Region, the State of New Hampshire, and across the nation is having trouble in recruiting and retaining good quality people to fill jobs. The chart below indicates that overall, the fire service has dropped 73,800

firefighters since 2018. Call and volunteer departments have lost 72,100 people and due to the loss of volunteers there has been an increase of 6,300 fulltime career positions that have been filled.

# Firefighters in the U.S. 2000 - 2020							
	Total	Career		Volunteer			
2000	1,064,150	286,800		777,350			
2005	1,136,650	313,300		823,650			
2010	1,103,300	335,150		768,150			
2015	1,160,450	345,600		786,300			
2020	1,041,200	364,300		676,900			
		Difference		Difference		Difference	
2018	1115000	370,000		745,000			
2019	1080800	-34,200	358,000	12,000	722,800	-22,200	
2020	1041200	-39,600	364,300	6,300 17%	676,900	-49,900 7%	
		-73,800		6,300		-72,100 9.50%	

Source: NFPA Survey of Fire Departments for US fire Experience (1986-2020)

Figure 14
National Staffing Levels

Recommendations

Short Term

- 1) *The department is in need to have a minimum of two fully qualified firefighter / Emergency Medical technicians on duty twenty-four hours a day seven days a week operating out of the Central Fire Station.*
- 2) *Continue to recruit and retain call firefighters to be able to have the optimal number of certified staff on scene with the fulltime firefighters and or to respond to simultaneous calls and to cover the stations when the full-time staff is committed to an incident in town or as part of our mutual aid structure.*
- 3) *Continue to mentor and develop future officers for the department to allow for continuity of operations as senior members retire.*
- 4) *Continue to monitor the value, efficiency, and effectiveness of staffing models as they are implemented.*

Long Term

- 1) *Continue to monitor statistical data and trends and prepare the town to make changes as appropriate.*
- 2) *Evaluate the future of EMS for the community and if needed and desired by the residents, implement a transport Emergency Medical Service.*

Position Cost

We have calculated all the cost to hire a firefighter for the first year. We have included every cost that the town will need to take care of from pre hire cost, salary, benefits, retirement, clothing, disability insurance and Personal Protective equipment. The total cost for each firefighter has been determined to be \$137,567.13.

To be sure we hire and retain a group of personnel that will work well in Moultonborough, we have reviewed the average firefighter rates and have taken a position of slightly above the median hourly wages. It is important that we keep our valued employees and do what we reasonably can to keep the changeover of staff minimal if at all.

The department will need to hire 6 new firefighters to give twenty-four-hour coverage 7 days a week. This will give the department 8 firefighters divided by the four work groups.

The required number of new positions would be 6. This will allow for more to be accomplished during the days and will reduce overtime cost.

Hiring	\$ 763.25	Hiring Costs	MV Check \$ 15.00
Salary	\$ 58,656.00	Background Check	\$ 48.25
Benefits	\$ 37,824.00	Physical	\$ 500.00
Retirement	\$ 21,006.47	Polygraph	\$ 200.00
Clothing	\$ 600.00		
PPE	\$ 3,700.00		
Overtime	\$ 10,558.08	Total	\$ 763.25
Life Insurance	\$ 90.00		
Short Term Disability	\$ 390.00	Salary	23.50/hr 52 weeks X 48 hours per week
Long Term Disability	\$ 345.00	Benefits	Family Plan
Dental	\$ 532.33	Retirement	.3035% of Salary and Overtime
Holiday	\$ 3,102.00	PPE	Pants, Coat, Boots, Hood, gloves
		Overtime	18% of base
Total	\$ 137,567.13		
Adding 6 Positions	\$ 825,402.80		

Figure 15
New Firefighter Cost Analysis

Financial Impact

Like most every new program the cost factor and how it will be funded is always a big consideration for any town and its residents to make. At this point the department is looking to add 6 positions now and will run this for a year, collect the data and analyze the data before looking to hire any additional staff. As much as the overall cost is a large figure it is important to look at what the impact to the actual taxpayer and tax bill would be. Below is a snapshot taken with data in November of 2022. The annual cost to the tax bill would be 18 cents on a thousand of asset taxable value. For the average \$500,000 asset dollar property the total would be \$88.30 a year, \$ 1.70 per week or 24 cents a day.

Town Taxable value	\$ 4,673,942,491.00			
	\$ 4,673,942.49			
Total Project Budget	\$ 825,402.80			
Annual Cost per 1000	\$ 0.18			
		Wk	Day	
Cost on \$250,000. Taxable value	\$ 44.15	\$ 0.85	\$ 0.12	
Bl annual Tax bill	\$ 22.07			
Cost on \$500,000. Taxable value	\$ 88.30	\$ 1.70	\$ 0.24	
Bl annual Tax bill	\$ 44.15			
Cost on \$850,000 Taxable value	\$ 150.11	\$ 2.89	\$ 0.41	
Bl annual Tax bill	\$ 75.05			
Cost per million Taxable value	\$ 176.60	\$ 3.40	\$ 0.48	
Bl annual Tax bill	\$ 88.30			

Figure 16
Firefighter cost to tax rate

Conclusion and implementing change

Having a sense of common vision is important in any organization to ensure that the organization and its personnel are moving in unison toward a common goal(s). Having a common vision is not only about making sure that all parties are aware that they are in the same boat and rowing but even more importantly, that they are rowing in the same direction.

Looking ahead, Moultonborough Fire Rescue possess some definitive positive attributes, most notably the dedication of its core membership and the community leadership within each group. This shows there is a strong foundation upon which to build.

However, the Department is also facing serious challenges both today and looking toward the future. There are senior staff people who will be retiring, and there is a lack of good solid experienced people coming in to fill the voids as they are created. Nationwide, since the COVID-19 pandemic began, the workforce is dropping, fewer people are taking on the challenges of becoming a firefighter and/or emergency medical responders, and we are seeing more and more people leaving their jobs after just a couple of years. The sense of pride and commitment to these professions is also decreasing. Newer people tend to come in the door and work their assigned shifts, not wishing to go above and beyond.

The community and the Selectmen ultimately determine the level of emergency service delivery that is acceptable. This is often accomplished through the efforts of the Fire Chief and Selectmen reviewing the needs, and in turn the taxpayers express their expectations during public meetings and through the approval of the department operating budget. It is believed that the residents of the Town of Moultonborough expect an initial effective and timely response of at least a single fire suppression and/or rescue unit on a 24/7 basis.

A balance of effective and efficient emergency services delivery and the need to maintain a fiscally responsible tax rate for the citizens is often the primary driving force in the delivery of emergency services. The basic tenant of emergency service in Moultonborough includes the provisions of basic fire protection, fire suppression, and rescue services. Emergency Medical Service (EMS) including Basic Life Support (BLS) and Advanced Life Support (ALS) are provided through a third-party service, Currently Stewarts Ambulance Service, however the fire department historically has provided EMS staffing to all medical calls and often arrive prior to an ambulance.

In conclusion, the missions performed by the public safety departments 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 Town, 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 first response 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 on 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 Select Board will ultimately need to make.

