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Mr. Scott Triola, Chairman
Board of Selectmen
Town of Carlisle
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I am pleased to offer this letter to you hoping that the material contained in it will be helpful in moving the Carlisle Fire Rescue Department (CFRD) forward. The information researched over the past few weeks coupled with a site visit allowed the MRI team to couple our observations with data driven research and include stakeholder input to inform this document. We are pleased to provide the outside perspective from a seasoned practitioner's point of view that the Town requested.

Executive Summary

The team from our firm has developed this letter for the Town of Carlisle. From the onset, it was clear that the Town has a core group of committed and active firefighters and EMS providers protecting the community. It is extremely difficult to retain and strengthen a modern on-call fire department in communities like Carlisle. This accomplishment should be recognized, celebrated and supported.

Department personnel recognize that they need to evolve based on several factors including:

- Increased call volume,
- Diversity of calls,
- Generational differences and diversity of personnel
- Recruitment and retention of personnel,
- Attrition, a struggle to maintain adequate training,

- Apparatus needs,
- Equipment upkeep,
- Safety of responding personnel.

All these issues place escalating demands on the highly motivated team of fire service personnel in Carlisle. Reflecting on the past, it is no longer reasonable to expect the following:

- On-call members work in town and can respond at a moment's notice.
- Employers will release personnel to respond to emergency incidents.
- Robust rosters with waiting lists of personnel seeking to join the organization.

The factors listed above can and at some future time, will translate into decreasing participation, longer response times and having fewer appropriately trained personnel on the incident scene-if they can respond at all.

Often an emergency response can be perceived by the public as adequate in that there was a response, and the situation was addressed. However, emergency responses often lack sufficient resources (personnel and apparatus) and the safety of both the public and the Department staff can be placed at risk. Looking ahead, the implications of not acting will be quite simple, community members will be left to deal with their worst day all by themselves or with less than adequate help.

The Town of Carlisle has contracted our firm to do an overview of the department and to review and make recommendations on the five following points:

- 1) Conduct a target hazard analysis
- 2) Review of the level of service expected by the Community
- 3) Develop an Apparatus set comparative analysis
- 4) Evaluate and comment on the use of mutual and automatic aid
- 5) Provide a rough fiscal estimate relative to Career costs and services

To aid in the review and to add a comparative analysis to this project, the town of Carlisle working together with our team compiled a benchmark chart that has been included at the end of this document. This data set provides a perspective relative to how the apparatus set in Carlisle compares to the fleet maintained in other similar communities.

Conduct a Target Hazard Analysis

The Town of Carlisle is predominantly a residential community that takes a great deal of pride in their conservation and open space. The MRI team learned that the average house is 4,500 square feet and that many long driveways exist within the community. Currently the Town includes approximately 25% of conservation land with many miles of recreation trails. These areas produce a hazard for wind swept wildland fires as well as response needed for remote medical emergencies during all seasons of the year.

Life safety being the prominent concern, group homes and elderly housing units are considered high hazards due to the ability of the residents to self-extricate during a fire condition. The potential for tragedy in these occupancies was recently demonstrated as nine residents died in a July 2025 fire in Fall River Massachusetts.

The Town has minimal commercial occupancies that include the general store, an autobody shop, a tech shop and a school. One of the largest hazards along all roads are power lines and the limited access and inherent dangers of trees taking them down leaving the road closed and a possible fire and electrical hazard to be addressed.

Another hazard can be found in the need for portable water supply as in the absence of a pressurized source the CFD and mutual aid units need to bring water to the fire in a tanker and or utilize a rural water supply set up from a static water source.

Due to the time constraints of this project the MRI team conducted a brief target hazardous analysis and documented it in the chart below.

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

Figure 1- Occupancy Risk Rating

MRI Comment:

The Department should conduct a thorough Target Hazardous Analysis and create a pre-plan for all high hazard structures and incidents. This analysis should follow a standard format with the preplan being readily available to responders either electronically or in paper format.

Review the Level of Service Expected by the Community

The residents of the community strongly support the Department 's efforts to provide fire, EMS, and all other emergency response in a timely manner with the properly trained staff to help them mitigate the incident. The residents still have a viable call fire and EMS department that appears to currently be meeting the needs of the community. If the Town grows and or significantly changes the Department may need to change with it. If the call staffing model is no longer reliable 24X7 model, then at that time a different model such as hybrid call and fulltime department will need to be explored. The MRI team found the department currently is meeting the needs of the community and has apparatus and equipment to meet the needs. The fire station needs some modernization, and the Department has outgrown the current facility in many ways. The station itself is discussed further in this document.

MRI Comment:

The community has the same level of expectation of the services the Department provides as many other New England communities. A good fire department needs to adapt to the needs of its community and be prepared for what the future sends for them and be able to modify to meet the need. The town currently has the services they need with the appropriate trained staff. The availability of these dedicated people needs to be monitored, and the department and community prepared to make operational changes as appropriate.

Develop an Apparatus set Comparative Analysis

The MRI team conducted a cursory review of the current fire apparatus fleet to determine the average age and condition of vehicles. A detailed apparatus replacement plan (capital improvement plan) should be updated on a regular basis and presented to the Town for future planning. The team has been informed that the NFPA required testing of all pumps, hoses, self-contained breathing apparatus etc... has been done on an annual basis. The number and types of equipment is further discussed for the size of the community as well as the number of responders on the department roster.

Despite the lack of clear guidance in the various NFPA standards, there is a significant body of knowledge that suggests that fire apparatus has a finite lifespan. The reasonable service life 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. Based on experience, most communities the size of Carlisle replace an engine at 20 years of age depending upon use and condition.

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 a 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 range 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.

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 spends 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.

Unit	Type	Year	Description
A1	Ambulance	2018	
A2	Ambulance	2008	
Car 1			Chiefs Vehicle
Car 2			
Car 3		2016	EMS Support vehicle
Car 10		2012	Ford F350 4X4
E3	Engine	2001	2000' 4" supply line, 1250 GPM pump, Class A foam injector (Scheduled 2029 replacement)
E4	Engine	2006	4000' 5" supply line, 750 GPM pump (mutal aid, rescue equipment, ASHER equipmnet)
E5	Tanker	2016	3500 Gallons of water
E6	Brush Truck	2011	Off Road pump 1200' 4" supply line and several attack lines
E7	Tanker	1990	3500 gallons of water
Ladder 1	Quint	2002	Does not run first due, ladder tested every three years/
UTV 1	Off Road		Medical bed
UTV 2	Off Road		Small tank of water and pump (former State DCR)
Marine 1	Water	1994	Boat
ATV	Off Road		Old Police ATV
	Antique	1931	Engine 1 Owned by the Town
	Antique	1937	Engine 2 Owned by the Town
Storage	Trailer		Several gasoline powered generators and other portable equipment
Lighting	Trailer		Lighting trailer for scene nad community events

Figure 2 - Carlisle Inventory of Apparatus

MRI Comment:

The Town of Carlisle has a larger set of apparatus than most communities of its size and makeup. In general apparatus, needs are based on two factors. The first being the hazards in the community and the second the staffing levels needed to safely staff and operate the apparatus. Carlisle has grown a fleet of equipment that it is currently unable to properly maintain and store in a state of readiness every day all day. Having a tanker sit outside in the elements not only adds unnecessary wear and tear on a vehicle but also make the vehicle (especially the tanker) with little to no use during the cold months of the year. The department has a ladder truck that is in great condition primarily due to the lack of use. It was stated to the MRI team that it does not go “first due” to reported structure fires and once a large diameter hose is laid in the driveway it will have limited if any access for the truck. The truck will last the community for many years to come and consideration on its operational use in the future needs to be considered. The Department has a need for water to be carried to the scene of a fire and only has one tanker that can be utilized in the winter. The next purchase of a truck should be a commercial tanker with a minimum of a 1250 GPM pump and at least two preconnected handlines.

Engine 6 is a very large off-road engine that requires a solid road and area to work. Typically, smaller trucks are used in the area that are sized like a ¾ or 1 ton truck. The use of the smaller support vehicles and trailers is an appropriate use and keeps the larger more expensive vehicles from having to be used.

Evaluate and Comment on the Use of Mutual and Automatic Aid

Automatic Aid

Automatic aid is assistance that is dispatched automatically by agreement between two fire departments. ISO will recognize an automatic aid plan under the following conditions:

- Must offset a need. Example if a ladder company is needed but the department does not have one, and the neighboring department responds one, credit may be available.
- Agreement should be in writing.
- Department must be notified on first alarm according to a definite plan.
- Departments must train together quarterly, semiannual and annual. Drills must be half day drills with the automatic aid companies.
- Automatic Aid Personnel should respond with a needed company to receive credit.
- Equipment from responsible department can only be matched and not exceeded.
Example: If Station 1's territory required three needed Engine Companies and Station 1 only had one Engine Company but has an automatic aid agreement with Stations 3 and 6 who responded one Engine Company each. Station 1 would only receive credit for one automatic aid Engine Company; the third one would become surplus. However, manpower from the third Engine Company may be credited.

Mutual Aid

Mutual aid is assistance that is dispatched, upon request, by the responding fire department. Usually, it is requested upon arrival at the scene. Mutual aid should also be defined by a signed contractual agreement or being part of a mutual system.

When managed properly automatic and mutual aid programs can be very effective. Remember when signing an automatic aid agreement, you are attempting to offset specific needs of the service area. Participating in automatic aid departments should have a clear and concise understanding of your needs and respond accordingly. If departments are not responding with proper equipment the specific need will not be met. Also, when giving automatic aid, 50% of the sending communities firefighting capacity should remain ready to respond to an incident inside the primary response area.

Tips for establishing successful automatic and mutual aid programs

- Always strive to use the primary fire department's equipment first. This will leave some apparatus on the scene available to respond to other incidents that may occur.
- If giving aid never send more than 50% of equipment and personnel. Always leave means for backup to respond to incidents in the primary department's service area.

- Have a well discipline incident command system in place. This will provide direction for clear and concise company assignments. It also is a necessity for accountability.
- Departments should have common mobile and portable radio capabilities.

All members with assisting departments should respond on fire apparatus, not in private vehicles. This will cut down on the number vehicles responding to the incident location causing less congestion. It also will place personnel in a company form prior to arriving on the scene. This will help the incident commander in three major areas.

- One, it will cut down on the I/C having to assign personnel to companies.
- Two, personnel in preset companies will be more familiar with skills and limitations of each other.
- Three, it will reduce the chances of personnel freelancing.

MRI Comment:

The MRI team has seen many communities that have a blended the use of both automatic and mutual aid to safely mitigate incidents. It is very common to have automatic aid started on all reports of structure and brush fires as well as any fire with potential fire exposure to other structures etc. It is very important for Carlisle to begin to use automatic aid for these types of incidents, especially in consideration of two main factors. The first being that all the surrounding towns have staffing on duty and the response time is significantly reduced. The second is the fact the Carlisle relies exclusively on "rural water supply" for fire operations.

The communities surrounding Carlisle all have pressurized water source and therefore do not have the same need. Although the MRI team has heard that "Carlisle is different.... no surrounding communities can do what we do, and we rely on our people to handle our fires, they don't know how to do what we do." From the onset fires don't know or care who is there to put them out and most of the fire service attacks fires, preserves property, and maintains a safe environment for all people at an incident.

In Massachusetts there is a great deal of free training provided by the State Fire Academy and most basic firefighter programs conclude with a National ProBoard certification process. In all full-time departments around Carlisle all staff are required to be certified. Water supply is the only item that is different. The MRI team has seen many communities conduct training sessions monthly and quarterly to collectively train on water supply. Carlisle Fire should be reaching out to the communities around them and build a working relationship and train collectively when possible. The Town needs to be part of giving and receiving automatic and mutual aid on selected incident types. Receiving mutual aid is NOT a weakness

and today is considered a normal part of managing an incident. It is clearly a dangerous methodology to rely solely on a department's members to handle an incident.

Provide a Rough Fiscal Estimate Relative to Career Costs and Services

Based on the call volume and the current ability of responders to meet the needs of the community, the current call department staffing model is working. The Town needs and the CFRD command staff need to continually monitor this and be ready to make a change to the staffing model in the future. This change may need to be to have a hybrid department with both full-time and or per-dem staff on during the weekday along with the on-call department to having another staffing model that meets the response needs during a particular time frame.

The change to a full-time department comes with a cost. Below there are several charts to help outline the expense that having full-time staff will bring.

The chart below is from Zip Recruiter for figures in July 2025

Firefighter Salary in Massachusetts

	Annual Salary	Monthly Pay	Weekly Pay	Hourly Wage
Top Earners	\$96,652	\$8,054	\$1,858	\$46
75th Percentile	\$75,400	\$6,283	\$1,450	\$36
Average	\$65,097	\$5,424	\$1,251	\$31
25th Percentile	\$49,700	\$4,141	\$955	\$24

Indeed reports that Firefighter salary in Massachusetts is 51% above the national average with the average being \$85,477 annually.

The estimated cost of putting a single full-time firefighter on staff is calculated below. These are estimated costs calculated for a recent project and do not reflect the actual cost for benefits offered in Carlisle.

Current Fire Station

The Current fire station has been a huge asset to the town for many years. The MRI team toured the station and the associated “tents” as part of its onsite event. The structure has some deficiencies that should be addressed. The current location seems optimally located for the efficient and rapid response of apparatus. It is true that having a station for members to be proud of and want to work out of has a tremendous positive impact on responders. Some of the top needs the MRI team found that should be considered are as follows:

- Apparatus floor
 - Large enough for the fleet today and the future
 - All vehicles under cover to properly protect the towns investment. (Not all SUVs)
 - Large enough to open all cab and compartment doors
- Clean versus dirty storage
 - EMS – All EMS Supplies should be stored in an environmentally controlled space and should be stored in a clean environment. Currently they are stored in cabinets on the apparatus floor.
 - FIRE –gear should be stored in a well-ventilated space or room and not stored in the general areas. There has been a great deal of emphasis on gear and gear storage as it related to Cancer.
- Training/meeting/community space
 - A versatile meeting training community room to seat a minimum of 30 people.
 - Storage for media and training materials
 - Male and female restrooms
 - Small kitchen (Rehab supplies)
 - Technology equipped
- Separate building or space for antique apparatus
 - The history of the department is important today and to preserve for the future. The old apparatus that is owned by the town should be stored in a dry climate-controlled space that is not with the current response apparatus floor.
- Office for 4 a minimum of individual workspaces
 - Shared task space – EMS, training officer, Command Officers, report writing
 - Upgraded technology
- Proper living space for 4 to 6 people (prepare for storms and for future fulltime)
 - Separate locker room- showers
 - Separate small individual sleeping space
 - Kitchen – Day room space

MRI Comment:

The MRI team feels that it is important to provide a safe working environment that responders want to be proud of and take ownership of. The fire service has changed a lot since the current building was constructed and at that time was built to meet the current needs. It is important that the town protect the investment they have made in equipment and to the staff that operate them. Having to store vehicles of great value outside is clearly not wise. Having tents to house equipment that is not always environmentally controlled and secure is not a good long-term solution in the New England weather. The MRI team sees the need to address the current facility and to invest in the future of the Carlisle fire service. This is something that can be done in phases and not all at once however the plan need to include all the current and future needs.

MRI Recommendation:

Our team universally believes that the station needs either replacement or an extensive renovation to accommodate the apparatus set required to provide the Town of Carlisle with the expected level of service. As the current apparatus set is robust when compared to that in place in peer communities and far exceeds the fleets maintained within the realm of our experience, the opportunity to reduce two units exists. The station should be appropriately sized based on this recommendation.

As Ladder 9 is a quint and reflecting on the Insurance Service Office Rating as well as the 2020 NFPA Profile, the Town should consider eliminating the next engine when that is due for replacement. Considering the lack of a pressurized water supply and the lack of tankers in the immediate area, a second commercial engine/tanker should be purchased to replace Engine 7 and Engine 3. In addition, while the Department has the need for a mission flexible ATV, having multiple ATVs exceeds the needs of the community. The current fleet of ATVs should be consolidated into a single well maintained flexible unit with tracks for winter and fire/EMS skid units for operational variation.

Respectfully Submitted,



Brian P. Duggan
Director of Fire Services