Muskoka Lakes Fire Department

Fire Master Plan

JULY 2022

Emergency Management Group

1.888.421.0665
info@emergencymgt.com
www.emergencymgt.com

65 Cedar Pointe Drive, Suite 144
Barrie, ON, L4N 9R3

EXECUTIVE SUMMARY

This Fire Master Plan (FMP) encompasses a comprehensive review of the Muskoka Lakes Fire Department's (MLFD) strengths, weaknesses, opportunities, and challenges. This FMP also consists of a review of the community (through the development of a separate Community Risk Assessment report), along with identifying present and future population statistics and anticipated growth of the community. By conducting these reviews, the Emergency Management Group (EMG) was able to develop this 10-year master plan for the MLFD.

Benefits of Master Planning:

The benefits of master planning are many, but the key advantages are:

- Having a clearer vision of what future needs are to be implemented and when,
- A guide that includes options and budgetary estimates for implementation,
- Prioritization of each project, and
- The ability to communicate with staff, internal and external stakeholders about the future goals of the organization.

The recommendations contained within this FMP document have been submitted to provide a set of strategies and goals for implementation that are aimed at assisting Township Council in making decisions relating to the efficient allocation of MLFD resources and staffing. The recommendations provided by EMG have been broken down into the following timelines:

- Immediate: should be addressed urgently due to legislative or health and safety requirements
- Short-term: 1 – 3 years
- Mid-term: 4 – 6 years
- Long-term: 7 – 10 years

Ultimately, the implementation of the recommendations will depend on the direction Township Council provides, as well as the allocation of associated resources and ability to move forward with the associated recommendations contained within the document.

Overview of Master Plan Sections

Through the utilization of best practices, including applicable standards and legislation, this report was prepared by completing an assessment of the following areas:

- Community and Fire Department Overview
- Planning – future community growth and related service needs
- Risk Assessment of the community through the completion of the Office of the Fire Marshal and Emergency Management's (OFMEM) Community Risk Assessment document
- Fire Department Divisions – Non-Suppression
- Fire Suppression, Communications, Recruitment and Retention and Health & Safety
- Facilities, Vehicles, Equipment and Water Supply
- Emergency Management Program
- Mutual, Automatic Aid and Fire Service Agreements
- Finance and Budgets
- Review of Previous Strategic and/or Master Plans and FUS Reports

Recommendations are noted within each section of the document. However, Section 11 of the document contains a quick reference recommendations chart, that includes recommended timelines for implementation, along with any estimated costing and possible service enhancements to be realized with the implementation of each recommendation.

Scope of Requirements

As noted in the original Request for Proposal (RFP), the following generally describes the responsibilities of the Consultant, in developing the new FMP for the township.

- Completion of a community risk assessment based on the geographic, built environment and seasonal demographic characteristics of the township.
- A review of all current fire services and fire programs, based upon the above risk assessment. This analysis must also include an examination of the department's core functions, including, but not limited to administration, fire prevention, public education, training, fire suppression, apparatus, and facilities.
- The review of the fire services and programs must consider and include recommendations respecting:
    - Continuous improvement to the services (administration, suppression, training, public education, prevention,) currently being provided.
- The Plan will describe the strategy for aligning Muskoka Lakes Fire Department services with the goals and objectives of the township's Strategic Plan. This includes but is not limited to

addressing capital investment and equipment needs over the next 10 years, as well as major operational components that help drive core services.
    - This external audit will define what the optimal level of service looks like for the fire department as well as how fire operations could evolve to respond to growth including anticipated investments required to meet those needs.
- Another component of the FMP will be an assessment of the facility needs and recommended strategies to address those needs.
    - The current locations of stations should be considered and evaluated based on industry best practices and projected community growth, in order to inform recommendations respecting the most appropriate number and location of stations needed in the future.
    - A starting point for this component is the suggestions of the 2014 Master Fire Plan, regarding replacement of facilities.
- Evaluate the current staffing model for full time and part time staff. This component would also include recommendations regarding recruitment and retention of volunteer firefighters; and
- Continuous Improvement to the communications system, maintenance program and non-suppression services.
- Benchmarking current services and programs against current industry standards and known guidelines, as well as compliance with current legislative requirements; and
- A Community Consultation Program respecting initial findings and input on the desired level of service and any proposed recommendations thereon.

With the previously noted key requirements in mind, based on the information received during the meetings, a review of supplied documentation and reference to industry standards and best practices, there is a total of 38 recommendations for consideration by the Fire Chief and council to guide the MLFD into the future.

Overview of Recommendations

Below, is a summary of the recommendations within each of the key categories. Greater detail surrounding each recommendation can be found within the section from which it is derived.

Public Fire Safety Education

- Assessment by MLFD to set realistic fire prevention and public education goals based on available resources.
    - Conduct a demands analysis of the fire prevention initiatives with the development of an annual fire prevention program and report on completion
- Consider greater utilization of volunteer firefighters for public education efforts

- Partnerships within the community to ensure fire safety education is relevant and delivered based on identified community needs (i.e., school fire safety education, seniors, new Canadians fire safety education).

Emergency Response

- Review of response data and areas for improvement
- Dispatching services
- Aerial apparatus needs
- Vehicle life cycles and reserve apparatus

Department Facilities (fire stations)

- Fire stations general assessment and needs
- Station locations and suggestions for reduction in number of fire stations and reallocation of resources

Staff/Personnel Development

- Increase in Fire Prevention staffing
- Increase in assigned hours for the Training Officer's position – from part-time to full-time
- Programming to support health and wellness
- Leadership and career development
    - Succession planning
- Knowledge and skills maintenance

Strategic Priorities

- By-law updates
- Development and utilization of training opportunities
- Upgrading of the Fire Underwriters Survey and continuation with the Tanker Shuttle Accreditation

***Note**: A quick reference recommendations chart entailing all the recommends can be found in Section 11. This chart has also included brief rationale comments to assist the reader with justification for each recommendation.*

Table of Contents

DEFINITION OF ACRONYMS

AED	Automatic External Defibrillator
AHJ	Authority Having Jurisdiction
ASHER	Active Shooter/Hostile Event Response [Program]
AVL	Automatic Vehicle Locators
BLS	Basic Life Support
CAD	Computer Aided Dispatch
CAFC	Canadian Association of Fire Chiefs
CEMC	Community Emergency Management Coordinator
CRA	Community Risk Assessment
CRTC	Canadian Radio-television and Telecommunications Commission
DPG	Dwelling Protection Grade
E&R	Establishing & Regulating By-law
EAP	Employee Assistance Program
EMC	Emergency Management Coordinator
EMG	Emergency Management Group
EMP	Emergency Management Plan
EOC	Emergency Operation Centre
ERP	Emergency Response Plan
FMP	Fire Master Plan
EVT	Emergency Vehicle Technician
FESO	Fire and Emergency Services Organization
FI	Fire Inspector
FPD	Fire Prevention Division
FPO	Fire Prevention Officer
FPPA	Fire Protection & Prevention Act
FUS	Fire Underwriters Survey
GIS	Geographic Information System
HFSC	Home Fire Sprinkler Coalition
IMS	Incident Management System
KPI	Key Performance Indicator(s)
MCC	Mobile Command Centre
MLFD	Muskoka Lakes Fire Department
MOU	Memorandum of Understanding
NIOSH	National Institute for Occupational Safety & Health
NIST	National Institute of Standards and Technology
NFPA	National Fire Protection Association
OAFC	Ontario Association of Fire Chiefs

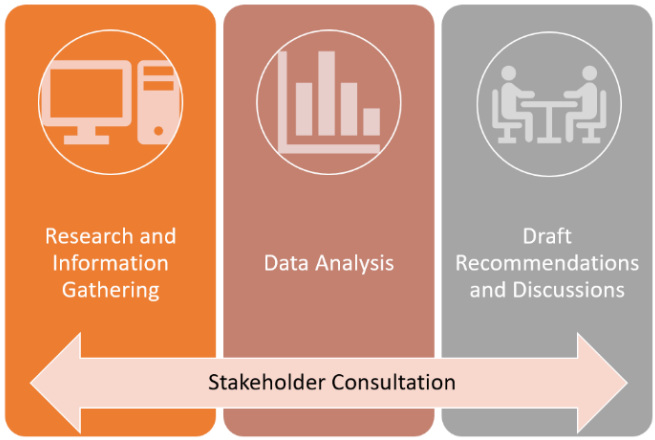
OFMEM	Ontario Fire Marshal's Office and Emergency Management
OHSA	Occupational Health and Safety Act
PPE	Personal Protective Equipment
PFPC	Public Fire Protection Classification
PTSD	Post-Traumatic Stress Disorder
RFP	Request for Proposal
RTT	Real Time Texting
SCBA	Self-Contained Breathing Apparatus
SOG	Standard Operating Guideline
SOP	Standard Operating Policy
SRA	Simplified Risk Assessment
SSV	Special Service Vehicles
STA	Short-term Accommodations
SWOT	Strength, Weakness, Opportunity, Threats
TIC	Thermal Imaging Camera
WSIB	Workplace Safety & Insurance Board

INTRODUCTION

INTRODUCTION

Project Methodology

The Emergency Management Group (EMG) has based its review process on the township's initial Request for Proposal (RFP) and the response document submitted by EMG. The specific scope of work noted (in the RFP) was reviewed and included into each section of this document. The FMP review was completed by utilizing best practices, current industry standards, and applicable legislation as the foundation for all work undertaken.



EMG also utilized quantitative and qualitative research methodologies to develop a strong understanding of current and future needs and circumstances of the community. Overall, the methodology involves a considerable amount of research, documentation review, data analysis, along with stakeholder consultation. Next comes the submission of draft reports, and related recommendations. The final product is a living document that provides a high-level strategic direction for Township Council and the Muskoka Lakes Fire Department.

To accomplish the scope of requirements, EMG has:

- Reviewed the Establishing and Regulating by-law.
- Reviewed applicable municipal, provincial, and federal legislations.
- Reviewed planning department documents regarding community and areas of jurisdiction growth projections over the next 10-20 years.
- Reviewed any previous risk assessment, council's strategic priorities and other pertinent documents.
- Prepared a Community Risk Assessment and considered the Community Risk Profile including community building stock, industry, care occupancies, transportation networks, etc.
- Reviewed current service agreements with neighbouring municipalities and any other current documents.
- Gathered information on operational requirements including past and current response statistics (call volumes/response times) to analyze for tends, staff availability/needs and response capabilities, etc.

- Reviewed service administration including staffing, organizational structure, policies and procedures, administrative support, record keeping and information management/technology, purchasing and inventory control, public and media relations and customer service.
- Toured the Township of Muskoka Lakes fire stations conducting a location/response analysis.
- Examined fire vehicles, apparatus and equipment including the maintenance program.
- Reviewed Fire Service policies, procedures and emergency response operational guidelines, training programs and records.
- Collected information on the fire prevention program including education programs, inspection reports/data, enforcement data, and investigations.
- Identified and compared industry best practices relating to fire and emergency services performance measurement.
- Reviewed current job descriptions, staff recruitment and retention practices, promotional policy, succession planning and demographics.
- Reviewed the operational and capital budgets along with reserves and current revenue generation programs within the emergency services and the township (development fees).

Based on the previously noted criteria, through meetings with members of Council, the Township's Senior leadership Team, firefighters, and community stakeholders, the consulting team was able to complete a thorough review of elements that are working well and areas requiring improvement within the MLFD. Data provided by MLFD was reviewed in relation to all the previously noted items contained in the Muskoka Lakes RFP. This review culminated in a total of 38 recommendations.

Performance Measures and Standards

This FMP has been based upon (but not limited to) key performance indicators that have been identified in national standards and safety regulations such as:

- The Fire Protection and Prevention Act.
- The Office of the Fire Marshal and Emergency Management (OFMEM) Communiques.
- The Ontario Occupational Health and Safety Act (OHSA), with reference to the National Institute for Occupational Safety and Health (NIOSH).
- The Ontario Fire Service, Section 21, Advisory Committee Guidance Notes.
- The National Fire Protection Association (NFPA) standards:
    - NFPA 1001 – Standard for Fire Fighter Professional Qualifications
    - NFPA 1002 – Standard for Fire Apparatus Driver/Operator Professional Qualifications
    - NFPA 1021 – Standard for Fire Officer Professional Qualifications
    - NFPA 1031 – Standard for Professional Qualifications for Fire Inspector and Plan Examiner
    - NFPA 1033 – Standard for Professional Qualifications for Fire Investigator

  - NFPA 1035 – Standard on Fire and Life Safety Educator, Public Information Officer, Youth Fire Setter Intervention Specialist and Youth Fire Setter Program Manager Professional Qualifications
  - NFPA 1041 – Standard for Fire Service Instructor Professional Qualifications
  - NFPA 1061 - Professional Qualifications for Public Safety Telecommunications Personnel
  - NFPA 1072 – Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications
  - NFPA 1201 – Standard for Providing Fire and Emergency Services to the Public
  - NFPA 1221 – Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems
  - NFPA 1225 – Standard for Emergency Services Communications
  - NFPA 1500 – Standard on Emergency Services Occupational Safety, Health, and Wellness Program
  - NFPA 1720 – Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public by Volunteer Emergency Services
  - NFPA 1730 – Standard on Organization and Deployment of Fire Prevention Inspection and Code Enforcement, Plan Review, Investigation, and Public Education Operations
  - NFPA 1901 – Standard for Automotive Fire Apparatus
  - NFPA 1911 – Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Emergency Vehicles
- Fire Underwriters Survey technical documents

Project Consultants

Although several staff at EMG were involved in the collaboration and completion of this FMP, the overall review was conducted by:

- Lyle Quan, Fire Service Consultant/ VP of Operations - Project Lead
- Rick Monkman, Fire Service Consultant
- Phil Dawson, Fire Service Consultant
- Brian Hutchinson, Fire Service Consultant
- Darryl Culley, President

Together, the team has amassed a considerable amount of experience in all areas of fire and emergency services program development, review, and training. The EMG team has worked on projects that range from fire service reviews, creation of strategic and master fire plans, and development of emergency response programs for clients.

SECTION 1

SECTION 1: COMMUNITY & FIRE DEPARTMENT OVERVIEW

This FMP for the MLFD analyses and identifies current and probable community fire risks and needs over the next 10 years and beyond. This will greatly assist Township Council in considering service levels and associated resources, which will then enable the Fire Chief with future planning relating to staffing and response, fire and life safety programming, and asset management. To ensure a comprehensive review is conducted, this review has examined and researched all aspects of MLFD operations including planning, fire prevention, training and education, communications, apparatus and equipment, human resources, station suitability and location, and large-scale emergency preparedness.

1.1 Community Overview

The Township of Muskoka Lakes is located in the heart of the District of Muskoka, situated at the southern tip of the Canadian Shield. The township encompasses a large geographic area around Lakes Muskoka, Rosseau and Joseph. Within the approximately 775 square kilometers in the township's jurisdiction, lie over 96 lakes and rivers, numerous wetland complexes, bedrock outcrops, islands, all set amongst a mix of vegetation types and natural heritage areas.

The township's population consists of approximately 7,652 permanent residents (2021Census[1]) and over 27,000 seasonal residents. While the permanent residency is predominantly located in six un-serviced communities, two serviced urban centres, and the rural area, the seasonal residents reside primarily in the waterfront area.

The township owns and operates ten fire stations, twelve community centres, two arenas, and multiple parks, trails, picnic areas, playgrounds, municipal docks, lake access points, launch ramps and beaches, spread throughout the municipality. To assist with the prioritization of the maintenance, repair, and in some cases the replacement, of this infrastructure, the township is currently preparing an asset management plan. This plan will inform a long term sustainable financial plan.

Based on the Statistics Canada information, the increase in permanent population from 2016 to 2021 is 16.2%, which is greater than the provincial average of 5.8%. If this growth continues within Muskoka Lakes, the population for 2031 could be as much as 10,000 or more. This does not include any increase in the seasonal population with already accounts for more than 27,000.

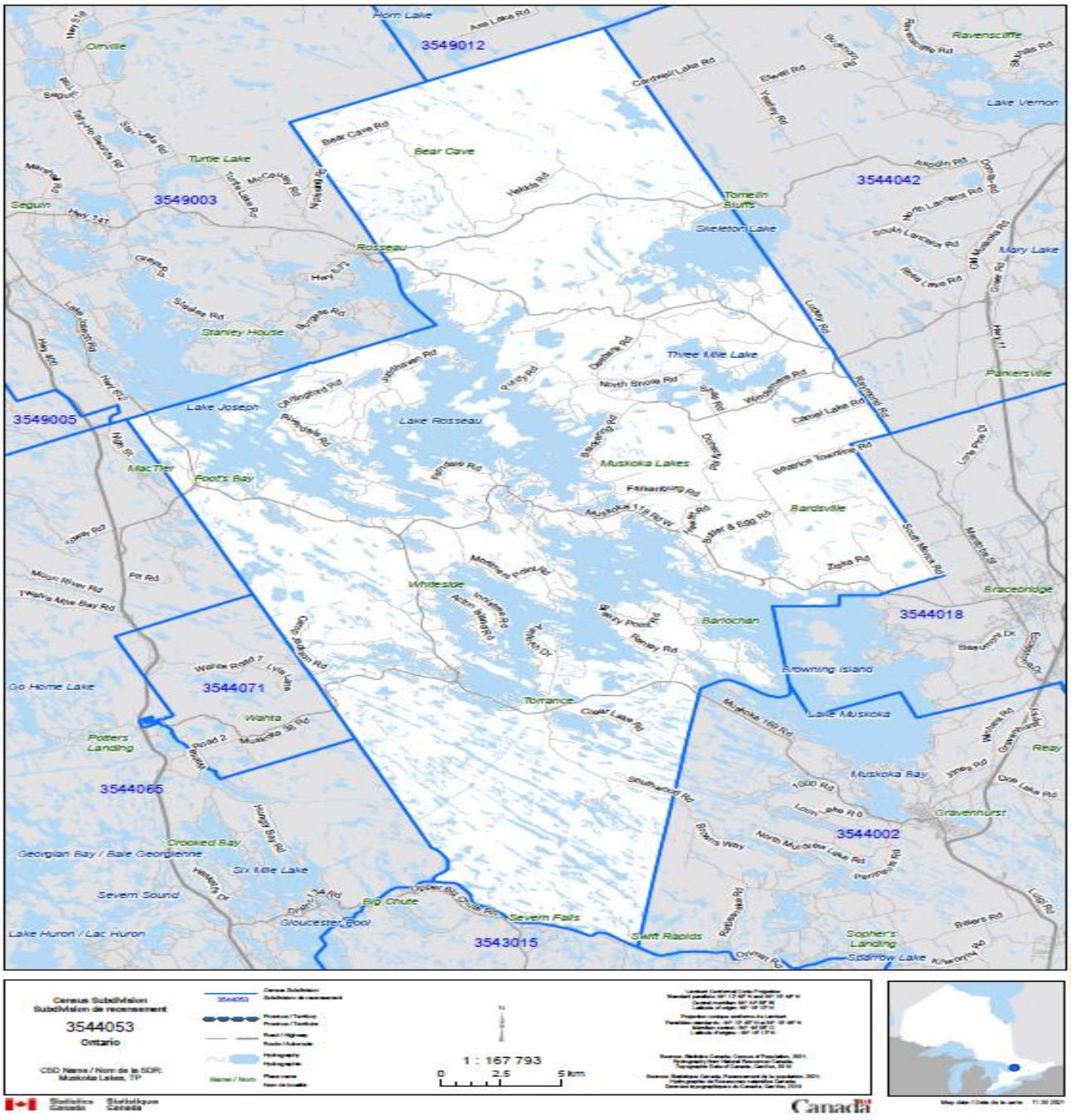
[1] Data table, Census Profile, 2021 Census Population-Muskoka Lakes, Retrieved March 30, 2022, https://census.gc.ca/census-recensement/2021/dp-pd/prof/details/page.cfm?Lang=E&SearchText=Muskoka%20Lakes&DGUIDlist=2021A00053544053&GENDERlist=1&STATISTIClist=1&HEADERlist=0

TABLE #1: Muskoka Lakes Permanent Population by Year

2016	2021	2031 (estimated)
6,588	7,652	Between 8,800 to 10,000

NOTE: Retrieved from Stats Canada website, December 2021

FIGURE #1: Boundaries of the Township of Muskoka Lakes



***NOTE**: Retrieved from Stats Canada website, December 2021*

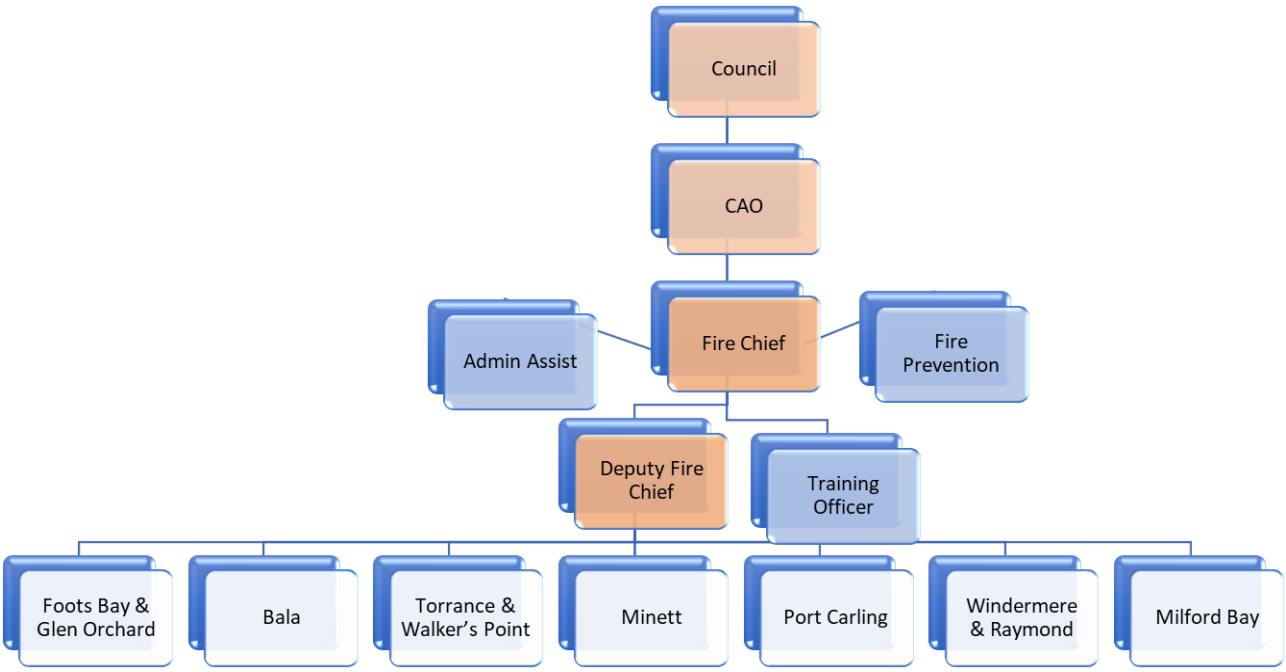
1.2 Fire Service Composition

The MLFD consists of ten fire stations staffed by 120 volunteer firefighters under the direction of a full-time Fire Chief. There is also a full-time Deputy Fire Chief, a full-time Fire Prevention Officer and full-time Administrative Assistant located at the Port Carling fire station. The fire stations are located in Port Carling, Minett, Windermere, Raymond, Milford Bay, Foot's Bay, Glen Orchard, Bala, Torrance, and Walkers Point. The MLFD currently provides public education, code enforcement and fire suppression services with volunteer firefighters. The MLFD responds to approximately 570 calls for service per year. These calls range from medical assistance to fire-related incidents, and motor vehicle collisions.

To ensure that they are meeting the needs of the community and Fire Department staff, Council establishes and resources the service level and the Fire Chief works within those parameters. Based on the Township's Fire Department Establishing and Regulating By-Law 2016-125, the Fire Chief is the person who is ultimately responsible for the leadership of the Fire Department program to Council. The Fire Chief of MLFD reports to the Township's Chief Administrative Officer (CAO) in a council-manager style of government. This reporting system allows for the Fire Chief to present reports and updates to Council.

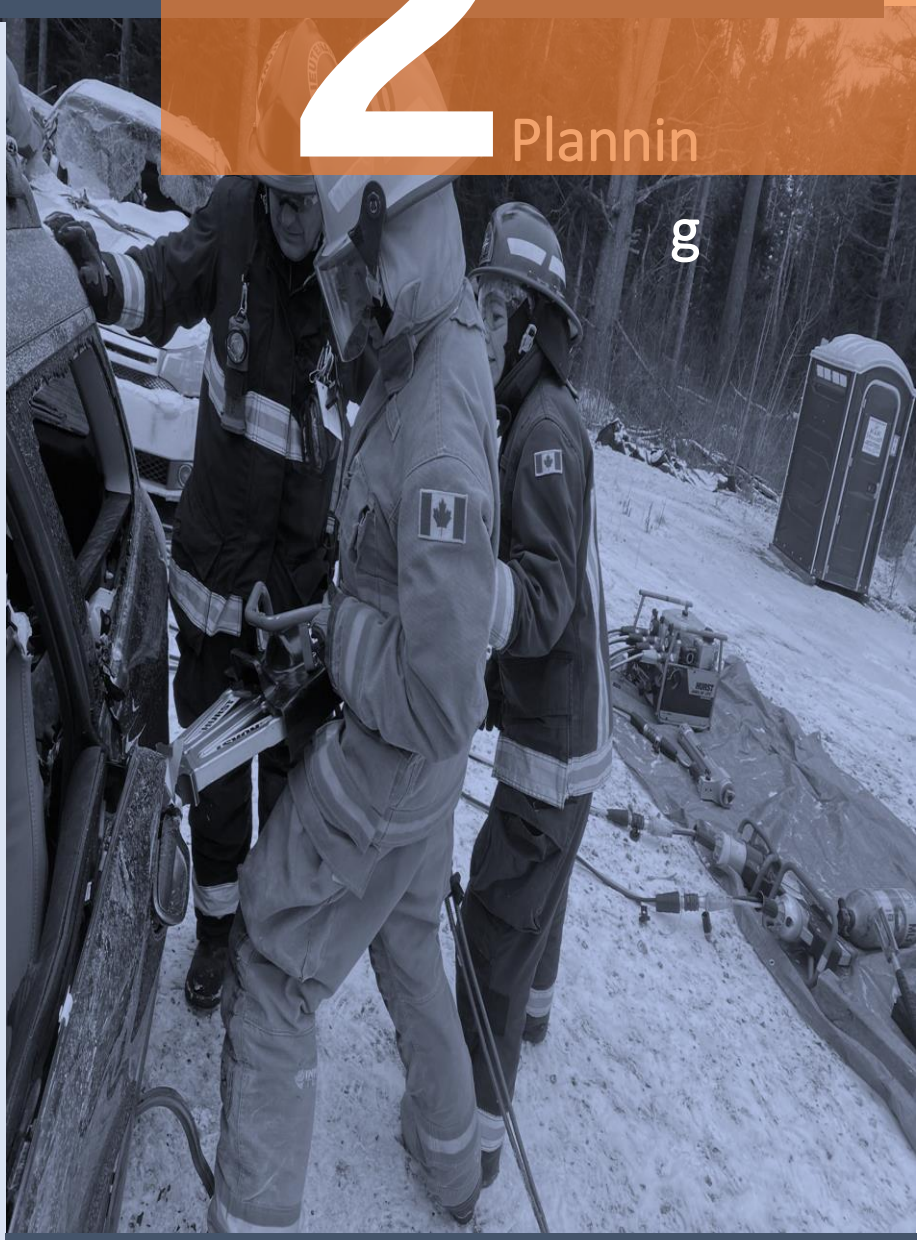
The organizational chart noted in Figure #2 reflects the general reporting structure within the MLFD and that of the Fire Chief to the CAO and Township Council.

FIGURE #2: Emergency Services Organizational Chart



The emergency services facilities are comprised of 10 fire stations, which has stayed consistent since the previous master plan in 2014.

SECTION 2 Planning



SECTION 2: PLANNING

Planning is a key function of any organization and should be done with a focus on the present needs of the community, coupled with its future growth and how this will affect the service demands on the emergency services. The initial phase of such planning efforts is to identify the strengths, weaknesses, opportunities, and threats affecting the department and the community it serves.

2.1 Community Safety – Four Lines of Defence

Even though the Office of the Fire Marshal and Emergency Management's (OFMEM) community safety model revolves around three specific lines of defence - Public Education, Safety Standard and Enforcement, and Emergency Response. EMG views Emergency Management as the fourth, inclusive line of defence, and have added this into the overall concept of community safety.

i. **Public Education** – educating residents has proven to be the most effective means in reducing and preventing the incidences of fire and property damage. Reducing the number of fires before they start and identifying how the municipality will continue to meet the fire education needs while the municipality grows. More information on this topic can be found in Section 4.

ii. **Safety Standards and Enforcement** – ensuring that the inspection and enforcement of fire codes occur so buildings meet the required safety standards. More information on this topic can be found in Section 4.

iii. **Emergency Response** – the availability of well trained and well-equipped firefighters to respond and effectively mitigate the incident is the last defence. The staff, equipment and fire station locations impact how the emergency is mitigated. More information on this topic can be found in Section 5.

iv. **Emergency Management** – a municipality is legislated to have an emergency preparedness program to ensure the safety of the residents of the community by having a training, education, response, and mitigation plan in place for any possible emergency the community may encounter. More information on this topic can be found in Section 8.

Along with these four lines of defence, the following industry best practices help to inform a fire department of industry expectations. Neither the NFPA and/or the FUS are legislated requirements, and do not have to be followed, but utilizing them to improve a community's fire service is encouraged by EMG.

2.2 National Fire Protection Association (NFPA) 1201

The National Fire Protection Association Standard 1201 – *Standard for Providing Fire and Emergency Services to the Public* makes note of the services that should be offered and how they are to be delivered based on the composition of an emergency service.

Section 4.3.5 notes:

- The Fire and Emergency Services Organization (FESO) shall provide customer service-oriented programs and procedures to accomplish the following:
    1. Prevent fire, injuries and deaths from emergencies and disasters
    2. Mitigate fire, injuries, deaths, property damage, and environmental damage from emergencies and disasters
    3. Recover from fires, emergencies, and disasters
    4. Protect critical infrastructure
    5. Sustain economic viability
    6. Protect cultural resources

To accomplish this, an FESO must ensure open and timely communications with the CAO and governing body (council), create a masterplan for the organization, and ensure there are mutual aid and automatic aid programs in place, along with an asset control system and maintenance program.

To provide an emergency service clearer focus on what the ultimate goals for emergency response criteria are, the NFPA suggests that response times should be used as a primary performance measure in emergency services. NFPA 1720 refers to goals and expectation for volunteer emergency services that has been incorporated into the evaluation of the emergency services' response and staffing needs. More discussion in relation to the 1720 standard will be presented in Section 5.

2.3 Fire Underwriters Survey (FUS)

Fire Underwriters Survey (FUS) provides data on public fire protection for fire insurance statistical work and underwriting purposes of subscribing insurance companies. Subscribers of FUS represent approximately 85 percent of the private sector property and casualty insurers in Canada. The insurance rates are based on the score that a community receives founded on such things as the emergency services assessment. This assessment includes a review of apparatus, distribution of

companies/ fire stations, staffing, training, maintenance, pre-incident planning, etc. In essence, the more effective and efficient a fire service is, the better the rating, which can equate to lower properly insurance rates for a community.

The FUS has expectations around fire prevention inspection frequencies, fire truck replacement schedules and water delivery capabilities of a fire department. More on each of these three topics will be presented in this document.

2.4 Office of the Fire Marshal and Emergency Management

Also, with the OFMEM now requiring NFPA standards as the minimum benchmark for training and certification by all Ontario fire departments, it is no longer simply prudent to be current with such best practices. This type of training is now mandatory.

2.5 Strengths, Weaknesses, Opportunities, and Threats (SWOT)

The strengths and weaknesses portion of a SWOT analysis are based on an internal review that identifies what is working well, along with recognizing areas for improvement. The opportunities and threats portion of the SWOT are related to external influences and how these influences affect the operations and response capabilities of an emergency service.

2.5.1 Strengths

- Muskoka Lakes benefits from having 10 fire stations that are arranged into six response zones, which has worked well for the Fire Department in relation to responding to calls for service within the community.
    - However, EMG has noted three options for station consolidation in Section #6. These options are presented for Council's consideration regarding response improvements.
- The department does have a full-time Fire Prevention Officer to ensure that the majority of mandated fire safety inspections and public education needs are being met.
- The MLFD has strong relationships with its partner emergency services (police and EMS), along with mutual and automatic aid agreements in place with other fire services to assist with general response needs.

2.5.2 Weaknesses

- MLFD, as with many composite emergency services, depends on its team of dedicated volunteer firefighters (for response to calls). But at times it can be challenged when it comes to having enough volunteer firefighters for these responses.

  - Due to other commitments, such as their full-time jobs and family obligations, there is no guarantee the volunteer firefighters will be available to respond as needed, which in turn can create a condition where possible low numbers of on-scene staffing levels may occur.
- Many of the fire stations are in need of upgrades to ensure they continue to meet the needs of the service in relation to equipment storage, shower facilities, and removal of firefighters' gear from diesel exhaust contamination.
- There is a part-time Training Officer. However, with 10 fire stations and over 120 VFFs, it is a struggle to ensure that training needs and expectations outlined in such documents as the NFPA, and the *Occupational Health and Safety Act* are being delivered and documented on a consistent basis.
  - And with the OFMEM implement training standards and certification requirements for all positions within the fire service, even more training will be required (by all fire departments in Ontario).

2.5.3 Opportunities

- MLFD has a history of engaging in partnerships with bordering departments for such things as joint training, cross border responses, mutual aid and fire service agreements that benefit both communities.
  - Continuing to build on these partnerships will improve available options in relation to meeting future training and certifications requirements.
- Recommendations are being made in this report to consider the consolidation of fire stations to reduce costs, while continuing to provide the same or even an improved level of service to the community.
  - No one likes to see a fire station close, but if such a recommendation has its merits, then it needs to be considered and implemented.

2.5.4 Threats/ Challenges

- Major emergencies stressing the availability and perhaps even greater dependence on volunteer suppression staffing resources and equipment must be considered as the community's population continues to grow and age.
- Response by the volunteer firefighters is a challenge due to their other commitments, such as full-time jobs within or outside of the community. This is a challenge for most emergency services that may need to depend on responses from the volunteer firefighters.
  - The level of response should be monitored for both daytime (with a focus on the workweek) and evenings to identify if any issues exist.

- The threat of climate change and its impact on weather patterns is an increasing challenge for communities to deal with inclement weather incidents, such as freezing rain/ice storms. As they are becoming more commonplace they need to be part of the emergency response program for each community.
    - These changes in climate conditions, along with the resulting frequency and severity of incidents, has also predicated the need for a larger response component to these emergencies.
- All these noted challenges need to be monitored, evaluated, and reported to Council by the Fire Chief to ensure that MLFD is meeting the needs and expectations of the community.

2.6 Stakeholder Surveys

To get a complete understanding of how well MLFD is meeting the needs of the community and its volunteer force, both community and staff input were requested in the form of a blind survey, via Survey Monkey. This input was helpful in developing recommendations to assist Muskoka Lakes Council with future strategic decision making as it relates to the fire service.

2.6.1 External Surveys

There was a total of 172 external surveys completed. Based on the information received The highlighted areas were extremely important to the respondents:

- Response to calls
- Response for service
- Relevant training
- Purchase and upkeep of equipment

	EXTREMELY IMPORTANT	VERY IMPORTANT	IMPORTANT	NOT VERY IMPORTANT	NOT IMPORTANT AT ALL	TOTAL
How quickly the fire department gets to me if I have an emergency	87.08% 236	11.07% 30	1.48% 4	0.37% 1	0.00% 0	271
Whether the fire department will visit my home to give me safety advice and/or fit smoke alarms	3.69% 10	8.49% 23	37.64% 102	37.27% 101	12.92% 35	271
How much the fire services costs me as a taxpayer	11.44% 31	20.30% 55	42.07% 114	21.03% 57	5.17% 14	271
How well the fire department works with other agencies to provide wider community safety services	22.96% 62	33.33% 90	34.81% 94	6.67% 18	2.22% 6	270
How often the fire department consults me about their services	3.73% 10	7.84% 21	32.46% 87	43.28% 116	12.69% 34	268
How often the fire department provides community training opportunities (e.g., fire extinguisher training; school safety programs; older and wiser program; smoke alarms; fire escape planning)	10.74% 29	19.26% 52	42.59% 115	23.33% 63	4.07% 11	270
Timeliness to any request for services or assistance from the fire department	42.59% 115	32.22% 87	22.59% 61	1.48% 4	1.11% 3	270
How visible the fire department is at local community events	8.86% 24	20.30% 55	33.58% 91	27.68% 75	9.59% 26	271
Contacting assistance services (such as Red Cross or family services) after an emergency, as required	19.78% 53	23.51% 63	38.06% 102	15.30% 41	3.36% 9	268
Continued and relevant training	41.85% 113	33.70% 91	20.37% 55	2.22% 6	1.85% 5	270
Purchasing and maintaining new and applicable equipment	43.12% 116	37.55% 101	15.61% 42	2.60% 7	1.12% 3	269

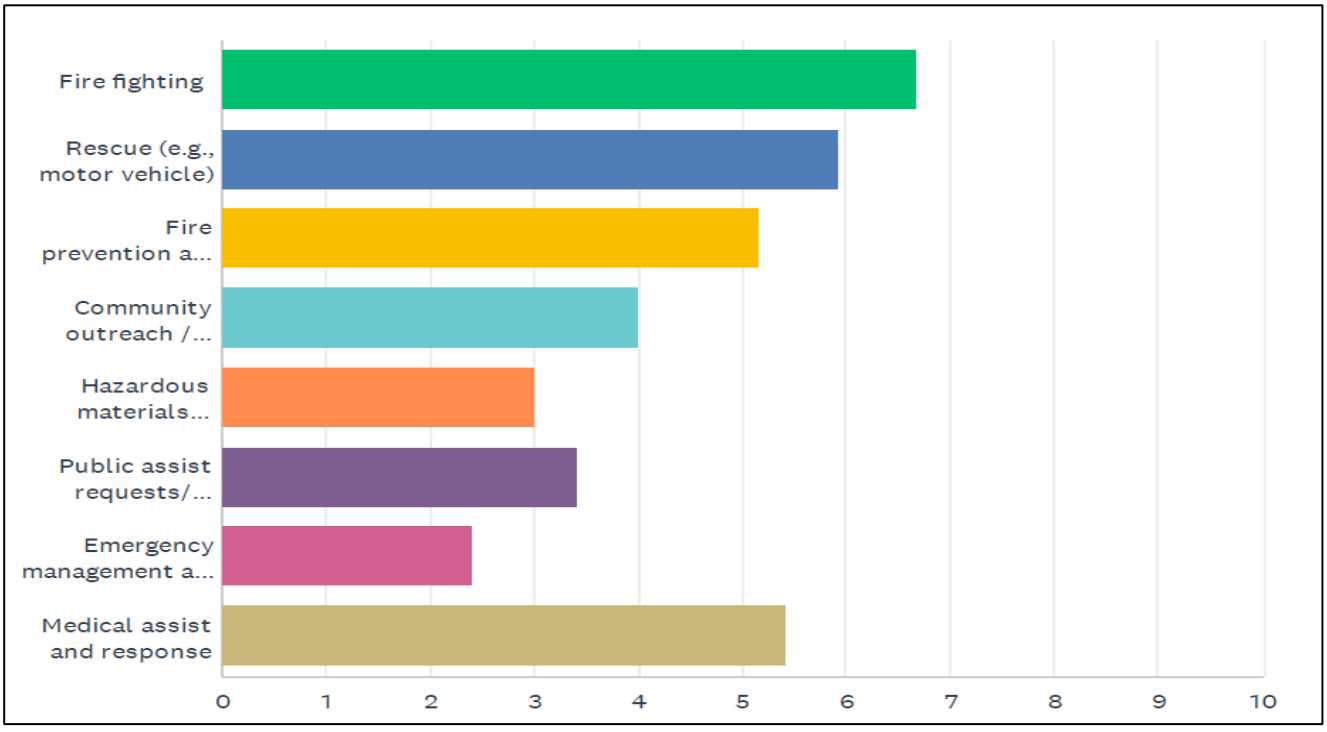
Other information received, include:

- The fire department is viewed as professional, “good to top notch”, and a good community partner
- Some suggestions that the external stakeholders would like to see an increase:
    - More attendance at community events
    - More home inspections
    - More education and safety programs
- In relation to top issues/challenges:
    - Cost of supplying the services to the community
    - Dealing with cutbacks and aging equipment
    - Hiring of volunteers and keeping their skills current
    - Climate change
    - Access to island and/or isolated residences
    - Continue to meet the needs of a growing population

2.6.2 Internal Surveys

There was a total of 12 internal surveys completed (by the firefighters). Much of the information received from the internal surveys identified the following:

- The majority of the staff are very proud of the service that they offer to the community and believe that the community feels that they are served by a professional and dedicated group of firefighters.
- Overall, the firefighters expressed a concern about some of the present emergency services facilities. There is a lack of proper space for equipment, vehicles, office and crew quarters.
- The top challenges put forward are the continued need to retain volunteer staff, ensuring properly trained and equipped staff in meeting response challenges.
- It was also noted that more community outreach and fire safety programs need to be delivered by the MLFD.
- The question on ranking the priority of services from 1 to 8 resulted in the following chart (from the firefighters):



2.6.3 Senior Staff Interviews

Input from Township senior staff supported a good working relationship between the Fire Department and other staff. There is a real sense of teamwork amongst the group.

- MLFD is seen as a valued member of the team,

- All of the departments are focused on meeting the needs of the community, as identified with the goals and expectations of Council.

2.6.4 Council Interviews

All members of Council are proud of the Fire Department and are in full support of this master plan review and are interested in the recommendations that will result from the review.

The key points noted were:

- Continue to support the Fire Department in its endeavours to meeting the needs of the community
- Ensure the firefighters have the training and equipment they need to effectively do their jobs
- As for fire stations, there was a variety of comments that ranged from;
    - No reduction of stations to finding the best balance of station numbers
    - This could be in the form of several key (or super stations) with a few supporting stations. Or a reconfiguring of the station locations to provide the best possible level of coverage, no matter with the number of fire stations would be.
    -

2.7 Governance and Establishing & Regulating By-Law

One of the primary fire service related legislations is the Province of Ontario's *Fire Protection and Prevention Act*, 1997 (FPPA). This *Act* outlines and mandates minimum standards that must be adhered to for providing life safety systems to a municipality. The following are the minimum standards:

- A simplified risk assessment (which is now replaced by the Community Risk Assessment (CRA).
- A smoke alarm program
- Distribution of fire safety education materials
- Participating in inspections upon complaint or when requested to assist with fire code compliance
- Vulnerable Occupancy Program meets Provincial Regulations

An Establishing and Regulation (E&R) by-law is a council document outlining fire protection levels to meet the needs and circumstances that council deems necessary. In doing so, a municipal E&R by-law can state the type and level of fire protection services provided and may include policy direction in such areas as:

- Legislative requirements that may impact the delivery of fire protection services such as the *Fire Protection and Prevention Act*, *The Occupational Health & Safety Act*, *Environmental Protection Act*, and *Municipal Act*, to name a few.

- Ontario Fire Marshal directives
- Best practices as found in the Ontario Fire Service, Section 21 Advisory Committee Guidance Notes and NFPA Standards.
- General function and core services to be provided.
- Goals and objectives of the department.
- Vision, Mission, and Value Statements of the fire department.
- Responsibilities of the fire department.
- Organizational structure of the department.
- Authority to respond to calls, beyond established response areas such through mutual and automatic aid agreements.
- Authority to invoice property owners for subsequent costs created during a fire investigation.
- Any necessary departmental operation.
- Fire prevention programs, that include a smoke and carbon monoxide alarm programs, public education, and inspections and enforcement of the OFC.
- Response and training levels such as awareness, operations, technician when attending technical rescues and HAZMAT incidents.
- Some municipalities have included the job descriptions of all the positions within the department.
- May include references to other municipal by-laws such as Outdoor Burning, Fireworks, Second Suite.

The current E&R By-Law 2016-125 was last updated in 2016, and many parts of the E&R document may not align with the expectations of the *Fire Protection and Prevention Act, 1997*. To assist the Fire Chief in meeting the needs and expectations of council, the E&R By-law should be updated to not only identify the types of incidents that the fire department is to respond to but should include the level of response (i.e., Awareness, Operations, etc.). This greatly affects department training, equipment needs, and response agreements with outside fire departments or third parties.

By incorporating these guidelines and standards, MLFD will be ensuring that staffing, training programs, fire prevention initiatives, and response to the community adhere to industry best practices.

Response Time Criteria:

Although no actual response time expectations are included in the Department's E&R By-law, a review of the past three to five years offers a good understanding and baseline for how the Department has been performing, along with identifying areas for improvement. The Fire Chief is proactive in this area because he does utilize the most recent sets of data as a baseline to evaluate the response capabilities of the Fire Department. This evaluation will be invaluable to measure

population growth versus call volumes and response times, along with any challenges that the Department might be encountering (i.e., increasing response times and/or number of volunteer firefighters responding to the calls).

2.8 Assessment of Current Fire Services By-Laws and Agreements

Within its jurisdiction, a municipal bylaw is no different than any other law of the land, and can be enforced with penalties, challenged in court, and must comply with other laws of the land, such as the country's constitution. Municipal bylaws are often enforceable through the public justice system, and offenders can be charged with a criminal offence for breach of a bylaw.

The By-Laws reviewed for this FMP include:

- By-Law 2005-57, Agreement with Lake Joseph Cottager's Landing Inc.
- By-Law 2005-58, Mutual Aid Plan and Program participation (Referenced in Section 9)
- By-law 2005-114, Dispatching Services Agreement with Muskoka CACC
- By-Law 2007-126, To Incur Debt to Finance a New Fire Station
- By-Law 2010-32, Regulate Tourist Camps and Trailer amps
- By-Law 2014-076, Tiered Medical Response Agreement with the DOM
- By-Law 2018-16, (Amended by By-Law 2019-016), Setting of Fires
- By-Law 2018-087, (Amended by By-Law 2021-022 and 122) Fees and Charges
- By-Law 2018-93, Shared Service Agreement with the Town of Huntsville
- By-Law 2019-074, Development Charges

By-Laws of this nature should be reviewed at minimum every five years, preferably annually, with recommendation to be brought before Council at the beginning of a term of Council as an update and with any necessary amendments. This will allow a newly sitting Council to understand the full scope of the fire department's level of service and commitment related to the community.

By-Law 2005-57, Agreement with Lake Joseph Cottager's Landing Inc.

- This by-law was first passed in 2005 for the storage of the MLFD's fire boat at the Still's Bay waterfront landing from 2005 to the end of 2009 at which time the agreement was to be renewed.
- This is a great example of a public/private partnership.
- If the arrangements have been ongoing and working well to each party's benefit, a new agreement should be drawn up and passed by Council. Or at the very least, a review noting that no changes are required and the date of the review.

By-law 2005-114, Dispatching Services Agreement with Muskoka Central Ambulance Communications Centre (CACC)

- This is the dispatch agreement between the MLFD and Muskoka CACC.
- Muskoka CACC's main function is the dispatching of ambulances of the Muskoka Paramedic Service.
- It has not been updated since originally passed by Council in 2005 and took effect mid 2006.
- There are no references to NFPA Standards 1221, 1225 and 1061 within the document.
- While the fire department has received an adequate level of service, the Fire Chief should review the present level of service and complete a report for Council, on whether continuing the present CACC agreement, or moving to another dispatch centre that is operated by a fire department and more familiar with fire department operations, is worthwhile.

By-Law 2014-076, Tiered Medical Response Agreement with the District of Muskoka

- This by-law permits MLFD to participate in the tiered medical responses.
- The agreement is the same one between all the fire departments in Muskoka and the District of Muskoka.
- The document identifies when the MLFD will be dispatched to medical calls, and the types of calls they will attend.
- The document needs to be reviewed and updated to better reflect fire department responses.
- There are no established delayed response timelines mentioned in the document, for when the fire department would be dispatched.
- The types of calls responded to could be broken down into "Levels" of response and the fire department would select the best level for their municipality, which could be based on the paramedic response times.
- The fees paid should be updated as the MTO rates have changed.
- There is no mention of medical oversite support to the MLFD, in the form of enhanced medical training.
- The MLFD should review the option of members administering naloxone, for opioid overdoses, and epinephrine for severe allergic reactions, under the medical oversite's direction.
- Some fire department also administer glucose jell, for diabetic emergencies, and acetylsalicylic acid **(**ASA), for cardiac emergencies.

By-Law 2018-16, (Amended by By-Law 2019-016), Setting of Fires

- This is a by-law that regulates open air burning.
- The permit allows for leaves to be burnt. Due to health issues that have been identified as being aggravated from the effects of the burning of vegetation, i.e., smoke may cause breathing issues for those with asthma and emphysema.

- The township should review whether the burning of yard waste should be prohibited in built up areas such as Port Carling and Bala.
- The by-law makes no reference to clauses found within the Ontario Fire Code as they relate to outdoor burning.
- There is no mention in the document of manufactured appliances for the burning of wood that meet CSA/ULC Standards such as chimeneas.
- There is no mention of manufactured Bar-B-Ques, that burn firewood.
- The by-law should refer to regulations the Ministry of NDMNRF may enforce.

Second Suites By-Law

Second suites were permitted under the Province of Ontario's Housing Supply Action Plan which was developed to relieve some of the affordable housing shortages. Second suites are an important part of Ontario's rental housing landscape. They offer affordable housing solutions throughout the province. Second Suites are self-contained residential units which are generally allowed in single detached, semi-detached and row houses. They are also allowed in ancillary structures (i.e., garage, laneway house or garden suite).

Changes were made to the Planning Act in 2011[2] when the Government of Ontario passed new legislation (the Strong Communities through Affordable Housing Act, 2011[3]). This legislation was made to promote the creation of second suites province wide. These changes, however, do not automatically legalize existing second suites, and they do not allow new ones without a building permit. Health, safety, housing, and maintenance standards must also be met by all second suites built in Ontario. These standards include but are not limited to the Ontario Building Code, the Fire Code, and municipal property standards bylaws.

This by-law should be brought about so the township will have the ability to inspect renovations or new construction that involves a second suite. The issue of regulating the fire safety of second suites has come about following the fire deaths of individuals that were residing in basement apartments, where a fire occurred, and the occupants could not escape. The township should also review opportunities to implement a means of reporting unregistered or illegally built second suites, such as an anonymous tip line.
A few points to be considered about second suites:

- Property owners may not understand their responsibilities regarding fire safety and fire code.

[2] Planning Act, R.S.O. 1990, c. P.13 (ontario.ca), Accessed January 7, 2022, https://www.ontario.ca/laws/statute/90p13

[3] Bill 140, Strong Communities through Affordable Housing Act, 2011 - Legislative Assembly of Ontario (ola.org), Accessed January 7,2022, https://www.ola.org/en/legislative-business/bills/parliament-39/session-2/bill-140

  - MLFD should review its fire prevention and enforcement resources regarding adequate staffing to inspect all the second suite units in the municipality.
  - MLFD should establish and advertise a reporting method to identify possible illegal locations.
  - Inground related dwellings (basements) which must meet Ontario Building Code and Ontario Fire Code standards, under the *Strong Communities through Affordable Housing Act*, 2011.
  - Township should develop a stand-alone by-law that addresses second units.
  - Several significantly sized, residential developments are in progress, which may contain second suites.
- Most fires occur in residential units.

With these points in mind, the MLFD should work collaboratively with the Building Department and bring forth a by-law regulating second suites that includes the need for them to be licensed.

A Registry and Licensing By-Law of Short-Term Accommodations (STA)

The township has seen an increase in its residential building stock that may be used as short-term accommodations. This usually means a large group of people stay in a residence that has been changed into a short-term accommodation. Some may have had interior renovations that do not meet the Ontario Fire Code (OFC) and could be a fire risk.

With Township of Muskoka Lakes being a prime tourist area, these types of accommodations will, if they haven't already started to appear more frequently as business ventures. The owner/operators may not be aware of, or compliant with OFC requirements. Like any residential occupancy, working smoke and CO alarms are a must, and could be disabled by the clients.

As with the issue of second suites, the MLFD should collaboratively with the building department develop a by-law that addresses STA.

2.9 Policies, Directives, & Standard Operating Procedures

Fire department policies and guidelines have enormous value for a department. In fact, they can be seen as the key foundation to a department's success. The backbone of any fire service is its policies, SOPs and SOGs, which govern and provide direction on its operations.

- **A policy** is a high-level statement that expects consistent compliance. There is very little to no leeway permitted with a policy.
- **A guideline** is a standard with an acceptable level of quality or attainment on how to act in each situation with non-mandatory controls.

- **A procedure** is a standard with an acceptable level of quality or attainment through a series of detailed steps to accomplish an end. There are step-by-step instructions for implementation.

MLFD's SOGs, are numerous, encompassing, and thorough. To ensure all the SOGs are current, the Fire Chief and deputy Fire Chief review and revise existing policies and SOGs and develop new policies and SOGs as required. The district chiefs are involved in the review processes. To ensure that all of guidelines are current, some fire departments review a third of the SOGs annually so that the entire set of documents receive a full review every three years.

The review of the SOGs is a very involved process and implementation of an SOG committee, in which the membership includes representation from every division of the fire department, would reduce the workload placed on both the Fire Chief and the Deputy Fire Chief. The committee would meet on a regular basis to develop new SOGs and review older ones. The establishment of a structured SOG Committee that creates its own Terms of Reference would be a great asset to the department in many ways; the SOGs would be updated and current, staff are more involved in the department's operations, and provides a safer environment for members of the department to work.

A good source of information is the Section 21 Guidance notes that are kept current by a provincial team of fire service personnel. The Section 21 Committee is part of the *OHSA* initiative for firefighter safety.

For a fire department to operate in a safe and efficient manner it is imperative that all members adhere to all policies, SOGs, and SOPs and those that fail to do so should be held accountable.

Section 2 Recommendations

Rec #	Recommendation	Estimated Cost	Suggested Timeline
1	That the Fire Chief bring forth a revised version of the Establishing & Regulating By-Law for Council's approval and going forward the Fire Chief annually review and update, the By-Law as necessary. • And that all other by-laws noted in this document be reviewed and updated as required. All by-laws should be reviewed annually to ensure currency of document.	Staff Time	Short-term (1-3 years)
2	That an Standard Operating Guideline Committee be established with representation of all divisions of the fire department. It is further recommended that the department's SOGs be reviewed and regularly.	Staff Time	Short-term (1-3 years)

SECTION 3

Risk Assessment

SECTION 3: RISK ASSESSMENT

3.1 Community Risk Assessment

The first and most effective way to reduce injuries, death, and property damage due to fire is through public education, inspections, and enforcement. A proactive fire prevention program coupled with a current community risk assessment (CRA) will be able to identify and address these key components of community fire safety.

3.1.1 Community Risk Assessment Profile

The Province of Ontario Regulation 378/18 Community Risk Assessment (CRA) states, "a community risk assessment is a process of identifying, analyzing, evaluating and prioritizing risk to public safety to inform decisions about the provision of fire protection." Effective July 1st, 2019, the regulation states that every municipality shall complete a CRA by 2024 with renewal to occur every five years, thereafter. The municipality is required to review the document annually.

Council has the authority to establish the level of fire protection within their municipality. The Fire Chief is responsible for informing Council of any, and all risks existing within Muskoka Lakes. It is based on this information that Council can make an informed decision on the level of service to be achieved.

There are two basic risk categories associated with the fire service – **operational risk** and **organizational risk**. Operational risk is the responsibility of Muskoka Lakes Fire Department (MLFD) to determine the risks within its community and plan strategic, tactical, and task orientated plans to mitigate incidents. Organizational risk is a function and responsibility of council to determine the disciplines, level of service, staffing, stations, and approval of the department business plan based on the overall risk assessment of the municipality.

It is the accumulation and analyzation of these factors that will assist in applying this information to identify potential risk scenarios that may be encountered. It is during the assessment of the information gathered, which includes the likelihood of these scenarios occurring and subsequent consequences, that will assist in answering the following questions:

- What could happen?
- When could it happen?
- Where could it happen?
- Who could it happen to?
- Why could it happen?
- How likely could it happen?

- How bad would it be if it happened?
- What can be done to mitigate or prevent any or all the above?

Once these questions are answered, they will establish the basis for formulating and prioritizing risk management decisions to reduce the likelihood of these incidents from occurring and to mitigate the impact.

A CRA was prepared and accepted by Township Council on May 9th, 2022. This document:

- Identified Risks in the community considering the nine profiles.
- Prioritized Risks based on probability and consequence levels.
- Assigned Risk Levels for each identified risk level.
- Determined Risk Treatment Options for each identified risk.
- Determined Fire Protection Services to be provided based on how risks will be treated.
- Reviewed the CRA annually and complete a new risk assessment every five years to ensure it accurately reflects risk in the community.

3.1.2 Township's Community Risk Statistics

Even though a full CRA was part of this FMP project, it is of value to review the following information that was obtained from the OFMEM and the MLFD. The data offers an overview of the areas of concern within Muskoka Lakes. For ease of review, the data has been listed from the highest to lowest level of concern. The following information will assist the Fire Chief and staff with fire prevention and public safety awareness initiatives.

Fire Loss by Occupancy Classification

The analysis indicates that between 2015 to 2020 on average approximately 74% of the fires reporting a loss occurred in Group C - residential occupancies.

Municipality of The Township of Muskoka Lakes, Fire Loss by Property Classification

Based on the information received, the following building classifications for property loss are listed in order of occurrence type:

- Group C – Residential occupancies
- Other occupancies not classified within the Ontario Building Code (i.e. farm buildings)
- Group A – Assembly occupancies

Municipality of The Township of Muskoka Lakes, Reported Structure Fire Cause

Assessing the possible cause of the fires reported is an important factor in identifying any potential trends or areas that may be considered for introducing additional public education or fire prevention initiatives as part of the community fire protection plan.

The leading causes of structure fires were:

- Undetermined
- Misuse of ignition source/material first ignited
- Design/Construction/Maintenance Deficiency
- Other unintentional
- Mechanical/Electrical Failure
- Arson

Municipality of The Township of Muskoka Lakes, Ignition Source Class

The leading causes for ignition sources were:

- Undetermined
- Heating equipment, chimney, etc.
- Miscellaneous
- Electrical distribution equipment
- Other Electrical / Mechanical
- Cooking equipment
- Appliances
- Open flame tools, smoker's articles
- Lighting Equipment

In assessing this data there is a significant number of undetermined fires occurring in Muskoka Lakes and the Fire Chief and Fire Prevention Officer should monitor this situation in the event additional resources are required in determining causes and ignition sources, such as supplemental training and the use of outside resources. These resources include the OFMEM, OPP, Electrical Safety Authority (ESA), and third-party investigators in conjunction with insurance companies.

To assist the fire department in its fire safety goals, it is recommended that the fire department staff meet with relevant local community groups to form a partnership for organizing fire safety and public education events that can be tailored to the unique needs and challenges within the community. These events can be based on the previous fire cause information supplied. An example of community groups would be a local group that wish to promote fire safety in the community or any local Lions Clubs (or other clubs) that want to support fire safety initiatives.

Within NFPA 1730, it breaks down how a fire service should evaluate and categorize the level of risk for each occupancy. By using this as a reference in assigning risk, it will aid the department in what occupancies they need to focus their resources on fire inspections and enforcement as well as public education opportunities. These risk categories are:

- High-Risk Occupancy – An occupancy that has a history of high frequency of fires, or high potential for loss of life or economic loss. Alternatively, an occupancy that has a low or moderate history of fire or loss of life, but the occupants have an increased dependency in the built-in fire protection features or staff to assist in evacuation during a fire or other emergency (e.g., apartment buildings, hotels, dormitories, lodging and rooming, assembly, childcare, detention, educational, and health care).
- Moderate-Risk Occupancy – An occupancy that has a history of moderate frequency of fires or a moderate potential for loss of life or economic loss (e.g., ambulatory health care, and industrial).
- Low-Risk – An occupancy that has a history of low frequency of fires and minimal potential for loss of life or economic loss (e.g., storage, mercantile, and business).

Conducting a review of every building within Muskoka Lakes may not be practical. Utilizing NFPA 1730 definitions of risk categories may guide council in deciding the focus and service level within the community. Council should determine, with input from the Fire Chief, an acceptable level of risk to manage within the community based on its needs and balanced with the circumstances to deliver the services.

3.2 Community Risk Overview

The following is an overview of the top risks identified by EMG that are facing Muskoka Lakes. The items are not listed in order of importance. More detailed information can be found in the Community Risk Assessment document.

NOTE: The following risks are not identified in the order of their level of consequence.

Bodies of water – The many lakes found in the township, ice/water rescue and marine vessel fires/collisions. While the MLFD has, the ability to mitigate an ice rescue, to the operations level, with the equipment and training on hand, there is no means of mitigating ice rescues that are a further distance out from where they are based. Even though the fire department has snowmobiles and patient transport sleds, they require a unit that will float and can be used when ice conditions are at their worst. An example of these craft is either an airboat or hovercraft.

There are a number of swing bridges over waterways that open to allow marine traffic to traverse from one body of water to another. When these are open and MLFD is traveling on that roadway, the open bridge may impede their response for a period until it closes again. The bridges are operated by the DOM, and MLFD should establish a means of notification to the bridge's operator that the fire department is traveling in their direction and to give fire apparatus priority crossing the bridge.

Township of Muskoka Lakes - New developments will bring an increase in populous, both permanent and seasonal building stock**.** The MLFD may see an increased demand for fire inspections and public education events. The MLFD should review time spent and demands placed on the fire prevention staff which may require additional resources to meet the demand and industry standards.

Technical Rescues – Trench/Confined Space/High & Low Angle/Ice Water. No formal agreement with any outside agencies to mitigate technical rescues. Assessment of present agreements and additional needs is to be reviewed by the Fire Chief and staff.

Hazardous Material Incidents – The closest Provincial HAZMAT Team is in North Bay and will take a long duration of time to respond. MLFD should review options and availability of other third parties that may be closer and capable of arriving sooner.

Weather Events – i.e., Tornadoes. The township and surrounding areas have experienced, a number, of severe storms and tornadoes over the past decade. Communities in the Province are now installing storm sirens such as seen in the United States. The DOM and the Muskoka Emergency Response Committee has launched the "#AlertMuskoka" app, which has had a low number of registrants. TML and DOM should conduct public education and promote this service.

Industries – There are industries that could be of risk to the community. The main ones are the lumber industry, which may have dust bins on site for wood shavings to be stored, which present a dust explosion risk. The high fire load, in event of a fire represents a high level of risk to multiple buildings, on site lumber or spreading outside of the property involved.

Demographics – The township has an increasing senior's demographic that may eventually reside in a senior's residence. Even though there are no seniors' buildings at this time, there could be in the future as the senior's population increases, so will their needs for housing. These occupancies require annual inspections and fire drills. To properly complete a fire drill there needs to be a (fire department) witness of the drill posted at each exit.

Building Stock –

- With existing and new residents living in the township, there could be illegal second units and apartments. Second suites are permitted by way of the Zoning By-Law. There is also an

unknown number of short-term accommodations in the township. The TML should address short-term accommodations which requires they be built to the OBC and OFC standards and need to be registered with the township and inspected by MLFD fire prevention personnel. It is estimated that there are between 450 and 500 STAs in operation within the township.

- The OFMEM has identified the risks associated with occupancies in which light weight construction (LWC) practices have been used. Municipalities are to inventory all building stock that includes the use of LWC practices. MLFD and the building department should work in collaboration in developing an ongoing list of all building stock, based on the OBC Occupancy Classifications.
- There are many large resorts in the TML that require fire inspections. In some cases, these inspections can take days to complete including the paperwork afterward. MLFD should review the time it takes to complete these inspections, which may identify the need for additional resources to be deployed in the completion of these inspections.

3.3 Simplified Risk Assessment and Community Growth

A Simplified Risk Assessment (SRA) was completed by the MLFD Fire Prevention personnel in 2021. This is a less comprehensive document that was required by the OFMEM prior to the introduction of the CRA program. With the SRA being a recent document, much of its information is still valid and worth reviewing. Some of the notable comments listed in the SRA document include:

Demographic Profile:

- The Township of Muskoka Lakes has a variable population that consists of 6,585 permanent residents with an increase in seasonal residents to approximately 38,000 during the summer months. Approximately 40% of the permanent residents are between the ages of 0-14 and 65 and over.
- The majority of seasonal residents are Canadian citizens, and it is hoped that they are educated to fire risks in their permanent home areas.
- Muskoka Lakes has 9 Summer use camps for youth that house anywhere from 60 to 1000 children between the ages of 6 to 17.
- Seasonal homeowners will often use their residences during the winter months. Generally, these homes are heated with wood or propane. Heating appliances are generally not maintained, as their use is not as frequent.
    - Cottages are frequently rented out to vacationers through various methods and renters are not educated on the use and operations of wood burning or propane fired appliances.

Building Stock Profile:

- There are a number of large old resort buildings with the potential for a large loss to both human life and the economy.
- Muskoka Lumber is an operational milling and manufacturing industrial occupancy with significant fuel load, and it is a large employer of year-around fulltime residents.
- Port Carling has a main street with older style commercial buildings that are connected to each other.
- Bala has a large propane storage facility that is adjacent to the rail line that runs through the town. Numerous mixed occupancies with residential above mercantile in both Bala and Port Carling.
- The Kee to Bala (sprinklered) has the potential for a large loss of life in the event of a fire. The building is an open truss style construction with no fire stopping or flame-resistant construction.
- There are a number of staff housings both purpose built and retrofitted to meet the growing needs of resort and amenities staff.

Past Fires:

- The majority of losses are due to human error or failure to maintain equipment. Through continuing public education and an ongoing inspection program the losses in commercial, residential, and industrial occupancies have been reduced.
- There are a number of fires that are deemed undetermined however, a continuing trend is chimney fires.

The most notable concern is the need for enhanced fire inspection frequency and increased opportunities for public education.

3.4 Community Risk Reduction Plan

Now that a CRA has been completed and all risks have been identified, the process of developing a Community Risk Reduction Plan (CRRP) should be considered. When properly applied, the CRRP coordinates emergency operations with prevention and mitigation efforts throughout the community and at the fire station level. Involvement of fire station personnel is critical for both gathering local risk data and performing activities necessary to implement the CRRP.

Aside from the main benefits to the community, a CRRP can contribute positive impacts on the fire department. A CRRP improves firefighters and emergency responder safety and occupational health, along with reducing line-of-duty deaths. This is due in part to the enhancements in the number of fire inspections and public education events completed, enforcement of the OFC, and the reduction in the number of fires, resulting from these measures.

In addition to firefighter safety, there are several other reasons why departments should begin the process of developing a CRRP, including:

- The presence of new and emerging hazards, that are identified, and the risks managed, which makes the community safer.
- Declining budgets among fire departments and local governments, thereby better resource allocation.
- Rapidly changing community demographics.
- Community engagement.
- May avoid potential ramifications of hazards that were ignored or not fully addressed.
- Better defines the fire department's purpose and value within the community, beyond just fighting fires.

With the completion of the Community Risk Assessment and this Master Plan document. The Fire Chief now has the components needed for the Risk Reduction Plan. By utilizing the information and recommendations found within the CRA and FMP, this forms the foundation of the CRRP.

There are several steps in the development of a CRRP:

Identification and Prioritization – Upon the completion of the CRA in which the various community risks were identified and the priorities determined, the results should be documented for use in the remaining planning process. The document does not need to be complex or complicated, but in a clear and concise format that enables the reader to understand the risks and those that should have the highest priority.

During this process consider the following:

- Why and how the risk occurs and, in some cases, when.
- Who does the risk affect the most and why?
- How is the community and the fire department affected by the risk?
- What about this risk ranks it higher than others?

Develop Mitigation Strategies & Tactics – This requires input with a variety of individuals involved, including those most affected by the risk. Stakeholder involvement is paramount and should always be included in the decision-making processes. It will necessitate decisions to determine what tactics and strategies will be necessary to prevent and/or mitigate those risks with the highest priority.

During the development of the plan, there are five elements that should be included:

- ***Education***: Determining the appropriate type and mix of educational messaging necessary to inform the public and effect behavioural change. More encompassing education through different mediums of social media.
- ***Enforcement***: Identifying whether stronger enforcement is necessary or if newer codes and standards need adoption. Notification of the public on successful convictions through the justice system.
- ***Engineering*** – Determine whether there are engineering or technological solutions to address the identified risk(s).
- ***Emergency Response*** – Changes to the emergency response protocols, SOGs, SOPs, and policies to better meet a specific risk or need. This may require additional resources such as stations, apparatus, equipment, staffing, and/or enhanced levels of training.
- ***Economic Incentive*** – Identifying whether financial incentives will improve compliance or help increase awareness of community needs.

Prepare the CRRP – Once the risks are identified and prioritized and strategies and tactics determined for prevention and mitigation, it will be necessary to develop a written plan.

Implementation of the CRRP – The implementation of the completed CRRP usually involves several steps. The process should include timelines, which can be quick and focused or slow and methodical. The implementation may rely on the fire department, community partners, or a combination of both.

Monitor the Progress, Evaluate Your Findings & Modify the CRRP – The final step involves monitoring and evaluating the effectiveness of the plan and adjusting, as necessary. This will enable the organization to determine if they are achieving their desired goals and/or if the plan is or is not having an impact. Ongoing monitoring allows for plan modifications in a timely manner.

The CRRP is a gateway to the reinvention of the fire service culture. It requires approval and buy-in from Township Council along with vision, and strong leadership to champion needed change and navigate the process. Having a successful CRRP will bring additional resources to the effort through partnerships within the fire department as well as the community it serves. The community-based approach increases public safety because of the collective work within the community to understand, assess, and provide inclusive solutions to community safety issues.

Section 3 Recommendations

Rec #	Recommendation	Estimated Cost	Suggested Timeline
3	That Muskoka Lakes develops a comprehensive Community Risk Reduction Plan that falls in line with the Community Risk Assessment and the Fire Master Plan recommendations.	Staff Time	Short-term (1-3 years) and ongoing

SECTION 4

Fire Department Divisions – Non-Suppression

SECTION 4: FIRE DEPARTMENT DIVISIONS – NON-SUPPRESSION

Within the scope of work noted in the original RFP document, staffing needs was identified as a priority in which EMG was to review the capabilities of existing staffing and identify future needs for each of the divisions including Suppression, Communications, Mechanical, Training, Prevention and Administration.

This section will discuss the following divisions:

- Administration
- Fire Prevention and Public Education
- Training & Education

4.1 Administration Division

A Fire Chief's role, in a large or small fire department, requires regular interaction of council, and senior corporate management. Responsibility for Fire Protection Services found in Part 2, section 2, paragraph 6 (3), of the Fire Protection and Prevention Act, 1997, S.O. 1997, states that "A Fire Chief is the person who is ultimately responsible to the council of a municipality that appointed him or her for the delivery of fire protection services". It is based on this provincial legislation that the Fire Chief needs to communicate directly and regularly with the council of a municipality to satisfy the requirements of the role.

The Administration Division is comprised of senior and administrative staff. In Muskoka Lakes this includes the Fire Chief, a Deputy Fire Chief, Fire Prevention Officer, part-time Training Officer, and an Administrative Assistant. Although this team is doing an admirable job at managing the day-to-day operations of the department.

With the upcoming training and certification requirements to meet NFPA standards for all positions within the Department (being implemented in 2022), the demands on the part-time Training Officer will significantly increase. The additional workload, will most likely require a review of the position and identify the following:

- The part-time Training Officer, will need to become a full-time position, or at the very least, two part-time positions to handle the new legislated training requirements, and
- There will be a need to either increase the administrative support or invest and implement a record management system that all staff can utilize to input their training.

At this time EMG is not recommending more full-time staff, only that with the impending training and certification legislation, the Fire Chief closely monitor the present staffs' ability to manage this increase in administrative record keeping demands.

4.2 Fire Prevention and Public Education

Public Education is the first line of defence in relation to the 'Three Lines of Defence' presented by the OFMEM. The more resources assigned to this endeavour, the more proactive a community and its fire department are regarding fire safety. Fire prevention and public education are the foundation to creating a safe community and this should be the initial focus of a fire service, to create an effective, manageable education and awareness program.

Safety Standards and Enforcement is the second line of the 'Three Lines of Defence', in preventing fires before they begin. Public education, combined with safety standards and enforcement, are the most effective methods of reducing injuries and death associated with fires and associated emergencies.

NFPA 1035 Standard on Fire and Life Safety Educator, Public Information Officer, Youth Fire Setter Intervention Specialist and Youth Fire Setter Program Manager Professional Qualifications (section 3.3.11) identifies fire and life safety education as a "comprehensive community fire and injury prevention program designed to eliminate or mitigate situations that endangers lives, health, property, or the environment."

EMG has reviewed data and daily operations in relations to prevention and public education. It was confirmed that there is an annual inspection and public education program in place. The Fire Chief and Fire Prevention Officer oversee all facets of the program to ensure that the Fire Prevention Division is meeting its goals. The division is staffed with one full-time Fire Prevention Officer (FPO) that reports to the Fire Chief. The FPO oversees all prevention and education activities and sets overall program goals, along with managing all community outreach, and related data analytics. The FPO is the primary investigator for fire origin and cause investigations.

Additionally, all building development plans are examined and reviewed by the FPO. This is a positive risk-management process as the FPO should be involved in this process so that they may be reviewed from a fire protection/response perspective, in conjunction with township staff who are responsible for planning and building and adherence to the Ontario Building.

4.2.1 Code Enforcement/Inspections/Reviews

Muskoka Lakes Fire Department currently has 22 resort and camping/cabin facilities in the township. It is important to note that these facilities involve a significant annual commitment of resourcing regarding annual and bi-annual inspections that take place, often by demand request. Additionally, there are major resorts such as the JW Marriott, Cleveland House, Windermere House, and the Bala Bay Inn which often require more attention than other resorts, given their size and complexity. Currently MLFD is committing significant resources with these resorts to ensure fire and life safety compliance as well as ensure a continued positive stakeholder relationship.

The FPOs hours are generally split between time spent inspecting on-site versus in office time to complete all required documentation. The office hours also include Fire Code research and application, in addition to working with the Chief Building Official and other outside agencies. Should there be outstanding/follow-up inspection orders on a facility site, the hours can easily double. In essence, what should be a total of 10 hours of on-site and records management work, could now be 20 or more hours per inspection file.

With the number of resorts and other types of seasonal facilities, the Spring season is a busy time, often creating a void in follow-ups with other facilities. It is noted that the opportunity to also do proactive public education is not sustainable within the current staff resourcing.

The review of zoning applications is also part of the FPO job profile and responsibilities. Most of the time these do not require a site visit. However, in some cases a site visit is the most practical approach.

Presently, the FPO is only able to conduct fire safety inspections on a request or complaint basis. Even though this does meet the requirements of the FPPA, it falls short of being as proactive in the areas of random and follow up inspections as the department would like to be.

4.2.2 Investigations

The Ontario fire service is mandated to determine the origin and cause of fires. The results of these investigations assist in identifying trends which are used in the development of building and fire codes, public education, and fire prevention initiatives. Typically fire investigation is a part of the FPO's role. The *FPPA* requires the fire department to investigate and determine the origin and cause of all fires. Knowledge from determining origin and cause assists in identifying root causes and possible target groups to better educate the public on fire safety. Another purpose is to ensure fire code compliance (i.e., were there working smoke alarms).

These investigations are often during FPO non-working hours, and the scene is held till the FPO is called in that evening, or the next working day. It is important to note that the current Establishing and Regulating By-Law (ref: 2016-125) does not identify the expectations of fire investigation.

As indicated earlier, the accurate prediction of workload and volume of structure fires requiring investigation is difficult. However, it can be stated that as a community grows it is reasonable to expect that incidents of fires will increase, given the human-factor, causal determinate.

4.2.3 Miscellaneous / Special Projects

The following initiatives are not occurring on a regular basis due to staff resourcing challenges. Currently MLFD is addressing three outstanding issues within the township.

Hydrants (dry and pressurized) and Their Maintenance:

- Fire hydrants, both dry and pressurized. A number of dry hydrants on commercial properties within the township require inspection and updated records. Also, the pressurized systems provided by the District Municipality of Muskoka which the records are challenging, according to interviews conducted with the FPO. Hydrant maintenance and access in winter is also an issue.

Fire Routes:

- There is no fire route by-law in place in the township. This is an issue for response and the FPO is currently working to rectify and get a fire route by-law established.

Means of Egress:

- Municipal buildings have received 26 inspection orders written including three fire stations with no second means of egress meeting the Ontario Fire Code.

4.3 Prevention and Public Education Related Opportunities

After conducting a review of the fire prevention programs, along with comparing recommended industry best practices (such as the NPFA and FUS) and related legislation (the FPPA), EMG has determined that there are opportunities specific to fire prevention and public education that can be implemented to ensure MLFD matches community current needs, while planning for future growth.

4.3.1 Prevention Opportunities

The FPO workload is consistently increasing as MLFD attempts to address the matters of required inspections/enforcement, incident investigations, ad hoc special projects, and public education programming. Given the FMP review and assessment process, there is a need for the Fire Prevention Officer to focus specifically on inspections, enforcement, and reviews.

Through the utilization of the FUS Inspection Frequency Chart (TABLE #2), the Fire Chief can measure requirements to meet inspection benchmarks, developing a plan with what can be accomplished with its present staffing complement, along with presenting options for increasing inspection frequencies.

TABLE #2 FUS Suggested Inspection Frequency Chart

Occupancy Type	Benchmark
Assembly (A)	3 to 6 months
Institutional (B)	12 months
Single Family Dwellings (C)	12 months
Multi-Family Dwellings (C)	6 months
Hotel/Motel (C)	6 months
Mobile Homes & Trailers (C)	6 months
Seasonal/Rec. Dwellings (C)	6 months
Commercial (F)	12 months
Industrial (F)	3 to 6 months

It is acknowledged that the FUS suggested frequency chart can be difficult to address, therefore priority should be focused on the vulnerable occupancies (e.g., nursing homes, retirement homes, group homes, etc.), institutional buildings, assemblies, multi-residential, and industrial buildings. The fire prevention division has made significant efforts to address most of these occupancies.

By continuing to identify the time spent on each project and collating this into approximate baseline times, as this report has attempted to illustrate, the Fire Chief can then use the hours spent as a model figure in applying future initiatives.

The Fire Chief is encouraged to review the number of inspections and associated orders/fines issued on the concept of recidivism; that by which businesses are requiring more inspections, more follow-up, and therefore more time of the FPO, versus those which require minimal assistance or interaction of the FPO.

4.3.2 Public Education Opportunities

The FPO is also the Public Educator and is responsible for running education activities and creating and/or delivering education programs. MLFD is committed to delivering a full array of fire prevention services and public education programs with available resources. With this goal in mind, the FPO has identified high-risk audiences and targeted these for their public education efforts.

To accomplish this, some fire departments have trained suppression staff to conduct inspections or assist in public education. This not only brings more resources to the table but also enhances the level of fire safety awareness by those trained staff. The utilization of existing resources is a cost-effective option for the promotion of fire prevention and public education programs. It also helps to create a more engaged team, by making them more a part of the community fire safety initiatives. Not all volunteer firefighters need to be trained to conduct inspections and/or public education. This can be offered to the members as a voluntary (but paid) option. Alternatively, a part-time position could be considered for the development and execution of public education programming. Utilizing a fully trained and certified staff in this regard would address the importance of proactive education in developing community fire and life safety behaviours.

Numerous partnerships with local businesses, media outlets, and other municipal entities such as the library, have been established that aid in the delivery of this public education programming. MLFD continues to be proactive in this regard, identifying and implementing opportunities for increased effort in promoting public education. It is advisable that increased efforts to leverage social media platforms and the development of partnerships with internal and external stakeholders would support advancement of public safety messaging campaigns.

During EMGs review of fire prevention and public education, both the full-time FPO who was going on paternity leave and the contracted FPO were able to provide an overview of their duties and general time commitments. The following is an example of time spent by the FPO.

<u>Day to Day Duties of the Fire Prevention Officer:</u>

- Fire inspections, upon request and complaint
- Burning complaint follow ups
- Plans examiner and zoning application reviews
- Fire investigations
- Public fire and life safety education
- Review fire safety plans
- Station duties and other items, including incident response.

Special Projects:

- Inspect all municipally owned buildings
- Track and have inspected all dry-hydrants in the township
- Write Operating Guidelines related to fire prevention/inspections as required
- Assist with creating a Fire Route By-Law.

Looking at each task individually:

1. Fire Inspections. These Inspection Orders are broken down as follows:

- 29 Orders towards municipal buildings, all are outstanding
- 23 Orders for Dry hydrants, 21 are outstanding and 2 are closed
- 22 Orders for other building, 10 are outstanding and 12 are closed.

- The outstanding items are simply because of two major factors, one, time available and two, the reality that due to the complexity and the educational factor of working with the occupants, as the high turnover is a challenge, taking more time than it would for the average inspection.
- Generally, these site visits and paperwork are split 50/50 in time, for every hour spent on site is doubled by paperwork and reports at the office. This also must include travel time, to and from the site. Average is 20 minutes each way, this is additional to the inspection and paperwork.

2. Burning Complaints:

- In the first three months of 2022, there were six burning complaints, resulting in six charges under the open-air burning by-law, two of these resulted in trucks responding and fire calls being generated. Meaning significant time from both suppression staff and as well as the FPO working with By-law, on average of two hours per complaint.

3. Plans Examiner and Zoning By-law:

- MLFD is required under Part 3 of the building code to be involved with a number of building and zoning permit requests. The FPO works with the Chief Building Official and their team, sometimes daily to accomplish this. Muskoka Lakes has a lot of buildings that require water supplies to be kept on site, meaning tanks and dry hydrants, that must be inspected, which is tasked to the FPO.
- This does not include season tent applications for assembly occupancies, which generally occur in Spring and Summer.

***Note**: based on 2018 statistics, the municipality had 1205 building permits issued. If we are involved in all applications, we could be looking at 361.5 hours per year, at 20 minutes per review, as the potential is real as this workload will only increase.*

4. Fire Investigations:
    - In the past few months there were five fire investigation, which resulted in 34 hours of work by the FPO (at an average of 6.8 hours per investigation).

5. Public and Fire Life Safety Education:
    - Though every inspection is really an education as well, the reality is there was little or no time available to conduct any real formal education during normal workdays.

6. Review Fire Safety Plans:
    - This is addressed separately to the plans examine and zoning duties. In the first few months of the year, the FPO was involved with the review of six fire safety plans, on average two hours each time: 2 schools, 2 assembly occupancies, and 2 hotels.
    - There are 22 resorts in the township, 18 will likely require fire safety plans, as well as the 10 buildings owned by the municipality, requiring review by the FPO, annually.

7. Station Duties, including Incident Response:
    - During the workday, the FPO is also expected to carry out some station duties. And attend any general staff meetings.
    - Incident response, while working at MLFD, I responded to all commercial fire alarm activations, during regular business hours, and any major events, covering for the management team if unavailable. Acting as a fire officer or incident commander and conducting operations. This was an average of 2 hours per week, over 15 weeks, outside of fire investigations.

Ultimately it was noted that staff resourcing requirements will increase as residential, resort and commercial businesses grow over the coming years. As such, MLFD should move towards increasing the fire prevention division to two full-time staff. This can be accomplished in increments:

- Start with the hiring of a part-time person for 20 hours a week who can take on the role of public education. As workloads increase,
- The next stage would be to increase the public education position to full time based on the workload and needs of the community.

- The timeline for this implementation will be based on analysis of the activities of the PFLSE and increased demands as monitored and identified by the Fire Chief.

4.4 Residential Fire Sprinklers and Monitored Fire Alarm Systems

Fire sprinklers have been around for more than a century, protecting commercial and industrial properties and public buildings. What many people do not realize is that the same life-saving technology is also available for homes, where roughly 85% of all civilian fire deaths occur.

The NFPA, along with the Ontario Association of Fire Chiefs, are strong supporters of residential sprinkler systems to reduce the risk to life and property from fire. In a recent NFPA on-line article, it was noted that because fire sprinklers react so quickly, they can dramatically reduce the heat, flames, and smoke produced in a fire. Properly installed and maintained fire sprinklers help save lives, reduce damage, and make it safer for firefighters.

Facts about home fire sprinklers

Unfortunately, due to the lack of Canadian statistics, we must rely on American statistics. However, since there are so many similarities in building construction, the statistics are an accurate reflection of the Canadian experience.

Automatic sprinklers are highly effective and reliable elements of total system designs for fire protection in buildings. According to an American Housing Survey, 10% of occupied homes (including multi-unit) had sprinklers in 2010-2014, up from 4.6% in 2009.

Source: U.S. Experience with Sprinklers[4]

- 85% of all U.S. fire deaths occur in the home.
- The civilian death rate of 1.4 per 1,000 reported fires was 81% lower in homes with sprinklers.
- The civilian injury rate of 25 per 1,000 reported fires was 31% lower in homes with sprinklers. Many of the injuries occurred in fires that were too small to activate the sprinkler or in the first moments of a fire before the sprinkler operated.
- The average firefighter injury rate of 13 per 1,000 reported home fires was 79% lower where sprinklers were present.
- Where sprinklers were present, flame damage was confined to the room of origin in 97% of the fires compared to 74% of fires without sprinklers.

[4] NFPA report - U.S. Experience with Sprinklers, Accessed April 15, 2022, https://www.nfpa.org/News-and-Research/Data-research-and-tools/Suppression/US-Experience-with-Sprinklers

- In 2021 some fire safety statistics[5] were released which includes:
- Fire sprinklers reduce the risk of death in a home fire by 80%.
- The risk of property loss is reduced by 70% in homes with sprinklers.
- A sprinkler installation typically costs 1-2% of a home's total construction cost. In Canada it has been found that due to the high costs of building materials due to the pandemic and pushback from some trades, the estimated costs vary from $5 to $10 / sq. ft.
- Fire sprinklers activate on an individual basis.
- Fire sprinklers release less water than fire hoses.

The Home Fire Sprinkler Coalition (HFSC) is a leading resource for accurate, non-commercial information and materials about home fire sprinklers for consumers, the fire service, builders, and other professionals.

By working with the developers and the public in promoting the installation of home sprinkler systems, the MLFD would be demonstrating a pro-active approach to educating the public on another viable option for homeowners to help reduce the risk in the event of a fire. As such, it is recommended that MLFD investigate this safety initiative as part of their fire prevention and public education initiatives.

Presenting a demonstration at community events would assist in driving the safety factor of having sprinklers in the home. A practical demonstration identifying the advantages of sprinklers will provide a very graphic visual image of their effectiveness.

Another key component to saving lives and property is early fire detection and monitoring. If the residents are not at home when a fire occurs, it may be some time before it is noticed and reported to the fire department. By that time, there could be significant fire involvement resulting in high property loss. The continuous monitoring of a fire alarm system by a 3rd party will ensure constant surveillance of alarm systems and the prompt notification of an alarm to the fire department.

4.3 Training and Education Division

A fire department can only provide effective community safety through the delivery of service levels if firefighters are properly trained and equipped to deliver those services. As a fire

[5] The Latest Fire Safety Statistics - Stay Safe in 2021 (safeatlast.co), Accessed April 15, 2022, https://safeatlast.co/blog/fire-safety/

department grows with the expanding and/or changing needs of the community, delivery of necessary services also expands.

The industry standards and legislation are intended to improve the health and safety of firefighters. The goal is to meet the standards and industry best practices for a fire department's training program. This proactively addresses the risk management actions and competencies of the fire department. It is important to note that volunteer firefighters (paid-on-call) must be provided with the same minimum training certifications and equipment as any full-time firefighters are required.

NFPA 1201, Standard for Providing Fire and Emergency Services to the Public identifies that:

- **4.11.1** The Fire and Emergency Services Organization (FESO) shall have training and education programs and policies to ensure that personnel are trained, and competency is maintained to effectively, efficiently, and safely execute all responsibilities.

The responsibility for fire department training and development typically falls under the scope of the Chief of Training/Training Officer. This position is being currently assigned the station District Chief which is not a full-time position. Additionally, the training needs of Muskoka Lakes Fire Department (MLFD) are resourced and supported by approximately 14 training instructors.

EMG found MLFD to be adequately ensuring that the minimum levels of technical training are being met. There are good lesson plans and syllabus framework along with good quality control of the training instructor cadre.

The training and overall staff development funding resources are currently (ref: MLFD 2022 approved budget) at $95,000 specifically for technical training and $37,500 for staff development, for a training and development budgeted funding total of the $132,500. The current funding component of MLFD training and development resourcing places MLFD in a positive position, given the significant importance of training in terms of competent service delivery, health & safety, as well as risk management for the township. EMG notes that MLFD administration and Muskoka Lakes Council are supportive and proactive within this level of funding.

The fire department utilizes and continues to enhance its training programs to the NFPA standards. The Ontario Fire Marshall (OFM) has moved towards mandatory NFPA-based training and certification for all firefighters in the province. Adoption of the NFPA standards will strengthen and support the MLFD training program as well as ensure that MLFD complies with OFM mandates. NFPA Standards believed to be aligned with the mandatory training and certification are as follows:

- *NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*.
- *NFPA 1001 Standard for Fire Fighter Professional Standard Qualifications*.
- *NFPA 1002 Standard for Fire Apparatus Driver/Operator Professional Qualifications.*
- *NFPA 1006 Standard for Technical Rescue Personnel Professional Qualifications.*
- *NFPA 1021 Standard for Fire officer Professional Qualifications*
- *NFPA 1031 Standard for Professional Qualifications for Fire Inspector and Plan Examiner.*
- *NFPA 1033 Standard for Professional Qualifications for Fire Investigator.*
- *NFPA 1035 Standard on Fire and Life Safety Educator, Public Information Officer, Youth Firesetter Intervention Specialist and Youth Firesetter Program Manager Professional Qualifications.*
- *NFPA 1041 Standard for Fire and Emergency Services Instructor Professional Qualifications.*

Factors to Consider in the Delivery of Training

There are three over-arching factors when delivering training to firefighters:

1. **Initial training**: The training required to meet the competencies identified by the AHJ.
2. **Refresher (maintenance) training:** Training that is ongoing and keeps firefighters current with their skills. This ongoing training is provided to firefighters and officers to ensure that previously acquired competencies are not lost or diminished with lack of use.
3. **Advanced training**: The training used to develop firefighters for the promotional process and succession planning. Courses and training are offered as part of their developmental process to prepare them and typically requires more time and effort on behalf of the firefighter. This training generally includes formal fire officer, fire prevention, fire investigation and fire education programs.

To verify, in a formal manner, that the Training Division is meeting the related NFPA program recommendations, the Training Division must identify the following:

- What training programs are required in relation to the services that the fire department is providing.
- The number of hours that are required to meet each of those training needs.
- Resources required to accomplish this training including training instructor
- Joint partnerships with bordering fire departments and private organizations that can be entered into to achieve the training requirements identified by the Training Division.
- An annual program outline, at the start of each year, to be presented to the Fire Chief, with noted goals and expectations, which are based on current and identified future

needs of the fire department, measured and reported-on regarding completion success rate at the end of each year.
- Robust and accessible training records.

With the implementation of the OFMEM's training and certification standards, it would be beneficial to have a full-time training position to ensure that MLFD will be able to meet the current and future demands (that will come in the form of new regulations and certification standards). Along with these OFMEM training requirements, community growth, increase in call volumes, increase in training requirements, and training records management will also add to the workload of the present part-time Training Officer. Therefore, the present position should be transitioned to a full-time position of 35 to 40-hours per week within a suggested timeline of the next one to two years. This will help the department in meeting the OFMEM training and certification requirements.

Consideration (for this full-time Training Officer position) would have to be given not only to the general hours of work, but also in relation to such things as:

- If expected to respond to calls outside of scheduled hours of work
- Evening training programs and practical evaluations
- Attendance at outside courses

4.1 Training Related Opportunities

EMG has investigated and reviewed the status of the current training records management, specialties training as well as current policies and procedures. EMG has found that there are opportunities in all three areas in which to address and ensure MLFD is well positioned for the next 10 years.

4.1.1 Training Records Management

It is the responsibility of the fire department to maintain detailed training records and to have them readily available upon request by the Ministry of Labour and the Workplace Safety and Insurance Board. The department presently utilizes FirePro2 – Fire Department Management Software to record training data for all firefighter staff.

The current records management system (RMS) is not providing for the needs of MLFD. Historical records are generally non-existent electronically. Additionally, inputting of any training records process includes hand-written documents, form templates that must pass through several individuals before being entered into the current system. This is problematic as it is both inefficient as well as provides for several human-error opportunities to potentially call

into question the accuracy and timeliness of the records. Ideally, the process for training records should be entered by the staff that conduct the training, either the Training Officer or suppression officer(s). This ensures all training, scheduled and ad hoc, is captured regularly and in a timely fashion. Furthermore, this process ensures that should training records need to be reviewed, confirmed, or amended, then staff training records are easily accessed. This is not the current state regarding records management system and records entry processes. Whether the current RMS is not the appropriate solution or whether it is a matter of staff familiarization and systems training required for all those involved. This is an opportune time for MLFD to review, assess, and determine if the current system or a different system will meet the needs of MLFD for the next decade.

EMG recommends that consideration be given to a more robust and efficient process of training records entry is required and the opportunity that consideration for Officers to provide initial training records entry. This may include research and training records management system demonstrations to determine which records management system(s) would work best for MLFD.

4.1.2 Establish and Regulating By-Law

The By-law to Establish and Regulate a Fire Department # 2016-125 was examined and reviewed to ensure training reflects the expected services provided. In relation to training matters, particular attention was given to Sections 10 (Administration), 11 (Fire Prevention & Public Education), 12 (Emergency Operations), and 14 (Training and Staff Development). These are service delivery duties and responsibilities that MLFD needs to ensure complete levels of training competency. Section 12 (Emergency Operations) indicates MLFD responds to special technical and/or rescue services. Generally, MLFD is compliant in training requirements to meet the expectations of service delivery as per the by-law. To ensure effective risk management of firefighter health and safety, as well as ensure industry best practices are followed[6], this would be an opportunity to review all specific special services to ensure training plans capture all response and equipment needs. And that all procedures and guidelines relating to these services are in place.

4.2 Training Facilities

Even though a great deal of training can be accomplished through video training, in-class training and even some hands-on training at the fire station. There is a need for actual live fire training by all the suppression staff. Unfortunately, MLFD lacks a full sized/comprehensive

[6] ontario.ca/document/firefighter-guidance-notes, accessed on 25mar22.

training facility to conduct regular hands-on programs, such as live fire training and other specialized programs that require more training props outside of those available at the fire station.

While the FD does not have a training centre within its municipal boundaries, MLFD has made significant utilization of the alternative option of the Southwest Fire Academy, approximately one hour away in Waubaushene. They have also worked with the Huntsville-Lake of Bays fire department to utilize their training facility. But due to a re-evaluation of offering the facility as a regional training centre, all outside training opportunities have been put on hold until the Town's review is completed.

***Note**: EMG was made aware that as of July, the Huntsville-Lake of Bays training facility will re-open for other departments to use the facility for live fire training. As such, MLFD should investigate opportunities for ongoing use of this facility.*

These facilities offer MLFD the ability to train and practice on a wide range of training programs as well as ensuring all new firefighters receive NFPA Firefighter I and II certification. Having these option ensures that MLFD continues to be successful at confirming NFPA-based training and certification is met. As always, the cost benefit comparison of utilizing an external, third-party training centre, versus opportunities to training internally are important to provide a fiscally sound fire department operation.

The cost of designing, developing, and maintaining a training centre can be cost prohibitive for a community like the Township of Muskoka Lakes. Many smaller and mid-size departments have opted to purchase a mobile training unit that has multi-training capabilities. The advantage of having access to such a unit is that it can be parked at a fire station and does not require a full site-specific yard/compound to use. Another advantage of such a unit is that it can be moved between fire stations or even rented out to other communities on a scheduled basis as a method of revenue generation.

The cost of these units can range greatly based on if it is purchased through a vendor or is an in-house design. The advantages of purchasing from a vendor is that all structural and engineering approvals have addressed. The unit noted in the following photo is approximately $500,000.00.

The range of building such a unit can range from approximately $100,000.00 to $500,000.00. Brant County Fire Department recently purchased a used unit for less than $100,000.00 and may be a good source for the MLFD Fire Chief to contact. Whether it is a used, rented or wholly purchased unit, the overall goal is to ensure that the firefighters are provided with live fire training on an annual basis.

FIGURE 3: Example of Live Fire Training Unit – Propane Powered

4.2.1 Small-Scale Training Facility

As an alternate solution mobile training unit, there is also the possibility of a "public-private" partnership that may be possible where funding is secured between the Municipality and third-party agencies that have a vested interested in fire suppression training.

A growing trend for training facilities is the use of shipping containers (also called sea-cans) due to the ease and flexibility of modifying the shipping container to design a facility that meets the NPFA 1402 Standard on Facilities for Fire Training and Associated Props**.** The use of shipping containers allows a fire department to custom design a facility that specifically meets their needs and allows expansion at a low cost in the future.

A two or three-storey structure for ladder training and firefighter emergency exiting such as bail out procedures from a second storey window can easily be accommodated with a shipping container training structure. A propane fed system can provide environmentally friendly fires for suppression and advanced training in fire flow behaviours. The designs are limitless in terms of what a department wants to incorporate into the facility and an analysis of what the fire department requires must occur to ensure that taxpayers' dollars are spent in the most efficient and cost-effective manner. While considering the possibility of new fire station locations, it may be cost-effective to build a small-scale training facility at the same time while ensuring the necessary space is considered for this new facility.

The fire department that responds to multi-storey structures must have a training facility that at the very least be a two-storey structure with preference being at least three or more storeys. A two-storey structure can be designed to replicate a modern apartment floor plan for ladder, search and rescue and emergency bail out training. A new training facility must have concrete pads for auto extrication, HazMat training, and a car fire prop. Based on some of the resort buildings within the Township, having a multi-storey training facility is required.

Note: *Prior to the building of such a facility, the* Fire Chief *would need to ensure that all environmental requirements are met by the contract. This could include the installation of proper run-off, catchment systems for contaminated water, and a properly engineered foundation for the facility.*

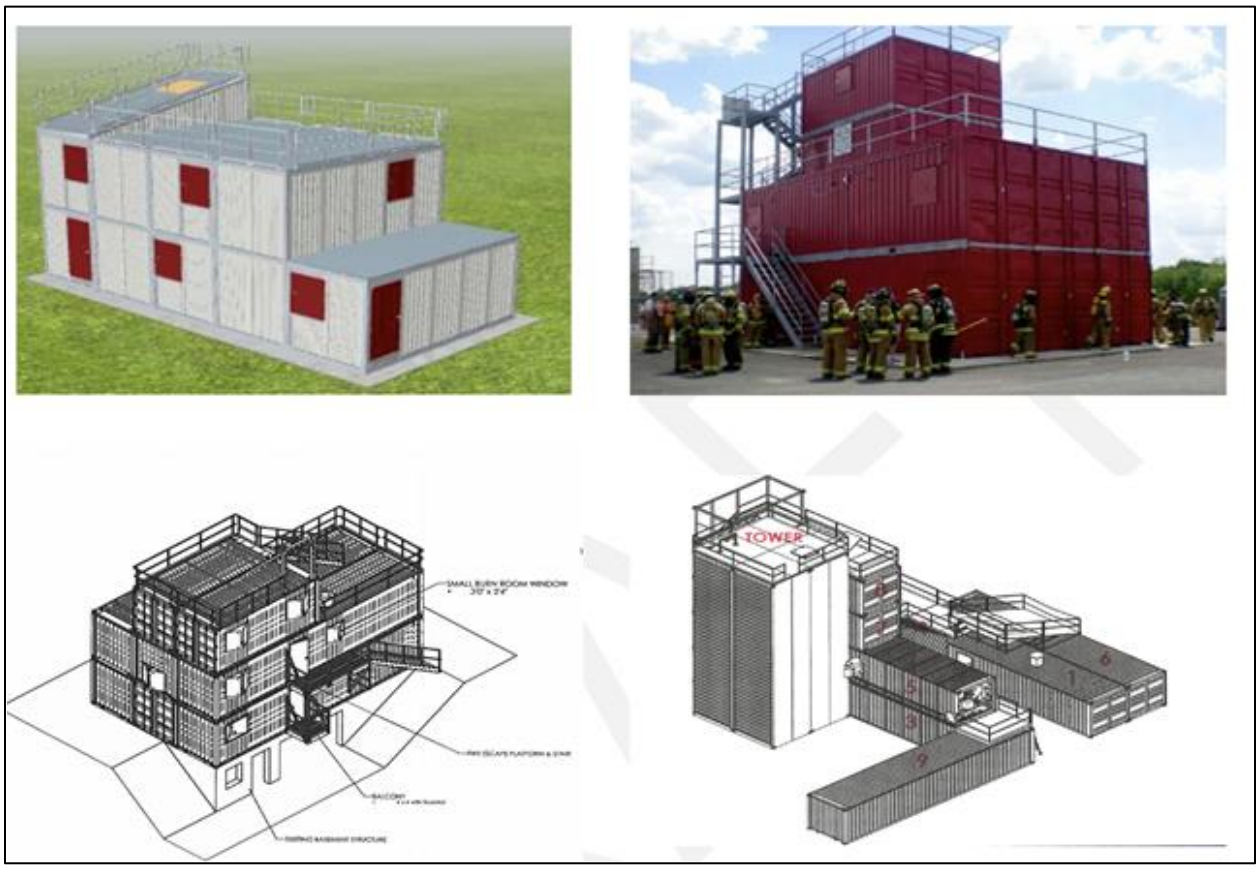
The benefits of the hands-on practical component of a small-scale training facility are numerous as firefighters can develop new skills, maintain existing skill sets and gain confidence in equipment and tactical strategies. The practical training improves firefighter safety and reduces work related injuries. Live fire burn training is an invaluable training tool to improve a firefighter's skills and confidence when facing heat, smoke and understanding the science of fire flow paths.

An often-overlooked aspect of a training facility is building situational awareness in fire officers. The fire officer is responsible to minimize the loss of life and property and to ensure that firefighters on scene are safe. A fire officer must conduct a rapid assessment of the situation during times of stress and while countless bits of information are bombarding the Officer. The ability to make good decisions is based upon Recognition Primed Decision Making (RPDM) process. These factors are of key importance for the fire department as the number of structure fires is low volume and regular exposure to live fire training ensures that firefighters and officers can maintain their skills.

The key points for supporting a new training facility for the fire department include the benefits to firefighters as they develop and maintain skills, and to officers as they gain new situational awareness through continuous exposure to real life scenarios.

A new small-scale training facility will vary in price from $200,000-$700,000 depending upon the options that meet the needs of the fire department.

FIGURE #4: Training Facility Examples



A well-designed small-scale training facility that meets the needs of the fire department will have many benefits that include:

- A satellite centre that can offer certified NFPA 1001 firefighter related training as well as specialty rescue skills in NFPA 1006 and Driver/Operator as per NFPA 1002.
- A significant cost savings for the FD as they can provide improved training for all volunteer firefighters without them having to travel.

4.2.2 Live Fire Training

The purpose of live fire training is to provide realistic fire training evolutions under safe and controlled conditions. Live fire training evolutions are intended to simulate the actual fire conditions that a firefighter may encounter such as fire spread, high heat, humidity, restricted vision, and smoke conditions. This training must comply with NFPA 1403, *Standard on Live Fire Training Evolutions*.

The current editions of the NFPA Professional Qualification standards require fire service members to "remain current" with the knowledge and skills related to their qualifications or

certifications. This need for knowledge and skills proficiency has been expressed in various ways in the NFPA Professional Qualifications and Training standards for at least a decade. Advancements in fire science reveal that continuing education in the fire service goes beyond maintenance of initial skills and core competencies. Continuing education is necessary to ensure that firefighters are current with changes in suppression and ventilation techniques, building construction, fire behavior, personal protective equipment, firefighter health and safety.

As such, Industry best practices indicate that firefighters should be participating in live fire training exercises at least annually. This type of hands-on training and exposure to heat and smoke conditions should be considered a mandatory component of the fire department's comprehensive training program.

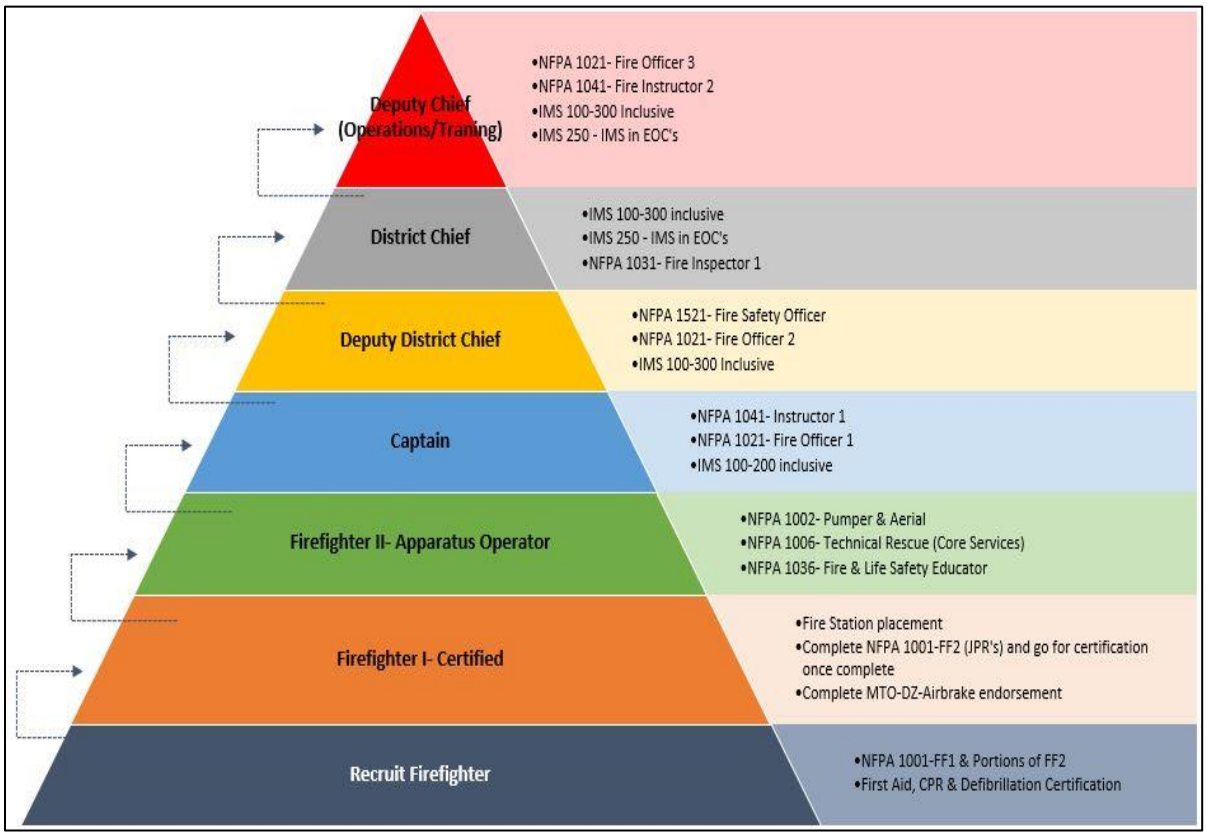
EMG generally recommends that all firefighters receive live fire training on a regular basis. At a minimum, all recruit firefighters receive during initial training phase and incumbent firefighters receive live-fire refresher training, assuming they have received live-fire training previously.

In consideration of above, EMG recommends consideration of a training facility/mobile training unit that provides live-fire and other training opportunities internally. The other option is to secure the use of an outside facility on a regularly scheduled basis to ensure that all firefighters are provided with this critical life saving training. Such a facility could also be rented out to other fire departments, which could create a revenue investment for the Township.

4.3 Staff Development

For staff to obtain the necessary knowledge, skills, and experience it is recommended that a clear understanding of how the progression through the ranks should occur. With the adoption by the OFMEM of the NFPA standards in 2013 (Communique 2013-04), the training program and succession path should be clearly outlined by the organization for current and proposed positions. It is the sole responsibility of council as the authority having jurisdiction (AHJ) to determine the level of training, qualification and or certification of its firefighters and officers at each of those positions. These decisions would be based on information provided by the Fire Chief.

FIGURE #5: Example of Training Standards per (Rank) Positions



The following positions and suggested level of training should be implemented by the fire department to ensure that all fire personnel are being training and certified to the following levels.

4.3.1 Recruit Firefighters

New firefighters are hired by MLFD and are required to complete a theoretical and practical program covering all elements of the NFPA 1001 – Firefighter I, as well as elements of NFPA 1001 – Firefighter II, (Auto Extrication) – specifically, along with First Aid, CPR and Defibrillator Certification. Fortunately, even with the absence of a live fire training facility, the new firefighters have opportunity to complete Live Fire Training in the recruit program. These recruit firefighters will be registered and complete certification to NFPA 1001 FF I. Firefighters are assigned to the fire station and over a period of time will complete Job Performance Requirements (JPRs) from NFPA 1001 – FF II.

4.3.2 Firefighters to NFPA 1001 – FF II

Newly certified Firefighters are given station assignments and are answering alarms according to operating guidelines and procedures. Over the next while, the firefighters complete

remaining job performance requirements (JPR's) from the NFPA 1001 – FF II standard, will be registered and complete certification to NFPA 1001 FF II. Individuals who have been hired require the acquisition of a MTO – DZ – Airbrake Endorsement if the firefighter did not already have the license. Experience in driving a firetruck to non-emergent alarms should be encouraged to gain apparatus knowledge and familiarity.

4.3.3 Firefighter II to NFPA 1002 – Fire Apparatus Driver/Operator, Specialized Services Training & NFPA 1035 - Fire & Life Safety Educator

Emergency response personnel who drive and operate fire apparatus shall obtain the general knowledge, skills, and JPRs addressed for each level or position of qualification. It is industry's best practice for emergency response personnel who drive and operate fire apparatus to remain current with practices and applicable standards and shall demonstrate competency on an annual basis. All firefighters who drive and operate MLFD apparatus need to complete certification of the NFPA 1002 – Fire Apparatus Driver/Operator Standard.

Additional core services provided by firefighters include specialized services such as water and ice rescues, hazardous materials responses, as well as some technical rescues. It is imperative that the training programs properly prepare firefighters to safely respond to the level of service identified by the AHJ. The firefighting program should also incorporate the NFPA 1072 – Hazardous Materials/ Weapons of Mass Destruction Emergency Response Professional Qualifications (Chapter 4) & NFPA 1006 – Technical Rescue Qualifications (Chapters 5-12, 16 & 22) into the lesson plans, drilling plans and operational guidelines. Firefighters shall demonstrate competency of these skills determined by the AHJ on an annual basis.

Educating the public about fire safety is a responsibility of staff and it is important that firefighters receive a general understanding of how to deliver educational programs to the residents by using the NFPA 1035 - Fire and Life Safety Educator Standard. The recommended training program shall provide a theory component to firefighters so they can demonstrate the ability to coordinate and deliver existing educational programs and information.

4.3.4 Captain

The position of Captain for the fire department is one that represents the first level as a supervisory position within the organization. With this position comes great responsibility, tactical leadership, and proven ability to meet and exceed expectations. A superior level of knowledge and experience in fireground operations, delivery of training programs and ability to supervise a platoon of firefighters is all encompassing. There may be times where a captain may need to assume command of an incident in the absence of a senior officer.

MLFD has historically used different third-party agencies for certification in training and EMG suggests that this practice continue as it provides more options in terms of costs and program delivery. For qualification at NFPA 1021 - Fire Officer Level I, the candidate shall meet the requirements of Fire Fighter II as defined in NFPA 1001, Fire Instructor I as defined in NFPA 1041, and complete the job performance requirements of the NFPA 1021 standard.

As a pre-requisite for certification to NFPA 1021 – Fire Officer Level I require the completion of the NFPA 1041 – Fire Instructor Level I. A fire and emergency services instructor who has demonstrated the knowledge and ability to deliver instruction effectively from a prepared lesson plan, including instructional aids and evaluation instruments; adapt lesson plans to the unique requirements of the students and AHJ; organize the learning environment so that learning, and safety are maximized; and meet the record-keeping requirements of the AHJ.

Suggested Training Opportunity for Consideration:

For the position of Captain, emergency management training should start with IMS-100 Introduction to the Incident Management System (IMS) for Ontario and IMS-200 Basic Incident Management System for Ontario (refer to Section 8 Emergency Management for additional comment regarding Emergency Management training).

4.3.5 District Chief

The position of District Chief for MLFD is one that represents the third level as a supervisory position within the organization. With this position comes the greatest responsibility at the district chief level. Working with the Fire Chief and/or the deputy chief with strategic leadership in mind he/she provides oversight, status updates, repair needs and recommendations to improve operations, training, apparatus and equipment and station needs. While this position historically has not been overly involved in fire department decision making, EMG believes that there is great opportunity with the establishment of a Fire Leadership Team.

Suggested Training Opportunity for Consideration:

The position of District Chief, emergency management training, continue with IMS 250 – IMS in EOCs and that all District Chiefs acquire NFPA 1031 – Fire Inspector I certification.

4.3.7 Deputy Fire Chief

The position of deputy Fire Chief is one that would represent the fourth level as a supervisory position within the organization with having oversight of two divisions and representation on the fire leadership team. This new strategic leadership role would focus on department training

development and delivery, district operational support while reviewing department data analysis, and operational guideline development and maintenance.

NFPA 1021 – Fire Officer III is focussed on Human Resources Management, Community and Government Relations, Administration, Inspection and Investigation, Emergency Services Delivery, Health and Safety and Emergency Management. EMG believes this level of education is a perfect fit for this level within the organization.

As a pre-requisite for certification to NFPA 1041 – Fire Instructor Level II requires the completion of the NFPA 1041 – Fire Instructor Level I. A Fire Instructor II develops the training program, assigns the program elements to those who are delivering the material, provides the necessary resources, staff, facilities, and tools while providing a timeline for this delivery. The deputy Fire Chief would also develop and recommend a training budget that clearly states the training goals for the FD. This level of training is essential for this new proposed position.

EMG recommends that MLFD adopt the educational progression plan outlined. The proposed training programs and succession path should be supported for current and proposed positions with the following suggested training:

- The position of captain, emergency management training should start with IMS-100 Introduction to the Incident Management System (IMS) for Ontario and IMS-200 Basic Incident Management System for Ontario.
- District Chief position acquire NFPA 1521 – Fire Department Safety Officer certification.
- The position of District Chief, emergency management training continues with IMS 250 – IMS in EOCs.
- The position of District Chief, emergency management training further continues with IMS 300 – Intermediate Incident Management System.

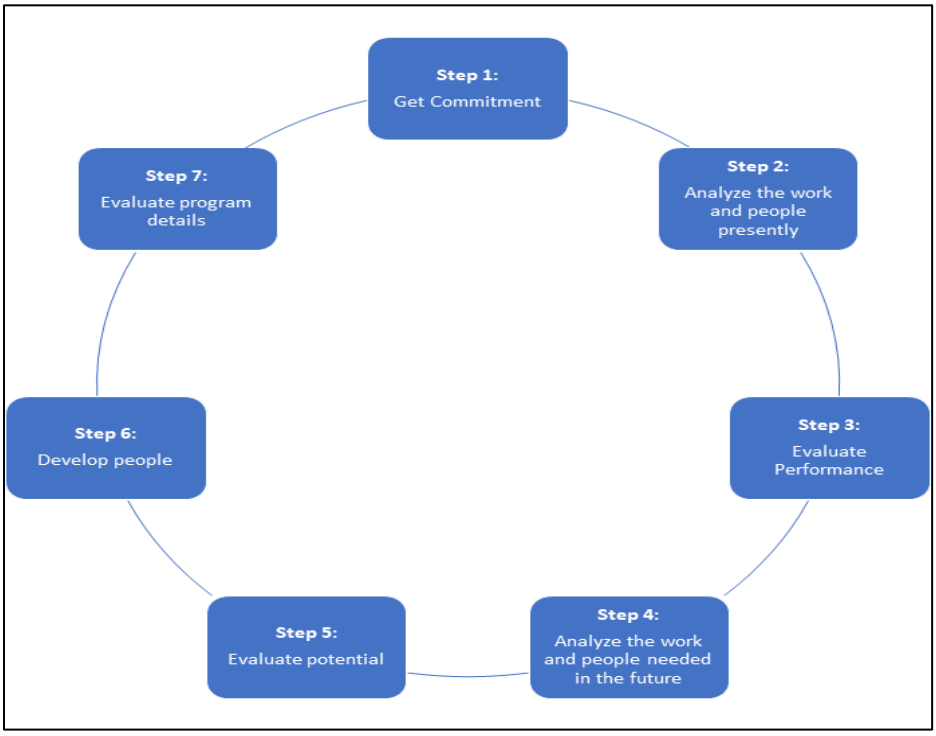
4.4 Succession Planning

Succession planning is the process of identifying key roles in a fire department and determining the level of readiness that potential members possess to fill these roles. Rarely will a fire department prepare a single individual for a particular role, but instead will prepare several in the spirit of building a talent rich pool in the fire department and promoting the best candidate for the department.

Succession planning creates employee involvement as training, mentoring, education, and coaching are utilized to prepare the employee. A succession plan takes time and resources and creates the foundation for members to possess the knowledge, skills, and abilities to be promoted and take on formal management and leadership roles in the fire department.

A key component of succession planning is recognizing and providing the necessary education, training, mentoring, and coaching to those that do want to be promoted to a higher-ranking chief officer position. EMG recommends that succession planning become a priority for a fire department, if not already in-place.

FIGURE #6: Effective Succession Planning Steps[7]



The following steps outline Rothwell's roadmap to successful succession planning.

Step 1: Get Commitment

Fire management and the Human Resources (HR) staff must agree upon why succession planning is necessary for the fire department and how to implement training components to prepare personnel for future chief officer promotional opportunities in the department. A commitment must be made by the department in terms of budget allocation and a commitment must be made by individuals that they are willing to put in the time and energy into their education and training.

[7] Effective Succession Planning (fourth edition) Author: William J. Rothwell https://hcmindonesia.files.wordpress.com/2012/12/9b-successionplanhandbook.pdf, Page 83-85

Step 2: Analyze the work and people

Ensuring that job descriptions identify the required competencies and qualifications for chief officer positions.

Step 3: Evaluate performance

The ongoing evaluation of the individuals, what the results are that they are expected to achieve, and the competencies and behaviours they are expected to demonstrate.

Step 4: Analyze the work and people needed in the future

Fire department management staff must anticipate the future qualifications and needs of the department based upon its strategic objectives and the competencies required to meet those objectives. This will require regularly scheduled reviews of the qualifications and competencies required for the chief officer positions.

Step 5: Evaluate potential

The assumption cannot be made that successful performance in the past guarantees successful performance in the future. The department must look at objective ways to evaluate individuals to determine how well they will function at a higher level of responsibility.

Step 6: Develop people

This step is carried out by a formal career development plan that identifies what individuals must do in terms of education and training to increase their chances of success for promotion in the future.

Step 7: Evaluate program results

The success of the program is indicated by the support and positive results in terms of budgetary program support, participation, and successful promotions.

A well thought out and implemented succession planning process takes time and resources to develop, but the result is the development of a fire department's talent pool with members actively participating in their own career development. A formal organization development program can be created that identifies technical competencies and core (corporate) competencies and qualifications for Fire Chief, Deputy Fire Chief, District Chief, Captain, and Firefighter and be formally implemented.

As noted in the following excerpts, three international organizations are in full support of succession planning and career development. This is for both volunteer and career personnel.

- The International Fire Service Training Association (IFSTA) stated, *"Successful chief officers depend upon their experience and their experiences to guide them. Their experience can be defined as the positions they have held while their experiences are the things they have done and the situations to which they have been exposed. Experience and exposure are not the same thing. Seniority does not necessarily equate to experience."*[8]
- The International Municipality/County Management Association (ICMA) notes that the work experience is often conflated with tenure or "time on the job." While seniority generally offers more opportunities for exposure to different challenges, perhaps a better focus is on the experiences accumulated by a firefighter during his or her tenure in the department.[9]
- The IAFC recognizes that the fire services training budget is generally focused on front line-level personnel and far less effort is focused on the development of potential officers. As such, officers rarely get the development they need.[10] The IAFC identifies what works well in getting the right experience to individuals that have the ability to learn from experience and identified a new way to look at officer development. Below is the model identified by the IAFC on what works best for the development of employees according to organizational development data.

The dynamics of today's fire service require a high level of education and experience to meet the demands placed upon the position. You cannot implement a career development program without considering education and experience as both go hand in hand.

Based upon the review of the training program and absence of a formal document for successful completion of the fire officer qualifications, it appears that the technical skills have been a focus for the department and unfortunately a gap was created in developing a formal career development plan. This regularly occurs in the fire service as the focus tends to be on prioritizing technical training due to budget limits which results in officer training and career development gaps.

4.4.1 Chief Officer Education

Career, combination, and volunteer departments in Canada are regularly using NFPA 1021 as the standard benchmark for their officers. This has been the general trend for career fire

[8] IFSTA (2014) Chief Officer, Third Edition, p. 29
[9] ICMA (2012) Managing Fire and Emergency Services, p. 266
[10] International Association of Fire Chiefs (2010) Officer Development Handbook

departments for years, but today more volunteer fire departments across Canada are also using NFPA 1021 as their benchmark for officer positions.

The *NFPA 1021 Standard for Fire Officer Professional Qualifications* identifies the distinction of each fire officer as the following:

3.3.4 Fire Officer I-The Fire Officer, at the supervisory level, who has met the job performance requirements specified in this standard for Level I.

3.3.5 Fire Officer II-The Fire Officer, at the supervisory/managerial level, who has met the job performance requirements specified in this standard as Level II.

3.3.6 Fire Officer III-The Fire Officer, at the managerial/administrative level, who has met the job performance requirements specified in this standard for Level III.

3.3.7-Fire Officer IV-The Fire Officer, at the administrative level, who has met the job performance requirements specified in this standard for Level IV.

Currently general job responsibilities for the Fire Chief, Deputy Fire Chief, divisional officer, and firefighter are available in the Establishing & Regulating By-law (ref By-Law 2016-125). Detailed descriptions of roles and expected performance measures need not be identified within the Establishing & Regulating By-law so they can be updated by the Fire Chief and Human Resources as needed without having to bring the by-law back to Council for approval.

Developing job descriptions with a list of the expected minimum technical job competencies and responsibilities, as well as the core corporate competencies and responsibilities, along with continuous professional learning for each of those positions should be outlined to chart the path for succession.

Section 4 Recommendations

Rec #	Recommendation	Estimated Cost	Suggested Timeline
4	The Fire Prevention Officer position focus on inspection, enforcement, and review matters specifically. • A subsequent plan should be developed to identify what other inspections can be reasonably accomplished by the one full-time FPO, and what options are needed to address the other fire prevention related concerns.	Staff time	Immediate (0-1 year)
5	All firefighters be offered the opportunity to become trained and qualified to the NFPA 1035 Public Fire & Life Safety Educator Level I as well NFPA 1031 Fire Prevention Officer, Level I. • And that consideration be given to resourcing Public Education with a part-time dedicated, fully trained, and qualified staff position.	Staff time	Short-term (1-3 years) and ongoing
6	MLFD to work in conjunction with residential developers in promoting the advantages of installing residential fire sprinklers.	Staff time	Immediate (0-1 year)
7	Full-Time Chief of Training/Training Officer position be developed and staffed	$115,000 - $125,000	Short-term (1-3 years)
8	A more robust and efficient process of training records entry is required. This should involve the officer inputting the training. • Officers to provide initial training records entry. • This may include research and training records management system demonstrations to determine which records management system(s) would work best for MLFD.	Staff Time	Immediate (0-1 year)

Rec #	Recommendation	Estimated Cost	Suggested Timeline
9	The Fire Chief to provide a business case to senior administration (only if no other options for live fire training exist) supporting either: • a fixed training facility, or • the purchase of a mobile training unit or a fixed site unit for the purposes of Live Fire Training	$200,000 - $700,000 (mobile training unit)	Short-term (1-3 years)
10	All firefighters receive live fire training annually.	Dependent on facility costs and/or the purchase of a live fire training unit.	Short-term (1-3 years) and ongoing
11	MLFD adopts an educational progression plan. The proposed training programs and succession path should be supported for current and proposed positions with the following suggested training: • The position of captain, emergency management training should start with IMS-100 Introduction to the Incident Management System (IMS) for Ontario and IMS-200 Basic Incident Management System for Ontario. • The position of district chief, emergency management training continues with IMS 250 – IMS in EOCs.	Staff time	Short-term (1-3 years) and ongoing
12	Create a formal organization development program that identifies technical and core competencies for Fire Chief, Deputy Fire Chief, District Chief, Captain, and Firefighter and be formally implemented.	Staff time	Short-term (1-3 years)
13	MLFD facilitate the experience component required as part of the development of individuals and implement a process for individuals that are interested in Chief Officer positions.	Staff time	Short-term (1-3 years)
14	Develop job descriptions with a list of the minimum core job responsibilities. Further, the education and	Staff time	Short-term (1-3 years)

Rec #	Recommendation	Estimated Cost	Suggested Timeline
	experience required for each of those positions should be outlined to chart the path for succession.		

SECTION 5

SECTION 5: FIRE SUPPRESSION, COMMUNICATIONS AND HEALTH & SAFETY

5.1 Fire Suppression/Emergency Response

MLFD is a composite fire department in that is has both career and volunteer firefighters. The career contingent consists of the Fire Chief, Deputy Fire chief, Fire Prevention Officer and part-time Training Officer. The fire suppression division consists of volunteer firefighters dispersed amongst the 10 fire stations. For MLFD, the NFPA standard that relates to the department is 1720 - *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments.* This NFPA standard notes the following operational goals:

- ***Staffing and Deployment.***
    - *4.3.1 The fire department shall identify minimum staffing requirements to ensure that the number of members that are available to operate are able to meet the needs of the department.*
    - *4.3.2* Table 4.3.2 (noted here on page 76) shall be used by the AHJ to determine staffing and response time objectives for structural firefighting, based on a low-hazard occupancy such as a 2000 ft2 (186 m2), two-story, single-family home without basement and exposures and the percentage accomplishment of those objectives for reporting purposes as required in 4.4.2.*

- ***4.6 Initial Firefighting Operations.***
    - *4.6.1 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.*
    - *4.6.2 In the hazardous area, a minimum of two members shall work as a team.*
    - *4.6.3* Outside the hazardous area, a minimum of two members shall be present for assistance or rescue of the team operating in the hazardous area.*

NFPA 1720 section 4.10.3 identifies other types of companies that are utilizing specialized equipment and apparatus, to assist Engine and Ladder companies as per the fire departments SOGs. *"Special operations shall be organized to ensure that the fire department's special operations capability includes the personnel, equipment, and resources to deploy the initial arriving company and additional alarm assignments providing such services."*

The overall goal of any fire department is to arrive at the scene of the incident as quickly and as effectively as possible. If a fire truck arrives on scene in four minutes or less with a recommended crew of four or more firefighters, there is increased opportunity to contain the fire by reducing

further spread to the rest of the structure. Alternatively, if the first fire attack team arrives with fewer than four firefighters on board, it is limited to what operations it can successfully attempt.

Based on studies and evaluations conducted by the National Institute of Standards and Technology (NIST) and the NFPA, no interior attack is to be made by the firefighters until sufficient personnel arrive on scene. The expectation is that a minimum of three firefighters and one officer arrive on scene to make up the initial fire suppression team. This team of four can effectively do an assessment of the scene, secure a water source (e.g., fire hydrant), ensure the fire truck is ready to receive the water and get the fire pump in gear, as well as unload and advance the fire hose in preparation for entry into the structure.

In 2010 and 2020, the NIST in the United States conducted a study on fire crew efficiencies and the tasks that may be completed during a residential structure fire with different sized crews.
The following research questions guided the experimental design of the low-hazard residential fireground experiments documented in this report:

1. How does crew size and stagger affect overall start-to-completion response timing?
2. How does crew size and stagger affect the timings of task initiation, task duration and task completion for each of the 22 critical fireground tasks?
3. How does crew size affect elapsed times to achieve three critical events that are known to change fire behavior or tenability within the structure?
    - Entry into structure?
    - Water on fire?
    - Ventilation through windows (three upstairs and one back downstairs window and the burn room window).
4. How does the elapsed time to achieve the national standard of assembling 16 firefighters at the scene vary between crew sizes?

The experiments were conducted in a burn prop designed to simulate a low-hazard fire in a residential structure described as typical in NFPA 1710. A low-hazard occupancy is defined in the NFPA Standard as a one, two or three-family dwelling and some small businesses. Medium hazard occupancies include apartments, offices, mercantile and industrial occupancies not normally requiring extensive rescue or firefighting forces. High-hazard occupancies include schools, hospitals, nursing homes, explosive plants, refineries, high-rise buildings and other high life hazard or large fire potential occupancies.

The study found that four-person crews were able to complete 22 essential firefighting and rescue tasks in a typical residential structure fire 30% faster than a two-person crew and 25% faster than a

three-person crew.[11] Having crews of four firefighters lessens the risk of injury as more personnel are available to complete assignments.

5.1.1 National Fire Protection Association (1720)

Chapter 4 of the NFPA 1720 Standard identifies the number of response personnel for the deployment of volunteer firefighters:

- Section 4.3.1: "*the Fire Department shall identify minimum staffing requirements to ensure that a sufficient number of members are available to operate safely and effectively.*
    - *In Urban areas (population greater than 386 people per square kilometer/1,000 per square mile), there should be a minimum response of **15 staff within 9 minutes**, 90 percent of the time.*
    - *In Suburban areas (population of 103 - 386 people per square kilometer/500 – 1,000 per square mile), there should be a minimum response of **10 staff within 10 minutes,** 80 percent of the time.*
    - *In Rural areas (population of less than 103 people per square kilometer/500 per square mile), there should be a minimum response of **6 staff within 14 minutes,** 80 percent of the time."*

With a current permanent population of approximately 7,652 within approximately 775 square kilometres, MLFD's communities fall into the rural standard with approximately 10 residents per square kilometer. Even with taking into consideration the approximate 27,000 to 30,000 seasonal residents, this would only bring the population density up to 45 residents per square kilometre. This would require six firefighters on scene within 14 minutes 80% of the time.

Although, the MLFD generally falls within the Rural response time standard under the NFPA 1720 definition, more developed areas like Port Carling and Bala are more densely populated than the rest of the total coverage area. This area would potentially fall under the Suburban population density. Therefore, the Fire Chief should consider developing a Standards of Cover with the previously noted response times in mind. But this Standards of Cover document must consider the needs and circumstances of the community and the level of service that the MLFD can effectively support.

***Note**: To accomplish the National Fire Protection Association Standard, a fire department should endeavour to meet the stated minimum response standards based on responding to a 2,000-sq. ft. single family dwelling. The dwelling (noted in the Standard) does not have a basement or other*

[11] "Report on Residential Fireground Field Experiments," Averill, Jason D. et all, April 2010, https://tsapps.nist.gov/publication/get_pdf.cfm?pub_id=904607

exposures (buildings close enough to each other to create a greater possibility for fire spread). Most homes have basements, however, and these homes are often built close enough to each other to create that "exposure" for potential fire spread, which must be considered by the fire department in its response efforts.

Fire Response Curve:

When considering the response times and needs of a community, the fire response curve (FIGURE #7) presents the reader with a general understanding of how fire can grow within a furnished residential structure over a short period of time. Depending on many factors, the rate of growth can be affected in several different ways, which can increase or suppress the burn rate through fire control measures within the structure. As an example, some older legacy homes, fire spread, and flashover may progress slower than newer homes due to the type of construction and contents. Some older homes may not witness flashover for up to 25 minutes. Whereas newer homes could incur flashover in as little as four minutes within the room or origin.

Note: *Flashover is a situation in which the entire contents of a room ignite due to the extreme high heat conditions. This situation is not survivable by unprotected occupants that may be caught in this type of situation. Even firefighters are at great risk of severe injury and/or death due to the extreme fire and heat conditions within the area of the flashover.*

The response time of a fire department it is a function of various factors including, but not limited to:

- The distance between the fire stations and response location
- The layout of the community
- Impediments such as weather, construction, traffic jams, lack of direct routes (rural roads)
- Notification time
- Assembly time of the firefighters, both at the fire station and at the scene of the incident.
    - Assembly time includes dispatch time, turnout time to the fire station and response to the scene. It should be noted that assembly time can vary greatly due to weather and road conditions along with the time of day.

As illustrated in the following fire propagation diagram the need for immediate initiation of fire suppression activities is critical. MLFD responds to more than just fires; motor vehicle collisions can create a medical or fire emergency that also needs immediate response. Thus, it is imperative to be as efficient and effective as possible in responding to calls for assistance.

FIGURE #7: Fire Response/Propagation Curve

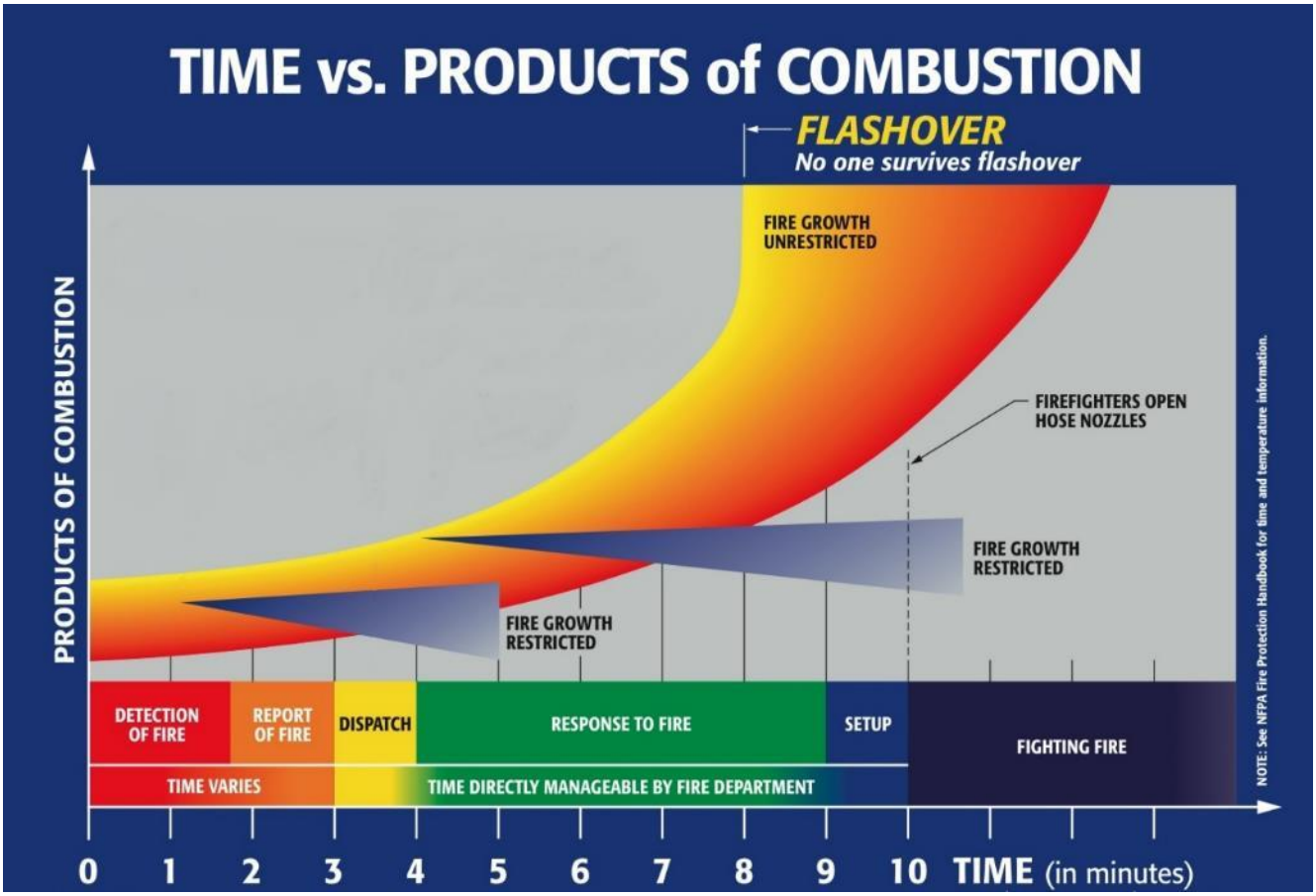


FIGURE #7 notes the following time variables:

- Detection of fire – this is when the occupant discovers that there is a fire. For the purposes of this chart, detection time is noted as being within one to one and half minutes – this could in fact be shorter or longer. The fire may be in a very early stage or could have been burning for quite some time before being detected.
- Report of fire – this is when someone has identified the fire and is calling MLFD for help.
- Dispatch – the time it takes the dispatcher to receive the information and dispatch the appropriate resources.
- Response to the fire – response time is a combination of the following:
    - Turnout time – how long it takes the career firefighters to get to the fire truck and respond or how long it takes the volunteer firefighters to get to the fire station to respond on the fire truck.
    - Drive time – the time from when the crew advises dispatch that they are responding until the time that they report on scene.
- Setup time – the time it takes for the fire crews to get ready to fight the fire.
- Fighting the fire – actual time it takes to extinguish the fire on scene.

The overall goal of any fire department is to arrive at the scene of the incident as quickly and as effectively as possible. If a fire truck arrives on scene in ten minutes or less, there is increased opportunity to contain the fire by reducing further spread to the rest of the structure.

In relation to on scene staffing, based on studies and evaluations conducted by the National Institute of Standards and Technology (NIST) and the NFPA, no interior attack is to be made by the firefighters until sufficient personnel arrive on scene. The expectation is that a minimum of three firefighters and one officer arrive on scene to make up the initial fire suppression team. This team of four can effectively do an assessment of the scene, secure a water source (e.g., fire hydrant), ensure the fire truck is ready to receive the water and get the fire pump in gear, as well as unload and advance the fire hose in preparation for entry into the structure. A team of four also allows for adherence to the recommended "two-in, two-out" rule, referring to the presence of two firefighters inside the structure with two outside ready to go in as back-up.

The Fire Chief does ensure that each station has a complement that allows for an initial full crew response to incidents. To accomplish this, a response protocol is in effect that ensures whenever a station and its firefighters are dispatched to any type of call where back-up may be required, another station is automatically dispatched to the same incident.

5.1.2 Response Data

Based on a review of the response data supplied, along with discussions with the Fire Chief, MLFD is achieving a varying level of success in meeting the NFPA response criteria. By utilizing this information in conjunction with the supplied response maps created by EMG, we can see the effect of road networks, traffic levels, and traffic control systems on response times by emergency responders. As such, MLFD response times should be monitored based on the OFMEM definition, which is from "dispatch time, to time of arrival at the incident"; in other words, from the time the call is received, to when the fire station or pager tones activate, to when the firefighters get on the fire trucks and arrive at the emergency scene location.

Performance measurements that the fire department should monitor include:

- Response time: the total time from receipt of call to the time the fire vehicle arrives at the incident location.
- Firefighter turnout time: time from page until the first vehicle is responding.
- Drive time: time tracked from when the fire vehicle has left the station until arrival at the incident location.

MLFD response times should be monitored based on the NFPA 1720 standards which is from "dispatch time to time of arrival at the incident", from the time the call is received, to when the fire

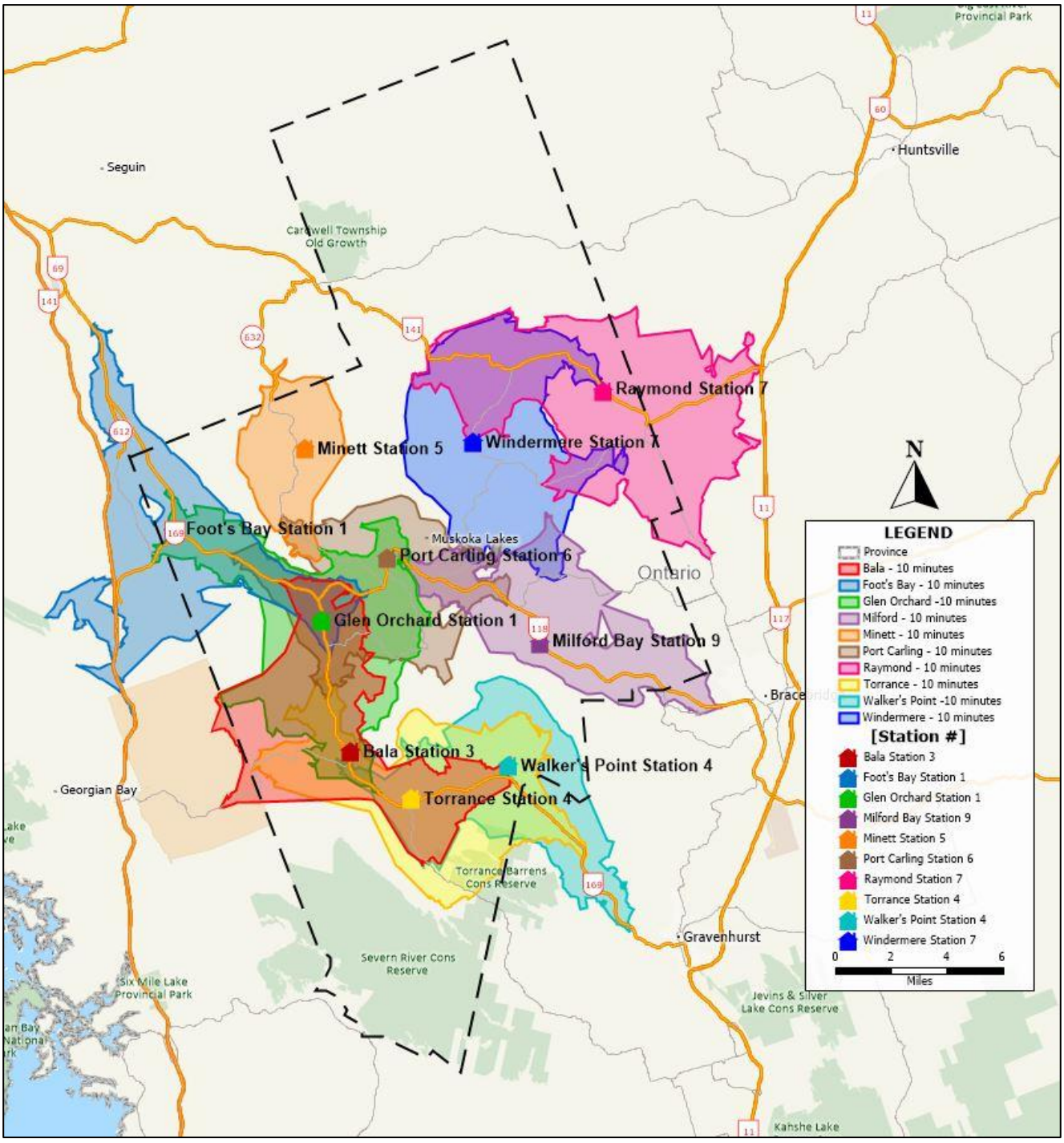
station tones activate, to when the firefighters get on the fire trucks and arrive at the emergency scene location.

Note: *In monitoring time measurements, the 80th percentile criterion is the recommended practice that is endorsed by the NFPA. This data is more accurate since it is evaluating the times based on 80% of the calls as opposed to averaging the times at the 50th percentile. For example:*

- *8 out of 10 times the fire department arrives on scene in 10 minutes or less, which means that only 10% of the time they are above that 10-minute mark,*
- *as opposed to 5 out of 10 times (average) the fire department arrives on scene in 10 minutes or less, which means that 50% of the time they are above the 10-minute mark.*

The travel time grids highlighted in Figure 8 are calculated using the GIS software Caliper Maptitude, which uses the road network with the posted speed limits, factoring in direction of travel, traffic lights and stop lights. While the posted speed limit is used, it is understood that at times fire apparatus responding to calls may exceed the speed limit if it is safe to do so, thus reducing the response time. Correspondingly, there will be times due to weather conditions, construction, and traffic congestion that the fire apparatus will be travelling at speeds lower than the posted speed limit (even using emergency lights and sirens). Therefore, using the posted limit is a reasonable calculation in determining travel distance.

FIGURE #8: Location of the Current Fire Stations – Noting 10 Minute Drive Time Grids



Deciding on where a fire station is located varies upon several factors:

- Relative fire risk values for various areas, occupancies, or properties
- Desired response times for each identified fire risk
- Information regarding the road network in the community including reasonable travel speeds, one-way streets, rail crossings, etc.

- Emergency vehicles and personnel necessary to assemble fire attack teams

With the program tailored to the specific needs of a community, many fire response factors may be analyzed including:

- Existing and proposed station locations based on desired response times
- Best and alternate emergency response routes to specific locations
- Ability of pumper, aerial, rescue, and support crews to cover all parts of the community based on desired response times
- Emergency response times for first, second and additional vehicles and personnel
- Areas for potential automatic aid responses

Fire stations should be located where they can serve much of the protection area, they are assigned rather than for a specific hazard. For example, it may seem wise to place the fire station across from a nursing home. However, if many responses are to the residential or commercial areas at the other side of the coverage area, the station should be situated closer to that area but still could arrive at the nursing home in the desired time. No matter where a new fire station is located, the primary goal is serving the community in a timely manner by meeting NFPA Standards for response times.

Although the NFPA response times are not mandated, it would be beneficial for the Fire Chief to have a response time goal supported by council as a benchmark. It is recommended that the Fire Chief present a response time goal for the approval of council, which may reference NFPA 1720 (2020 Edition) – the expectation of 6 staff in 14 minutes, 80th percent of the time as a start.

The following chart (through the use, of the supplied data) help to identify the types of calls that are creating the bulk of response demands.

FIGURE #9: Call Cluster Map

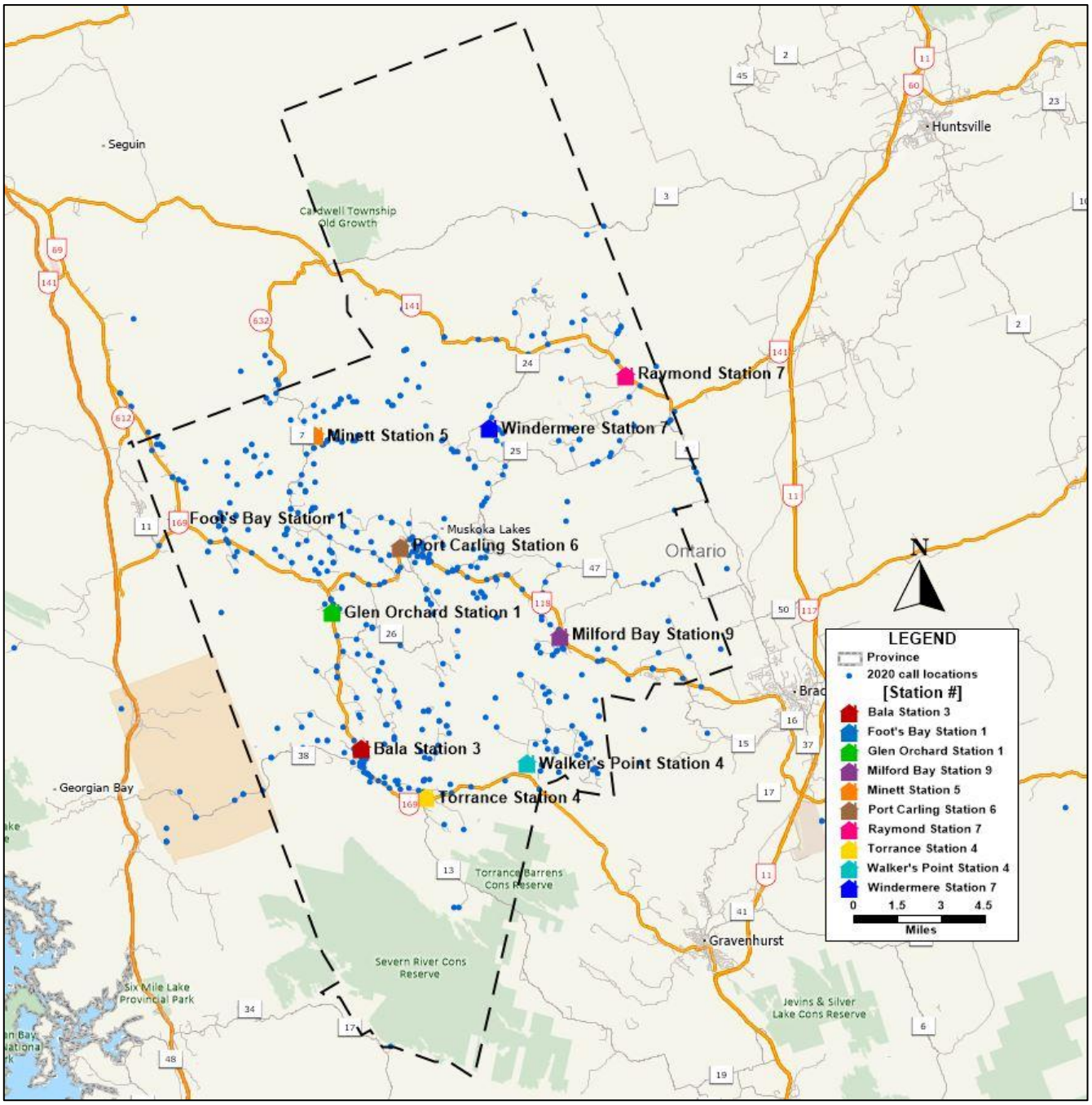
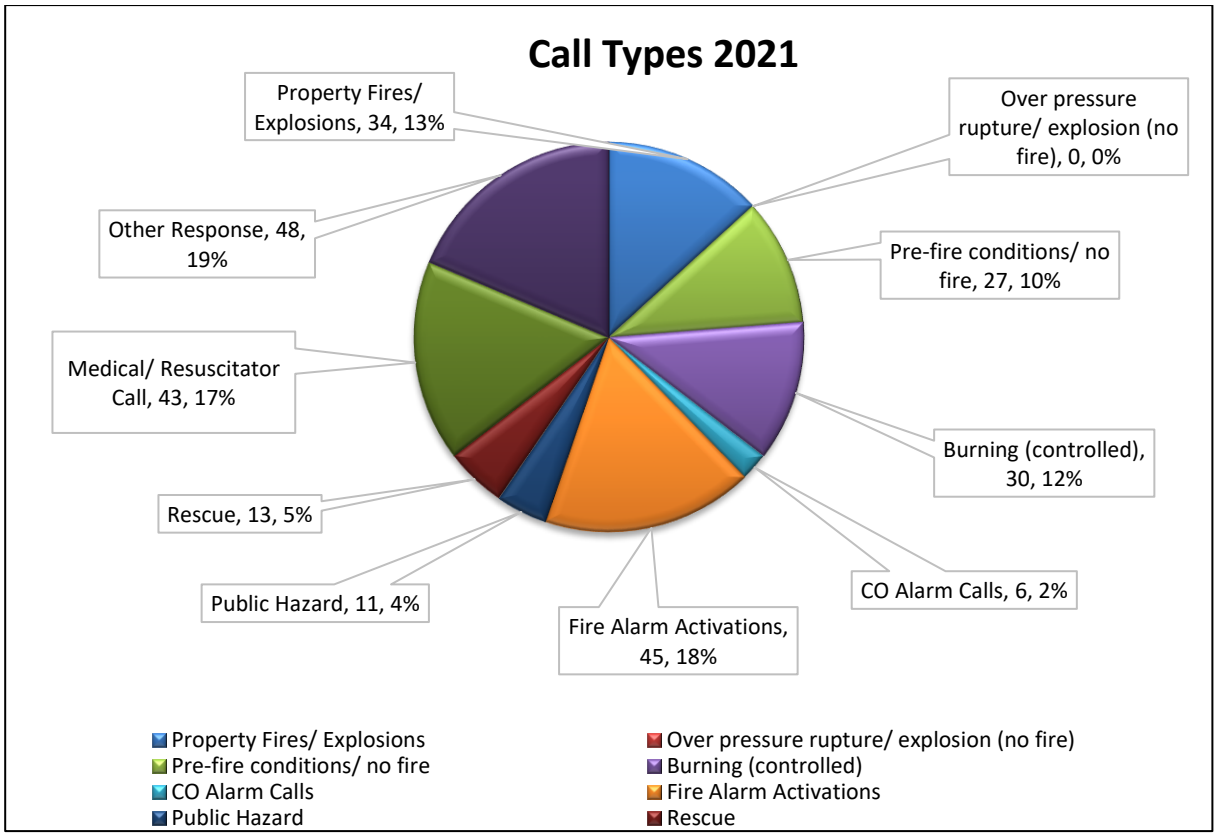
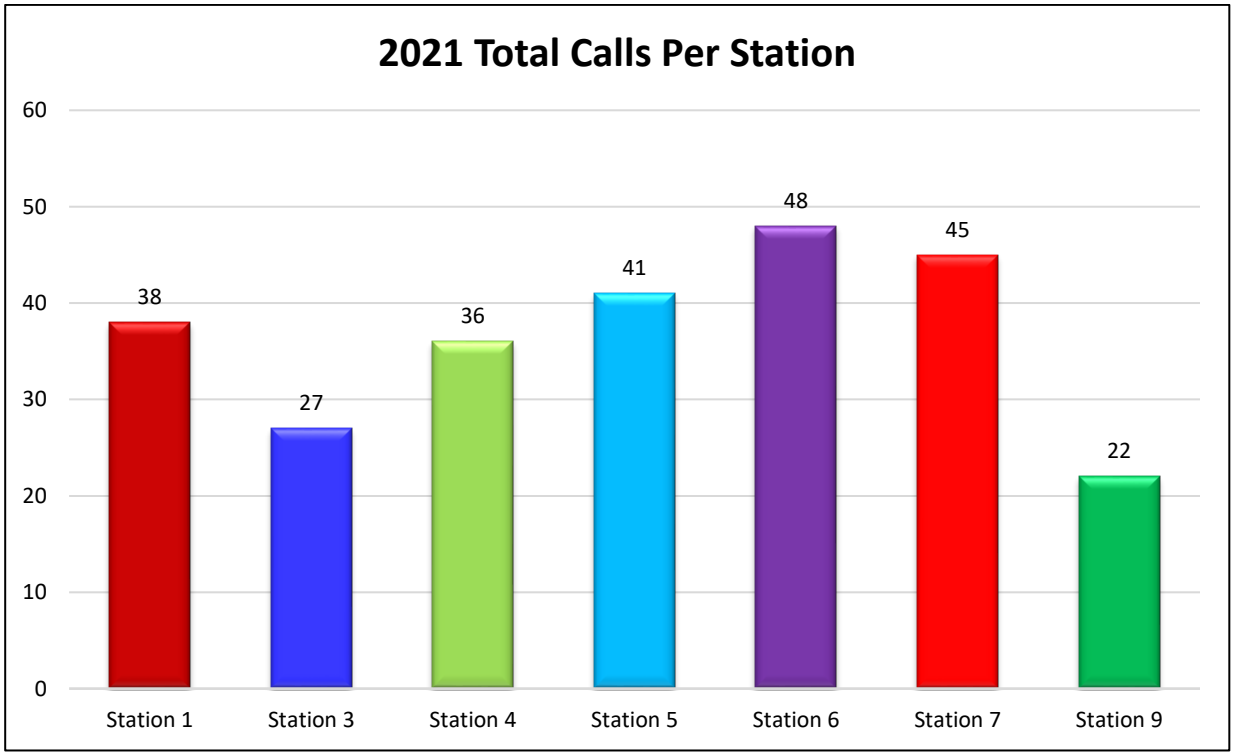


FIGURE #10: Call Types for 2021





5.3 Recruitment and Retention of Volunteer Firefighters

Recruitment and retention of volunteers is becoming more of a challenge within the fire service with the increasing training that must be committed to on an annual basis and with staff turnover. As with many volunteer fire departments, the daytime hours from Monday to Friday are the greatest challenge for volunteer response due to fact that many volunteer firefighters are either at work, school, or taking care of family. In some instances, members have had to leave the department to move closer to their work location, education facilities, or family needs.

EMG has also been advised that the Fire Marshal has announced the implementation of mandatory training and certification for firefighters. As of July 2022, all firefighters and officers will be required to meet the upcoming training/certification requirements and related timelines noted in the new regulation. Based on this all fire departments will need to conduct a full evaluation of their present training programs and implement whatever improvements are necessary to meet the new training and certification requirements. This increase in training will also add to the recruitment, and training of new recruits, along with the retention of present volunteers.

In a nationwide survey, the leading reasons why people stop volunteering include the following:

- No time to volunteer
- Conflicts within the organization
- Organizational leadership created an adverse atmosphere
- Too much training
- Attitude of existing personnel towards newcomers
- Criticism received from officers/ older members
- Lack of camaraderie

While some issues may be uncontrollable, other issues can be mitigated such as conflicts within the organization, leadership, training, attitudes, criticism, and camaraderie.

Note: *the previously listed items are not a direct reflection on the status of the MLFD, they have only been listed for consideration in the department's recruitment and retention initiatives.*

Retention Issues:

The issue of retention has been identified as a challenge with just about every volunteer fire service. There are numerous reasons for leaving, including the firefighters not feeling appreciated by the municipality, the time and effort required for both training and response to calls, firefighter's family not being recognised for "loaning" their family member to the community.

Opportunities to increase retention may include:

- Family nights at the fire station that would include a movie and activities for the children.
- Assign a seasoned member to mentor each rookie when a new member joins the department.
- Conduct a firefighter appreciation events (e.g., dinner, BBQ) where members are recognised by council for their long term, outstanding service, or something exceptional they did at a call.
- Council take time to acknowledge, the employers, of the firefighters for permitting their participation in the fire department and/or permitting them to leave work to attend fire calls.
- Survey other fire services to compare pay rates and adjust the honorarium accordingly.
- Implement a service recognition pay incentive. This might include paying extra in the form of a 5 to 10% pay increase for every 5 years they have been on the department; this would prevent the loss of years of experience.
- Performance pay, for those who reach high percentages of attendance at training sessions and fire calls.
- Offer benefit packages as many may not have benefits at their place of employment, and some are self employed. Such packages would include basic dental, drug, and eyewear coverage.
- Purchase a wellness benefit package for the firefighters such as mental, financial, and family counseling.
- Engage in treating Post Traumatic Stress Disorder (PTSD), which is a common illness among fire responders.
- Offer a RRSP/pension savings plan with contributions from the Town after they have been a member of the department for a predetermined length of time.
- Provide excellent training opportunities to make them want to remain a member of the fire department. Make the training sessions fun and memorable.
- Recognition and support of those who want to attend Fire College or regional courses, which sometimes requires firefighters using their vacation time from their full-time employers.
- The implementation of an “on call or platoon” program that would pay a week or weekend stipend to the volunteer firefighters s who commit to being available by signing up for weekdays and/or weekends
- Education assistance programs to support staff in their professional development.
- Maintain and improve morale by providing modern trucks, equipment, and stations.
- Endorse that each station designs their own logo for their station promoting their region of the town or the services they provide. They could include a tasteful mascot character. These could be placed on t-shirts and perhaps the apparatus as a sense of pride.
- Provide strong leadership that focusses on the Mission, Vision and Values of the department while resolving conflict resolution in a timely manner.
- Conduct exit interviews with those that leave the department to understand their reasons for leaving. While there may be simple reasons, there could be a deep-rooted issue that

administration may not be aware was occurring such as taunting, bullying, harassment, a feeling of not being welcome, etc.

- Foster the history of each fire station by creating displays of pictures of past members, events, apparatus, to instill a sense of pride on how far the department has grown.

The MLFD is already implementing some of these noted recommendations. As such, they should be commended for their retention efforts. This list is simply intended for the Fire Chief to review and confirm what is being done and what may still be required. Some of these suggestions may imply an expense, but the value of keeping trained personnel longer, which in the end saves on the ongoing training of new firefighters is worth the effort.

It costs the township a large sum of money to train and equip new firefighters, therefore it is important that a means to retain their investment is developed and supported by council. Another indicator for making this decision is tracking the number of volunteer firefighters that arrive at the fire station to respond. If, for example, the standard set by a fire department is that three or more volunteer firefighters must arrive at the station before the fire truck can respond, this should be monitored along with how many times the department is unable to assemble the needed personnel to effectively respond based on time of day, and day of the week. Continued monitoring of this data will assist with future fire service needs.

The Canadian Association of Fire Chiefs (CAFC) have also published a program – “Answer the Call” that is available on their website www.answerthecall.ca. It uses messaging and imagery to reflect the local challenges. Free of charges, there is a set of images that can be used as well as documentation that can be personalized to the organization. The “canned” images can, and do, reflect volunteers across all demographics, and the local community could add additional ones specific to their department. It has received significant support and it does not require considerable time or monetary investment. Volunteer firefighter recruitment is a challenge in virtually every jurisdiction of Canada and utilizing resources available to promote recruitment and retention is always advisable.

5.3 Communications

MLFD receives its dispatching services from the Muskoka Central Ambulance Communications Centre (CACC), located in Bracebridge. As a critical component supporting delivery of all emergency services, communications infrastructure and dispatching service delivery are key features. An immediate review should be undertaken of the agreement authorized under Bylaw No. 2005-114 - Muskoka Central Ambulance Communications Center (July 11, 2005).

Opportunities exist to improve the service being delivered by the CACC to MLFD. Industry best practices would take into consideration the collection and sharing of data, prioritization of MLFD

communications, geographic mapping, and ensuring an inclusive process whereby all stakeholders regularly evaluate service levels with consideration given to quarterly or bi-annual meetings.

With the implementation of the OFMEM training and certification requirements. EMG is of the understanding that this will also affect communications/dispatching services. As such, the CAAC may be required to eventually train and implement the NFPA 1221, *Standard for the Installation, Maintenance and Use of Emergency Services Communications Systems*, which is used to identify dispatching service criteria.

NFPA 1221, Sections 7.2, 7.3 and 7.4

- **7.2.1 –** Telecommunicators shall meet the qualification requirements of NFPA 1061 – Professional Qualifications for Public Safety Telecommunications Personnel, as appropriate for their position.
- **7.3.1.1 –** The Authority Having Jurisdiction shall ensure that there are enough telecommunicators available to affect the prompt receipt and processing of alarms and events needed to meet the requirements of Section 7.4.
- **7.4.1 –** 95% of alarms received on emergency lines shall be answered within 15 seconds and 99% of alarms shall be answered within 40 seconds. *(For documentation requirements, see 12.5.2.)*
- **7.4.1.1 -** Compliance with 7.4.1 shall be evaluated monthly using data from the previous month.
- The Deputy Chief should continually review the performance of the communications operators to ensure they meet NFPA 1221, Section 7.4.

NFPA 1221 will be referenced if any questions arise regarding activities that are to take place within a fire service communication centre such as communication operator qualifications, radio communications, telephone communications, back-up communication centre or power requirements and staffing.

The NFPA 1225, *Standards for Emergency Services Communications,* which is the combination of both NFPA 1061 and 1221, has been approved. This new standard and the integration of the Next-generation 9-1-1 (NG 9-1-1) will have far reaching impacts on emergency service communications, both operationally and financially.

In Canada, the Next-generation 9-1-1 (NG 9-1-1) system standards are to be implemented in all communication centres across the country by March 30, 2024. It is anticipated the start-up costs for NG 9-1-1 could be from $250,000 and $500,000 or higher, to have the ability to receive emergency texts and pictures of the scene from the caller. No concrete estimates have been provided on what the annual costs could be of operating the NG 9-1-1 system.

5.4 Suppression Staffing

The main type of staffing that MLFD is comprised of is a volunteer/paid on call system. This type of system has proven to be a very cost-effective model for the Township. At present the Department responds to a total of 560 to 600 calls per year. Each response district responds to less than 100 calls per year, which is an acceptable level and expectation for a volunteer fire department to handle.

Research has identified that volunteer stations that respond to more than 350 calls per year are on the cusp of moving towards a semi-full time or wholly full-time type of staffing (within a specific area or station). This could be in the form of having a minimum level of (three or four) full-time firefighters on duty five days a week, during the daytime hours, with the evenings and weekends being covered by the volunteer firefighters. As call volumes increase so will the full-time staffing requirements.

The MLFD is not at this level of call volume per fire response district, but this does not mean that the Fire Chief should not be monitoring call volumes, response times and number of volunteer firefighters that are responding to these calls (as they are presently doing). An increase in response times and/or decrease in the numbers of volunteer firefighters that are responding to the calls could be an indication of possible burnout of the volunteers. As such, this is something that the Fire Chief should continue to monitor and report to Council on an annual basis.

5.5 Health, Fitness, & Wellness

Health and wellness of staff is a key focus for all municipalities and Muskoka Lakes is no exception. Due to the nature of firefighters maintaining a separate primary vocation, a focus on fitness can be overlooked. The inherit nature of firefighting is both stressful and physically demanding. During the review by EMG, it was noted that the fire stations are equipped with workout facilities to ensure that staff have the ability, to keep fit, which helps to reduce work related injuries. The fire department should work towards standardizing the fitness equipment at all stations and having a fitness instructor work with the volunteers and full-time staff to set up a proper workout program and/or at the very least demonstrate the proper and safe way to use the exercise equipment. The department should also have SOGs relating to the proper use of the fitness equipment.

Many fire departments routinely test their firefighters to meet occupational fitness tests delivered internally or by a third party. NFPA 1582 details basic expectations placed upon firefighters. MLFD is encouraged to review these and incorporate them into both candidate testing and firefighter fitness and functionality. It is recommended that, as part of a larger commitment to firefighter health and wellness, MLFD review the physical expectations of a firefighter for use in training and recruiting. NFPA 1582 *Standard on Comprehensive Occupational Medical Program for Fire Departments* identifies 14 essential job tasks that detail the physical and physiological strains placed on firefighters. The standard outlines the requirements for a department medical program including certain conditions

that may pose a risk to firefighting. As the core determination for the physicality of firefighting, it is important for MLFD to understand the expectations they are placing on their personnel. These job tasks are listed in the Standard as:

5.1 Essential Job Tasks and Descriptions

5.1.1 The fire department shall evaluate the following 14 essential job tasks against the types and levels of emergency services provided to the local community by the fire department, the types of structures and occupancies in the community, and the configuration of the fire department to determine which tasks apply to their department members and candidates:

1. While wearing personal protective ensembles and self-contained breathing apparatus (SCBA), performing firefighting tasks (e.g., hose line operations, extensive crawling, lifting, and carrying heavy objects, ventilating roofs or walls using power or hand tools, forcible entry), rescue operations, and other emergency response actions under stressful conditions, including working in extremely hot or cold environments for prolonged time periods.
2. Wearing an SCBA, which includes a demand valve-type positive-pressure facepiece or HEPA filter mask, which requires the ability to tolerate increased respiratory workloads.
3. Exposure to toxic fumes, irritants, particulates, biological (infectious) and nonbiological hazards, and heated gases, despite the use of personal protective ensembles and SCBA.
4. Depending on the local jurisdiction, climbing six or more flights of stairs while wearing a fire protective ensemble, including SCBA, weighing at least 50 lb (22.6 kg) or more carrying equipment/tools weighing an additional 20 to 40 lb (9 to 18 kg).
5. Wearing a fire protection ensemble, including SCBA, that is encapsulating and insulated, which will result in significant fluid loss that frequently progresses to clinical dehydration and can elevate core temperature to levels exceeding 102.2°F (39°C).
6. While wearing personal protective ensembles and SCBA, searching, finding, and rescue-dragging or carrying victims ranging from newborns to adults weighing over 200 lb (90 kg) to safety despite hazardous conditions and low visibility.
7. While wearing personal protective ensembles and SCBA, advancing water-filled hose lines up to 2 ½ in. (65 mm) in diameter from fire apparatus to occupancy [approximately 150 ft (50 m)], which can involve negotiating multiple flights of stairs, ladders, and other obstacles.
8. While wearing personal protective ensembles and SCBA, climbing ladders, operating from heights, walking, or crawling in the dark along narrow and uneven surfaces that might be wet or icy, and operating in proximity to electrical power lines or other hazards.
9. Unpredictable emergency requirements for prolonged periods of extreme physical exertion without benefit of warm-up, scheduled rest periods, meals, access to medication(s), or hydration.
10. Operating fire apparatus or other vehicles in an emergency mode with emergency lights and sirens.

11. Critical, time-sensitive, complex problem solving during physical exertion in stressful, hazardous environments, including hot, dark, tightly enclosed spaces, that is further aggravated by fatigue, flashing lights, sirens, and other distractions.
12. Ability to communicate (give and comprehend verbal orders) while wearing personal protective ensembles and SCBA under conditions of high background noise, poor visibility, and drenching from hose lines and/or fixed protection systems (sprinklers).
13. Functioning as an integral component of a team, where sudden incapacitation of a member can result in mission failure or in risk of injury or death to civilians or other team members.
14. Working in shifts, including during nighttime, that can extend beyond 12 hours.

The 14 essential job tasks explained in NFPA 1582 lay the groundwork for NFPA 1583 *Standard on Health-Related Fitness Programs (HRFP) for Fire Department Members*. NFPA states that "this standard outlines a complete HRFP for members of fire department involved in emergency operations to enhance their ability to perform occupational activities and reduce the risk of injury, disease, and premature death". The applicable portion of the standard comes from section 4.1 wherein it states:

4.1 Program Overview

- The fire department shall establish and provide a HRFP that enables members to develop and maintain a level of health and fitness to safely perform their assigned functions.

The occupational health and safety program provides direction on performing assigned functions in a safe manner. The HRFP allows members to enhance and maintain their optimum level of health and fitness throughout their tenure with the fire department. Education, one provision of a health-related fitness program, allows a means for improving health and fitness throughout the organization. The organization needs to provide the recognition and support to ensure the promotion and success of this process. Health and fitness needs, to become a value within the organization just as safety is a value.

Data suggests a correlation between the following:

1. A proactive approach to health and fitness and a decrease in debilitating occupational injuries.
2. A reduction in workers compensation claims and a decrease in acute and chronic health problems of firefighters.

Combining the health-related fitness program with a proactive occupational safety and health program provides a fire department with the level of quality needed for its members. It is suggested that, as part of a larger commitment to firefighter health and wellness, MLFD review the 14 essential job tasks from NFPA 1582 as they pertain to their recruitment and testing process and seek options for offering personnel the ability to exercise and maintain fitness levels as explained in NFPA 1583.

In 2017, emergency services organizations were required by the Ontario, Ministry of Labour to submit a Post Traumatic Stress Disorder (PTSD) Prevention Plan. This was to coincide with PTSD and Occupational Stress Injuries (OSI) to be considered as workplace injuries and compensable through the Workplace Safety & Insurance Board. The MLFD has a package available to its members outlining what PTSD is, the dangers it presents, training, on-going support, early intervention, WSIB claims management, recovery, and return to work.

MLFD has included all its fire department staff in the Employee Assistance Program (EAP) offered through VFIS as an initial contact. This is part of their PTSD program. However, ensuring that the firefighters have full EAP coverage for all related needs is an important piece of employee wellness. The Fire Chief should meet with township staff who oversee EAP and related programs to ensure that firefighting personnel are fully aware of what benefits the EAP offers, should they need it. This may require a more inclusive package. As an opportunity to improve retention of the volunteer firefighters, this EAP could be offered as a family package.

5.6 Cancer Prevention

In recent years there has been a more intensive review of cancer prevention and a correlation of the disease to firefighting. The focus has been on contamination control surrounding fire incidents. From pre-fire, incident duration, to cleaning and decontamination post-fire, all aspects of prevention are currently under review by all levels of fire service management. The department does have decontamination kits to start the decontamination procedures, which is a definite positive. However, more still needs to be done. It is suggested that, as part of a larger commitment to firefighter health and wellness, MLFD begin work on a cancer prevention program. This may include items such as, but not limited to:

- Post-fire decontamination of personal protective equipment (PPE)
- Firefighter hygiene at fire scenes
- PPE during handling of contaminated gear/equipment
- Documenting potential exposures
- Reducing exposures to diesel exhaust

Section 21 Guidance Note – Firefighters Cancer Prevention Checklist, would be a good reference in developing such a program along with Section 21 Guidance Note on Hygiene and Decontamination.

The fire stations are not equipped with “at source” diesel exhaust extraction systems (that attach to a vehicles exhaust pipe) to reduce exposure to vehicle exhaust. Diesel exhaust has been contributed to health issues when people are exposed to it over long duration. By having these systems in the station, the health concern is greatly reduced. This would be a positive feature towards cancer prevention by having a system installed in the station.

In reviewing the Personal Protective Equipment (PPE) program, also known as structural firefighting ensemble, it was noted a plan has been established to review PPE inventories and forecasted replacements are identified so that budgetary submissions are effectively managed. This is important to note as NFPA 1851 Standard on *Selection, Care and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting* states in Chapter 10:

- Structural fire fighting ensembles and ensemble elements shall be retired in accordance with 10.2.1 or 10.2.2, no more than 10 years from the date the ensembles or ensemble elements were manufactured.

The appendices, to that section also references that "…it is imperative that the protective elements be routinely inspected to ensure that they are clean, well maintained, and still safe". MLFD has a program that PPE is inspected and cleaned in-house, and that there is a cache of used gear that can accommodate a portion of the Department. MLFD is also working towards the issuance of a second set of gear to firefighter in the coming years.

MLFD has standard operating guidelines on PPE/Bunker Gear inspections and cleaning. There is a need for ongoing/refresher instructions ensuring the correct re-assembly of the ensemble, including how to check that the Drag Rescue Device (DRD) has been properly installed.

Cancer prevention may begin at the scene of a structure fire. The bunker gear becomes laden with contaminants and smoke, and off gas for some time after a fire. By decontaminating the firefighters at the scene of the fire and ensuring they do not wear their dirty gear back to the station or transporting it in the cab of the truck, is the step in the right direction of cancer prevention. The department should invest in some on-scene decontamination equipment and bags for transporting the bunker gear back to the station.

Use of Personal Vehicles for Response:

It was also noted that the firefighters can respond to an emergency scene in their own vehicles, which means that some or most of the firefighters are carrying their firefighting gear in their vehicles. If the gear has not been properly cleaned this can pose a health risk to the firefighters and any other occupants of their personal vehicle. Many fire departments in Ontario have ceased the practice of allowing firefighters to respond to an emergency scene in their personal vehicles. All firefighters are required to attend at the fire station, don their gear and leave as a team.

By doing this, the department accomplishes three key things; the first being that no contaminated gear is transported in a private vehicle. The second, is that an emergency scene is not impeded with firefighters' personal vehicles. And third, it ensures full accountability of who is responding and how

many firefighters are on the scene. When firefighters respond in their personal vehicles, there is an opportunity for "freelancing", which means that firefighters are working without direct supervision and support (of other firefighters and emergency vehicles).

By having all firefighters respond to the fire station first, this creates full accountability and supervision of staff. It is true that there are advantages of having firefighters go to the scene as opposed to passing it (the scene) to get to the fire station. But personal vehicles are not emergency vehicles and should not be used in such a manner.

It is understood that many of the fire trucks used by MLFD do not have crew cabs and cannot accommodate more than two firefighters in the cab. However, many of the stations do have support vehicles that have space for several firefighters in each of these vehicles. Consideration needs to be given to greater use of these support vehicles, while the Department moves towards reducing the practise of responding to the emergency scene with personal vehicles.

MLFD should develop policies and procedures that reflect the following. That structural firefighting gear (PPE) is not to be:

- Transported inside the cabs of fire department vehicles.
- Transported inside personal vehicles.
- Taken into living quarters of a fire station (this should include any areas of the fire station other than the apparatus bays).
- Taken into the firefighter's home.

Cancer prevention does not stop at just taking off and bagging the bunker gear for cleaning at the fire station, the individuals clothing may also contain cancerous contaminants. The hygiene and decontamination program should also address the firefighters personal clothing or uniform worn in the fire. This may see the necessity of the firefighters having spare clothing at the fire station or in their personal vehicle, available for them to change into after they have a shower at the station. This clothing should also be washed at the fire station and not taken to the residence to be washed as they are then introducing the contaminants to members of their family.

A fire department exposure report should be completed each time a firefighter is exposed to the products of combustion.

5.6.1 Mental Well Being

Like law enforcement, paramedics, and military personnel, firefighters are regularly exposed to critical incidents. A critical incident can be described as:

- A near miss that threatened the health and safety of a member of the Department. This can include a situation where a member of the department experienced an event that could have resulted in significant harm or was a close call where they escaped significant harm.
    - The suicide or attempted suicide of a co-worker.
    - The sudden death of a fellow firefighter.
    - The loss of a patient after a rescue attempt.
    - The death or a critical incident involving a child.
    - A prolonged rescue or incident with excessive media coverage.

Being regularly exposed to horrific events can lead to critical incident stress. A critical incident can best be described as a normal reaction to an abnormal traumatic incident. Exposures to critical incidents can impact firefighters later in life and it is critical to have a formal record of critical incidents to assist a firefighter for a workplace injury if they are struggling due to post traumatic stress disorder (PTSD).

Mental health takes on a critical importance in high-stress, high-risk work settings, such as those in which first responders operate, where their own functioning has serious implications for the health, safety, and security of the public they serve.
Firefighters are the greatest asset of any fire service, and it is imperative that their mental well being is addressed in a genuine, consistent, and professional manner. This may include the establishment of a PTSD prevention plan by a committee of firefighters, chief officers, and mental health professionals. The “Supporting Ontario’s First Responders Act”, requires employers to have a PTSD program.

The plan should include:

- An introduction about the plan.
- Goals and objectives
- Prevention and education focus areas
- Screening and initial intervention focus areas
- Support, WSIB claims management, recovery and return to work focus area
- An overview of PTSD, risk factors, signs, and symptoms.
- Legal requirements of the municipality under the OH&S Regulations.
- Organizational PTSD practices (promoting good mental health).
- Organizational anti-stigma practices.
- Roles and responsibilities for prevention, intervention, recovery, and return to work.
- Training on awareness and anti-stigma, recognising the signs and symptoms and responding to signs of PTSD, postexposure education and awareness.

- Develop a handbook that identifies what PTSD is, and it's signs and symptoms, for family members to reference which also includes agencies, EAP program or peer support groups that may be of assistance.
- Give consideration to initiating a chaplaincy program for the department as another form of support for members and their families, not only for situations involving PTSD, but everyday life, and the situations that may arise.

Section 5 Recommendations

Rec #	Recommendation	Estimated Cost	Suggested Timeline
15	MLFD monitor its ability to meet effective response times based on NFPA 1720.	Staff Time	Immediate (0-1 year) and ongoing
16	MLFD invest in decontamination equipment and develop the appropriate policies and SOGs in performing decontamination of firefighters at the scene of a fire.	Approx. cost of $10,000.00	Short-term (1-3 years)
17	Consideration should be given to the value of having the volunteers responding to the fire station instead of driving directly to an emergency scene in their personal vehicles.	Staff time and possible vehicle upgrades when being replaced	Transitional time – Short term (1-3 years)
18	MLFD develop a formal health and wellness program that includes all facets relating to fitness, cancer prevention, PTSD and EAP peer support.	Staff Time	Immediate (0-1 year) and ongoing

SECTION 6

Facilities, Vehicles, Equipment, & Water Supply

SECTION 6: FACILITIES, VEHICLES, EQUIPMENT & WATER SUPPLY

6.1 Fire Station Review

A review of the existing fire stations was conducted by EMG and will be addressed in this section. It should be noted that the walkthrough of the fire stations was a visual inspection; no destructive testing or engineering assessment was conducted.

Fire stations should be positioned to offer the most efficient and effective response to the community they serve. Centering them within a determined response zone that is simply based on "timed" responses is not necessarily the best option to implement. Fire station location depends on many factors such as key risks within the response zone, future growth of the community, and the response team composition (full-time vs. volunteer firefighters). Another consideration is the geographical layout of the community that can include natural barriers or divides, such as water, that may make it necessary to have some stations located within proximity of each other.

Distance and travel time may be a primary consideration; however, if a basic expectation of response time is set by the community's decision makers, then a more realistic level of service and fire station location criteria can be identified.

The following maps, depict where each station is located throughout the township, with the second map indicating a response time zone based on the NFPA recommended 14-minute overall response. The zones around each station represents 10-minute drive time, minus 4-minutes for volunteers to arrive at the station and then respond in an emergency services vehicle. Even though the firefighters are allowed to respond directly to the location in their personal vehicles, no actual firefighting procedures (such as extinguishment0 will occur until the fire trucks arrive. The 4-minute response to the fire station is used in overall averaging.

The response mapping and related response data supplied in this document should not be taken in isolation. A full in-depth study along with an annual report submitted to Council by the Fire Chief with an update on the key performance measures and expectations is required.

FIGURE #11: Location of the Fire Stations

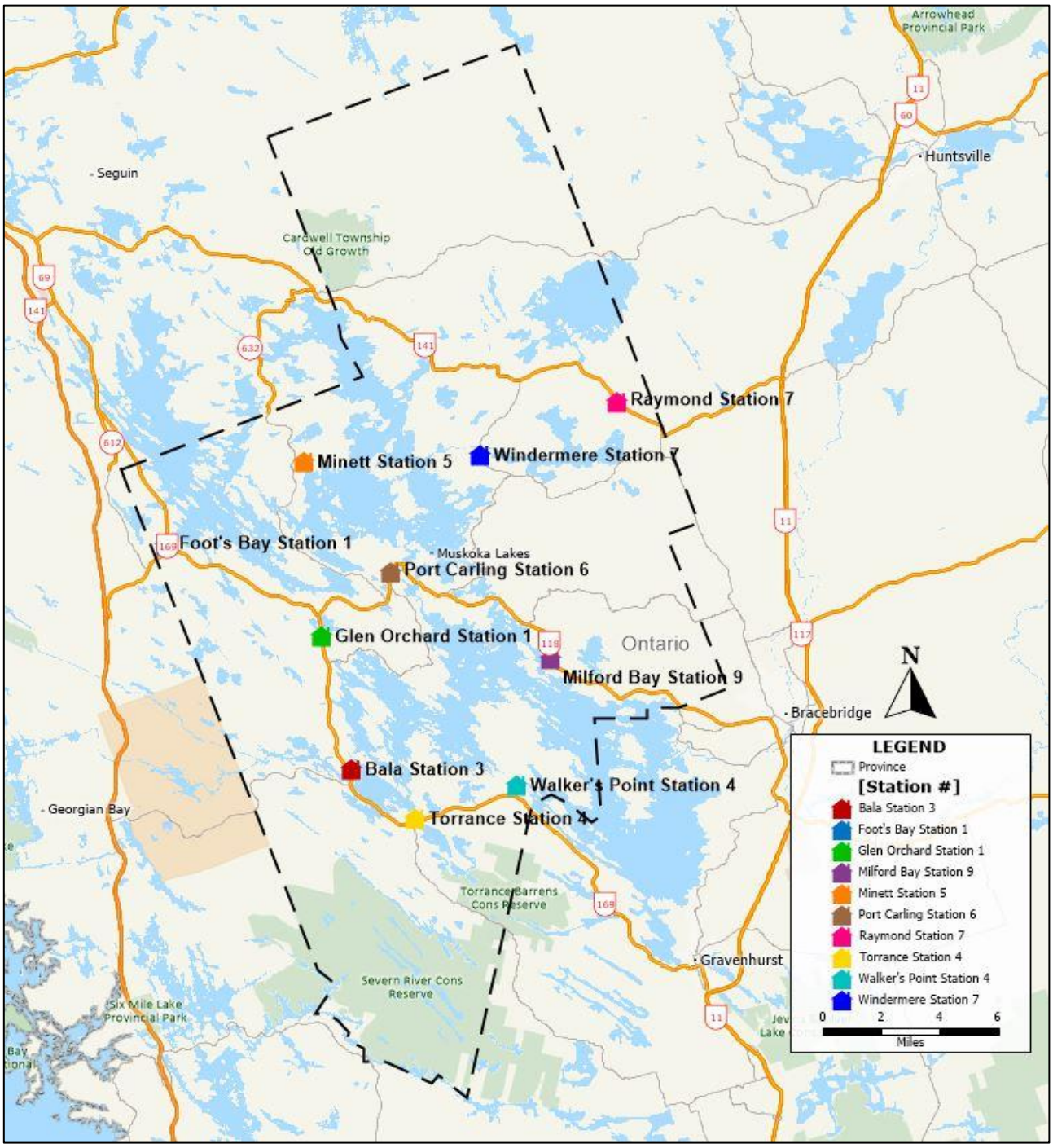
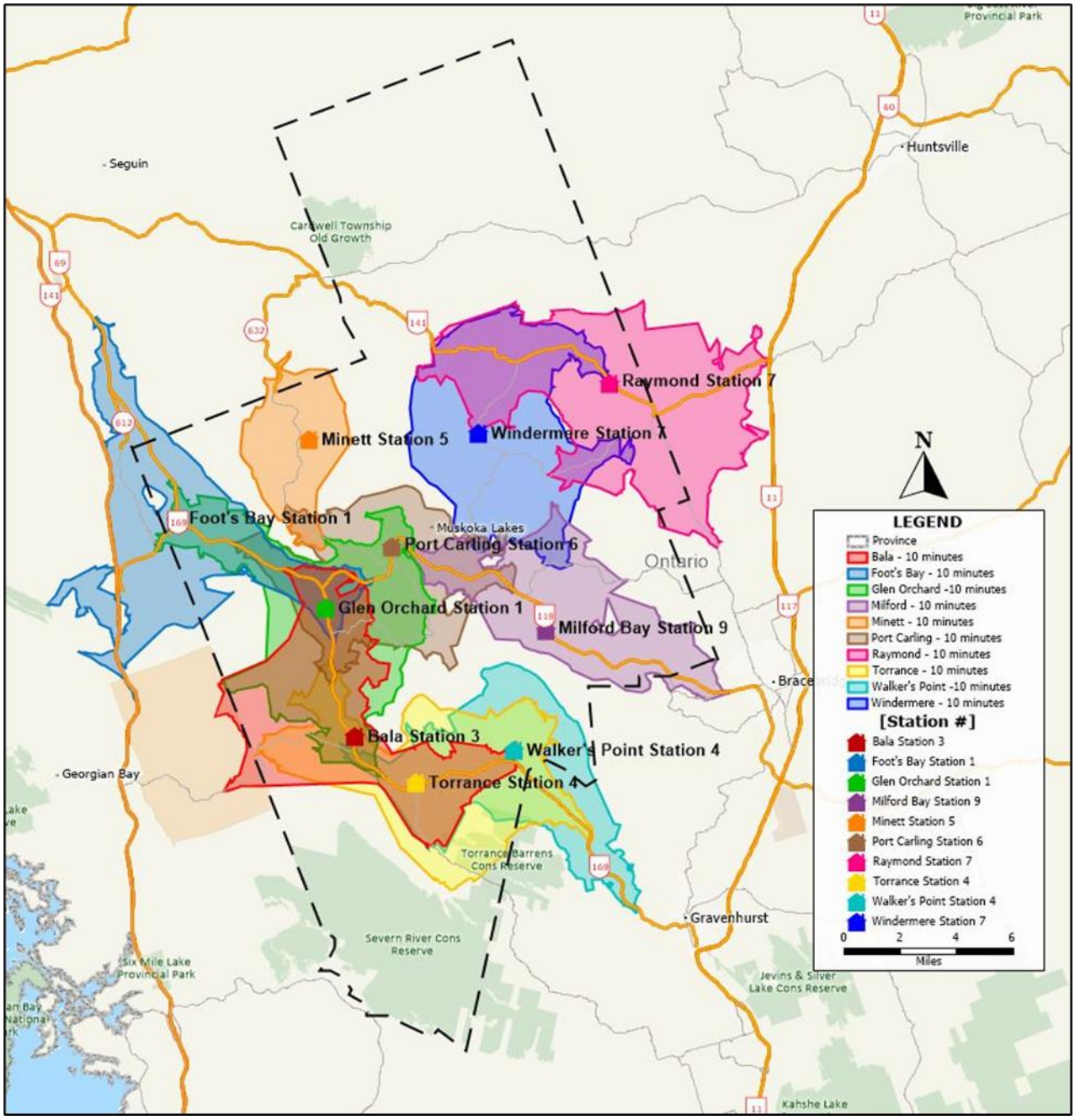


FIGURE #12: Drive Time of 10-Minutes from the Fire Station



As can be seen in the response zone map, a large portion of the township is covered by the fire stations, based on a 10-minute drive time. In fact, there are some areas, such as Glen Orchard, and Torrance that have quite a bit of overlapping coverage. In the 2014 master plan review, it was noted that consideration be given to closing both the Glen Orchard and Torrance stations due to the overlapping coverage and close proximity to other fire stations. EMG is again recommending that these two stations be closed, and the equipment/staffing of both stations be dispersed as needed to the other fire stations.

As further noted in the 2014 document:

- *"These two closings could equate to a reduction in the cost of fire equipment and fire trucks. There would also be savings related to station upkeep and operating costs. The funds identified for fire station upkeep (for Glen Orchard and Torrance) may not seem like a large savings but over time the fact that a fire truck (or two) may be reduced from the rolling stock could equate to a substantial savings in the capital budget.*

- *However, it should be noted that with any closings there may be an impact on such things as the Fire Department's tanker shuttle accreditation status. There may also be an impact to insurance rates to residents due to the location of the "nearest" fire station. All of these considerations need to be reviewed and reported back to Council by the Fire Chief."*

6.1.1 Muskoka Lakes Fire Stations

Muskoka Lakes Fire Department provides emergency service response from 10 fire stations. Based on visits to the stations, the buildings appear to be in need of varying levels of repairs and updating of facilities. Each station will be addressed individually.

Notes:

- *The station reviews in this report are general in nature. Therefore, if more in-depth structural analysis is desired by the township, then a comprehensive station/facility review should be undertaken.*
- *Any health and safety related items have been bolded and italicized*
- *A further overview of general health and safety related issues is also included at the end of this station review section.*

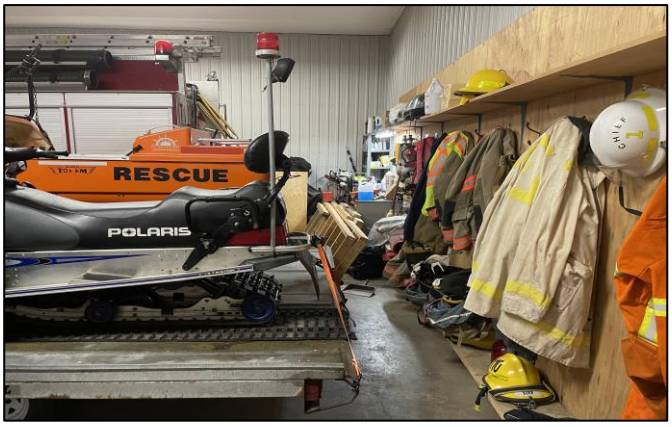
Station #1 – Foots Bay & Glen Orchard

Station #1 is a dual response zone with the first station, Foot's Bay being located at 1006 Buckeye Rd. This station is also joined to the Foot's Bay Community Center. Built in 1971, this station has two bays for fire apparatus. This is not a drive through station.

Foots Bay Station

Apparatus Bays

Apparatus Bays – Space and Storage Concerns



Basement Office and Meeting Room

Basement Storage

Station #1 – Marine Rescue Boat

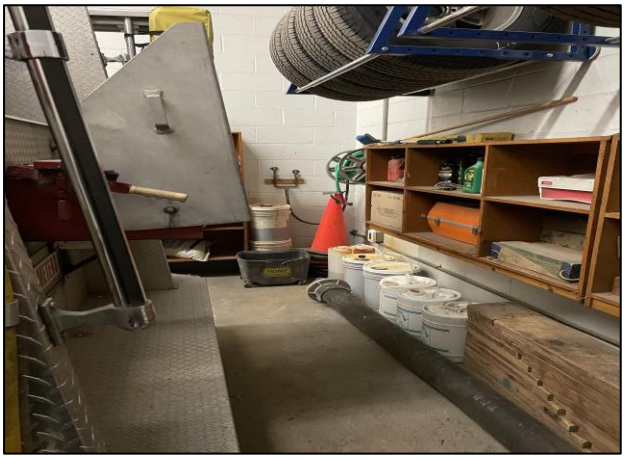
Station Concerns:

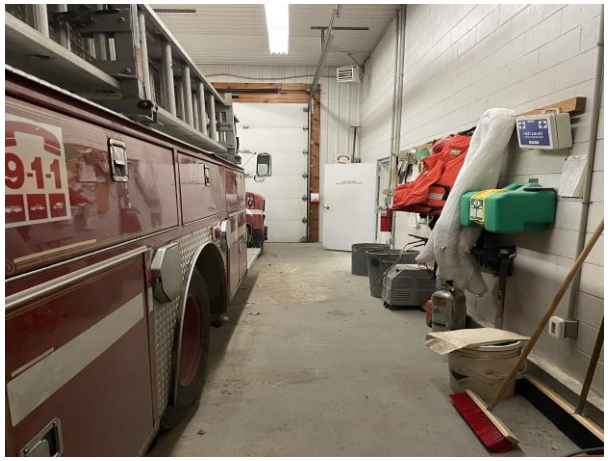
- Lack of storage for equipment
- Firefighting gear exposed to exhaust contamination
- Floor drains do not have oil seprators in them
- There is no diesel exhaust removal system in the station

Glen Orchard Fire Station

Located at the Glen Orchard Public Works Yard – One Bay. This station was built in 1990. There is no washroom/shower facilities located within the station.

Apparatus Bays





Station Concerns:

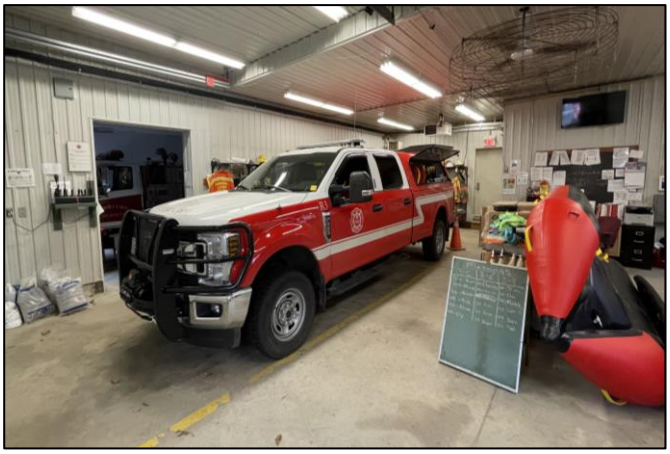
- Lack of storage for equipment
- Firefighting gear exposed to exhaust contamination
- Floor drains do not have oil seprators on them
- There is no diesel exhaust removal system in the station
- No washroom/shower facilities within the station

Station #3 – Bala

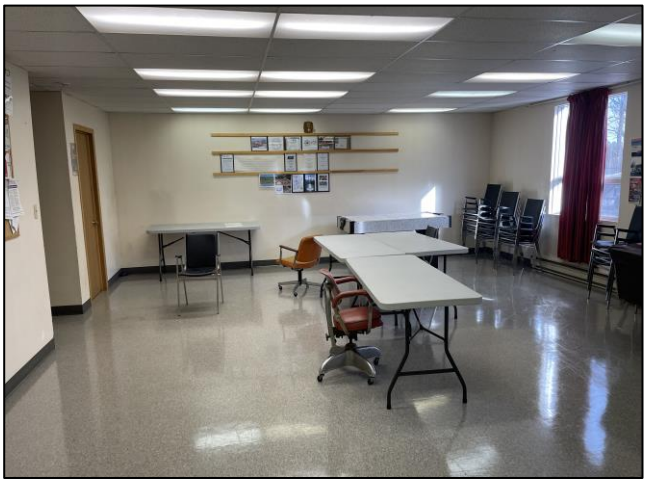
Station #3 is located at 1015 Grey St. The original portion was built in 1945 with renovations and an addition added in 2009. It contains four bays for fire apparatus. This is not a drive through station.

Apparatus Bays

Firefighter Gear Stored in Bay



Meeting and Training Room



Shower Facility

Station Concerns:

- Lack of storage for equipment
- Firefighting gear exposed to exhaust contamination
- Floor drains do not have oil seprators on them

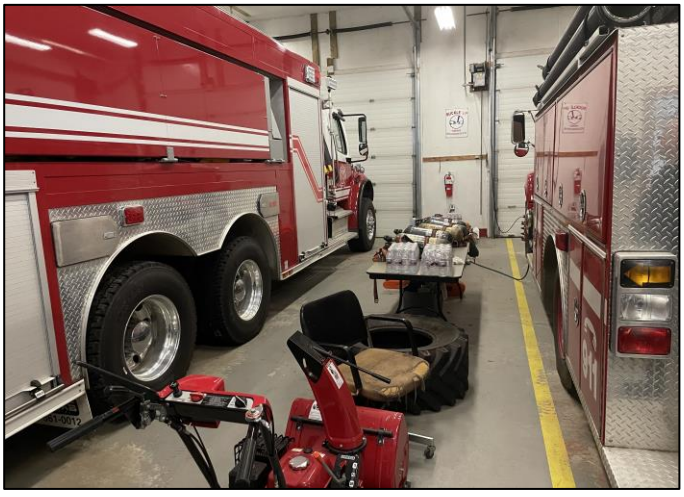
This station does have a CO detector and exhaust fan, but the system does not operate until CO levels are detected. By that time, the firefighters gear may already have absorbed some of the diesel contaminates.

Station #4 – Torrance/Walker's Point

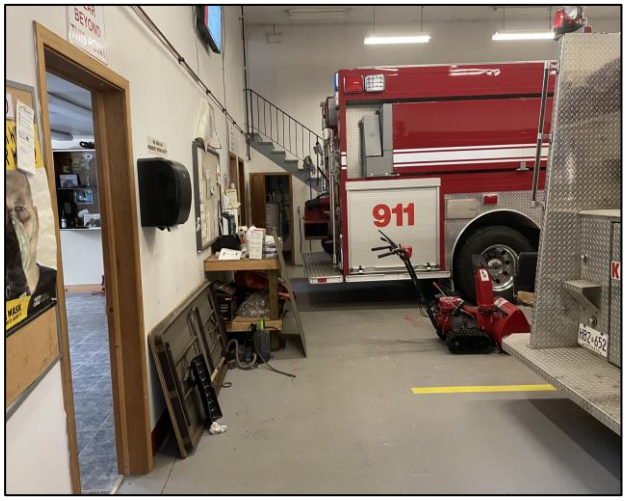
Station #4 is a dual station response zone; the Torrance station is located 1030 Torrance Rd. This station was built in 1985and contains two bays for fire apparatus. This is not a drive through station. It also is located beside the local community centre.

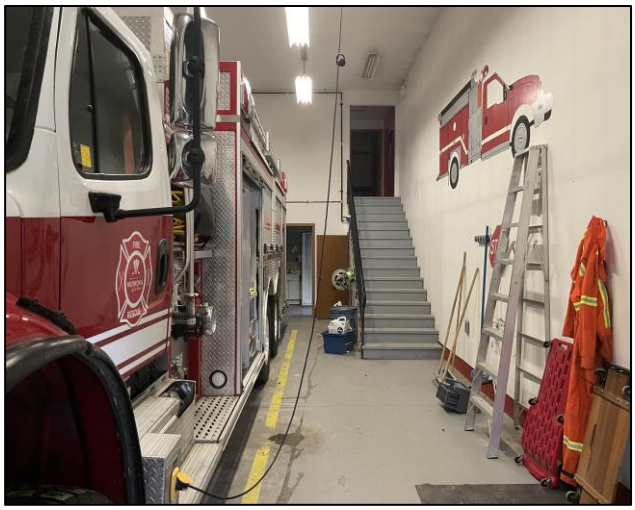
Torrance Station

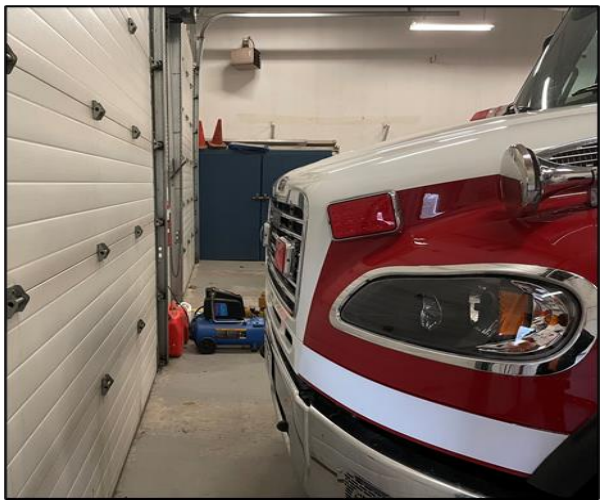
Apparatus Bays



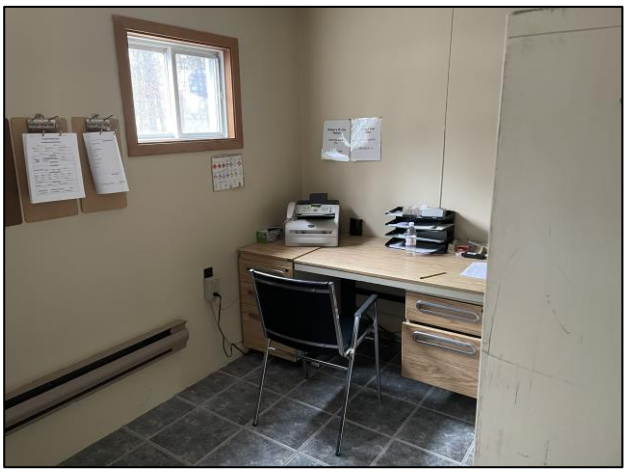
Door left open and exposed to diesel exhaust







Office and Kitchen Areas



Shower Facilities

Second Floor Storage Area

Station Concerns:

- Although there is a shower stall, it is not designed to capture contaminates
- Firefighting gear exposed to exhaust contamination
- Floor drains do not have oil seprators on them

Walker's Point Station

Walkers Point station is located at 1074 Walkers Pt. and is also part of the local community centre. This station was built in 2007. It has two bays that are not drive through.

Apparatus Bays

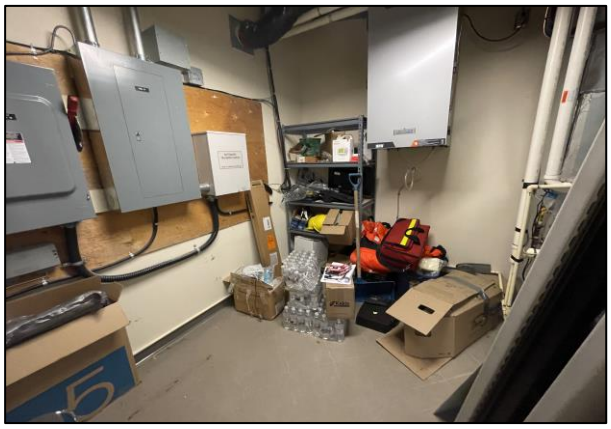
Firefighter Gear Stored By Trucks (Exhaust)

Training Room and Kitchen Area

Shower Facility

Office

Storage in Electrical Room



Station Concerns:

- Firefighting gear exposed to exhaust contamination
- Floor drains do not have oil seprators on them

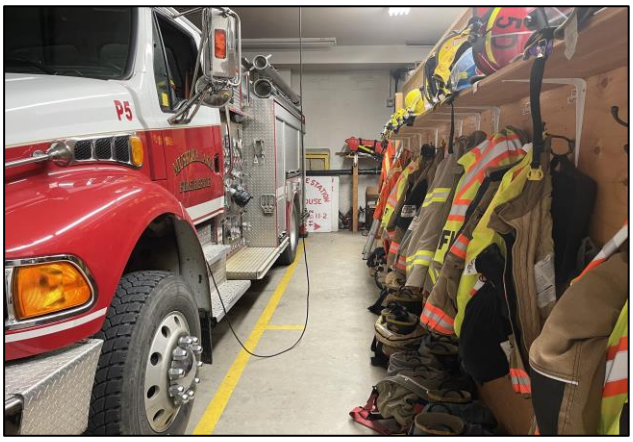
This station does have a CO detector and exhaust fan, but the system does not operate until CO levels are detected. By that time, the firefighters gear may already have absorbed some of the diesel contaminates.

Station #5 – Minett

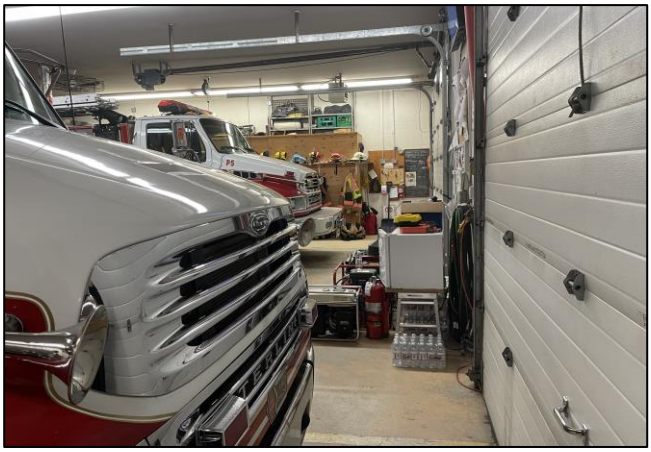
Station #5 is located at 1131 Juddhaven Rd. This station was built in 1986 and contains two bays for fire apparatus. This is not a drive through station.

Fire Vehicle Stored Outside of Station

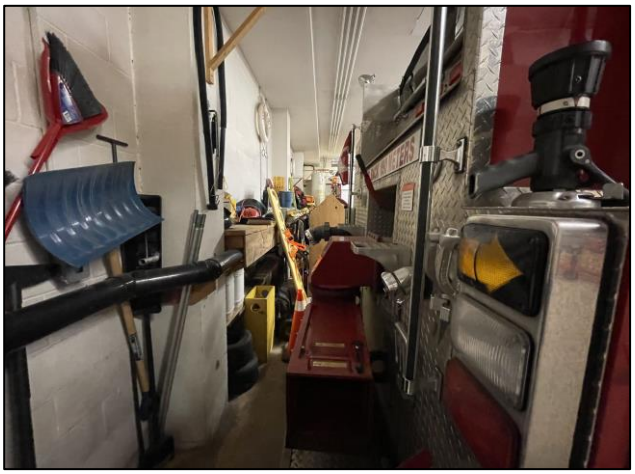
Firefighter Gear Stored by Trucks (Exhaust)



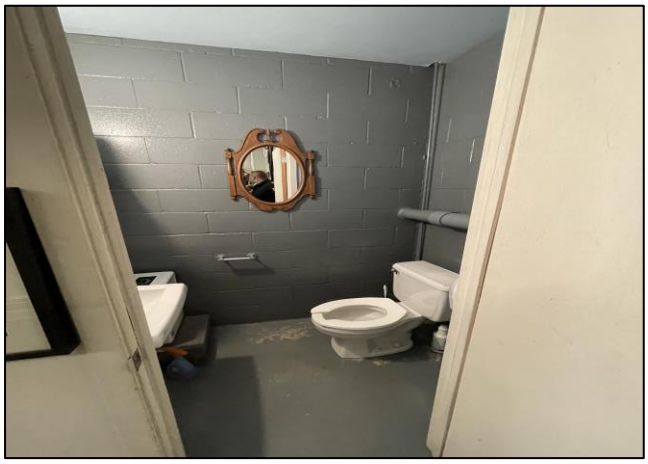
Apparatus Bays and Storage



Workspaces/Desks Located on Apparatus Floor



Washroom, but No Shower Facility



Minett Fire Rescue Boat. Stored at Local Marina

Station Concerns:

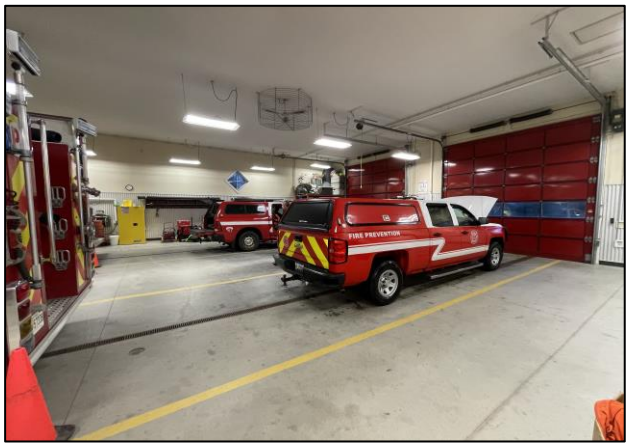
- Lack of storage for equipment – one of the fire vehicles has to be parked outside
- No shower facilities
- Desks/workspaces located on apparatus floor. Exposed to diesel exhaust
- Firefighting gear exposed to diesel exhaust contamination
- Floor drains do not have oil seprators on them
- There is no diesel exhaust removal system in the station

Station #6 – Port Carling

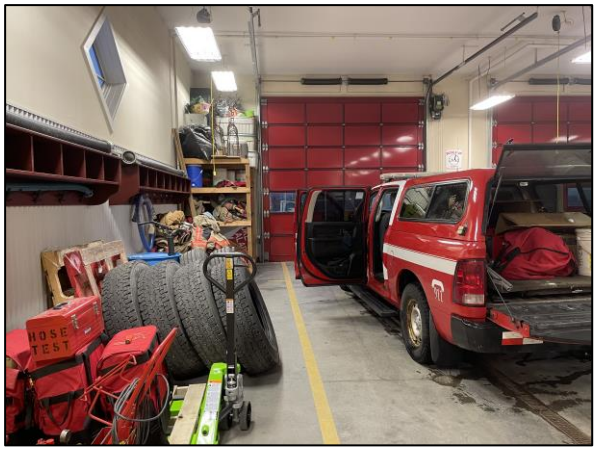
Station #6 is located at 1 Lee Valley Dr. This station was built in 2009. It contains three bays in the front for fire apparatus and two rear bays doors for drive through capability.

Rear of Station

Apparatus Bays

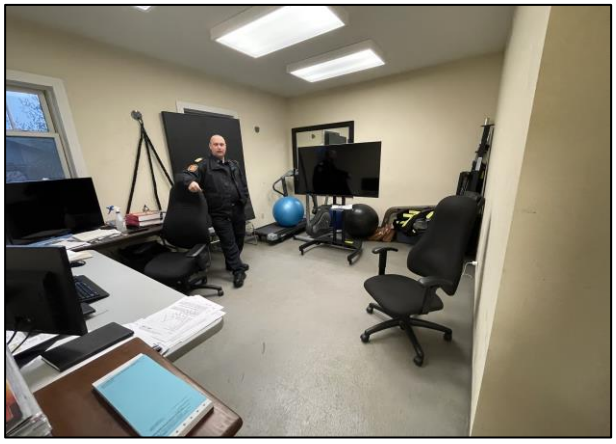


Firefighter Gear Stored by Trucks



Breathing Apparatus Filling Station

Fire Chief's Office and Fitness Storage



Station Concerns:

- Firefighting gear exposed to exhaust contamination
- Floor drains do not have oil seprators on them

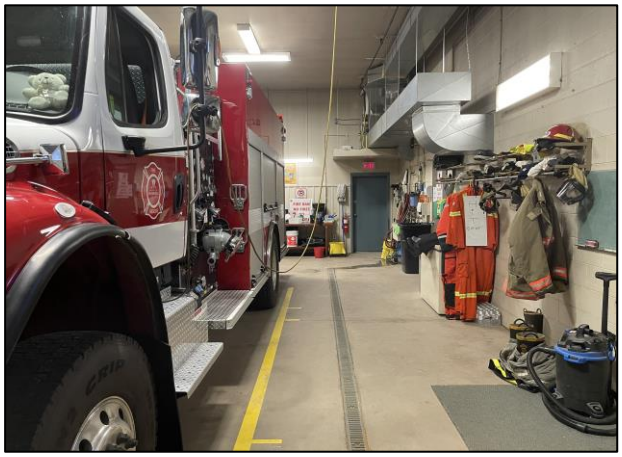
This station does have a CO detector and exhaust fan, but the system does not operate until CO levels are detected. By that time, the firefighters gear may already have absorbed some of the diesel contaminates.

Station #7 – Windermere/Raymond

Station #7 is another dual response zone, with the Windermere station being located at 2201 Windermere Rd. This station was built in 1995. It contains two bays for fire apparatus. This is not a drive through station.

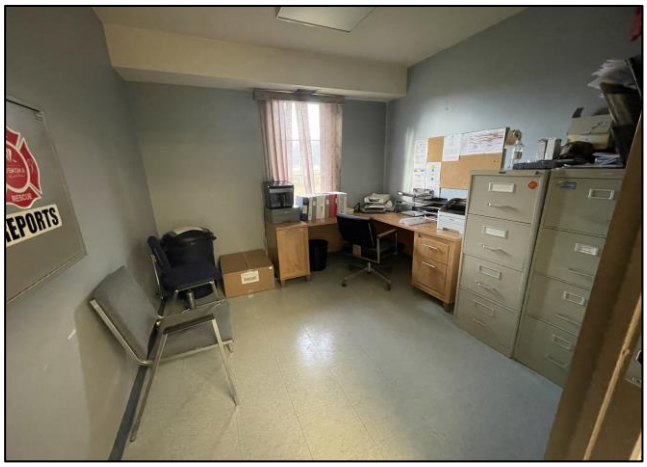
Appartus Bays

Firefighters Gear by Trucks (Exhaust)



Meeting/Training Room

Office



Washroom but No Shower Facilities

Kitchen Area

Station Concerns:

- Lack of storage for equipment

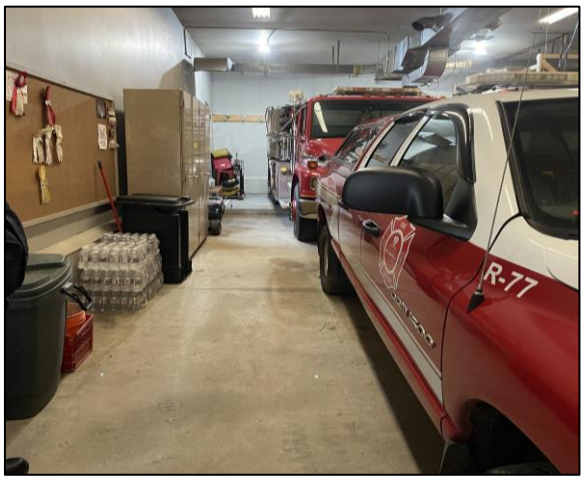
- No shower facilities
- Firefighting gear exposed to exhaust contamination
- Floor drains do not have oil seprators on them

Raymond Fire Station

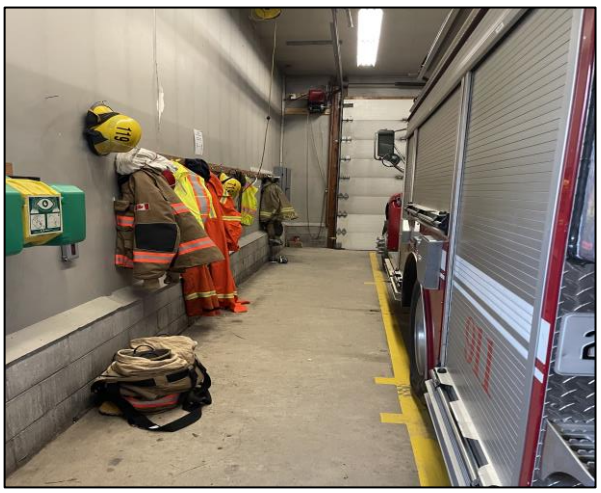
The Raymond fire station is located at 1002 Spring St and was built in 1980. It has two front bays for apparatus with no drive through capability.

Apparatus Bays

Firefighter Gear by Trucks



Small Kitchenette Area



Office Area

Washroom – No Shower Facilities

Station Concerns:

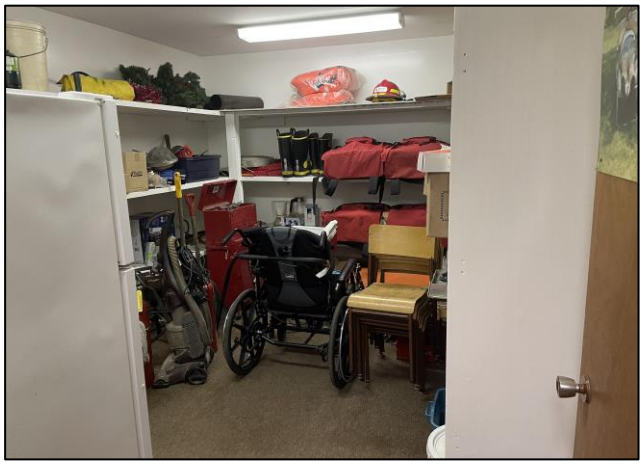
- Lack of storage for equipment
- No shower facilities
- Firefighting gear exposed to exhaust contamination
- Floor drains do not have oil seprators on them

Station #9 – Milford Bay

The Milford Bay fire station is located at 1002 Spring St and was built in 1980. It has two front bays for apparatus with no drive through capability.

Apparatus Bays

Storage Room



Meeting/Training Room

Office

Milford Bay Fire Boat House

Fire Rescue Boat

6.2 Fire Station Concerns

During the walk-through by EMG, it was evident (as can be seen in the supplied photos) that many of the Muskoka Lakes fire stations are nearing, or at maximum capacity for storage of vehicles and equipment. It was also noted that even though some improvements have been made since the 2014 master plan review, there are still quite a few concerns remaining, such as:

- The proximity of the firefighter's gear in relation to the vehicle exhaust. This could create an exhaust contamination issue. Firefighters' gear should be stored in a separate room away from any exhaust contamination.
- None of the fire stations' apparatus bays have floor drains with oil separator (catchment) systems. It was noted by Public Works that this upgrade is not planed but will be installed into any new stations.
- All the stations except for Port Carling appear to be at maximum capacity for vehicles and equipment storage.
    - There was a notable lack of proper storage areas/facilities for the equipment. This creates a tripping/safety hazard to the staff.
    - Most of the stations need "flammable liquid" cabinets for such things as gas containers and other flammable and/or hazardous liquids storage.
- Separations from the apparatus floor and the training/living areas of the station need to be installed and maintained – some of the fire stations have either desks/workstation or kitchen facilities on the apparatus floor. These areas are susceptible to exhaust contamination.
- Washroom facilities for both male and female firefighters were also an issue at some of the stations and should be addressed. This can also be accomplished by making the washroom gender neutral.
    - The main concern is the lack of shower/wash up areas that need to be made available at all the stations. Firefighters must be able to decontaminate themselves from exposures to smoke, toxic gasses, chemicals, blood, and pathogens as soon as possible after a call and before going home.
    - The Port Carling, Minett, Torrance, Walker's Point and Foot's Bay stations have shower facilities, which leaves the following stations as needing this upgrade.
        i) Glen Orchard
        ii) Milford Bay
        iii) Raymond
        iv) Windermere

Note: *Based on the Occupational Health and Safety Act, workers who may come in contact with hazardous chemicals are to be afforded proper washing and clean up facilities.*

Space between vehicles must allow for safe and easy access between vehicles to reduce the possibility of persons becoming trapped between vehicles as they are being driven in and out of the fire station. For many of the fire stations space is at a premium, and some type of storage facility should be incorporated at many of the fire stations. Future stations should be built with this space requirement in mind.

Status of Fire Stations

In conversation with the Public Works Director, the following information was confirmed about the status of the 10 fire stations.

- **Port Carling** station in good shape. It is the flag ship of the Fire Department
- **Milford Bay** station needs to be replaced
- **Windermere** station is in good shape
- **Minett** station is too small to continue to meet the present needs of the Fire Department
- **Foots Bay** station is attached to the community centre and is in good condition
- **Glen Orchard** station is too small, just a one-bay garage with no facilities for the firefighters
- **Bala** station is still in relatively good condition
- **Torrance** station is not meeting the needs of the Department and is in poor condition
- **Walkers Point** station is relatively new and in good condition
- **Raymond** station needs to be replaced

6.2.1 Recommendations Relating to Fire Station Future Locations:

During the review of response data and station facilities in both this 2022 review and the previous 2014 master plan document it was noted that there is an opportunity to close the Glen Orchard and Torrance fire stations and utilize the equipment and staffing by merging them within the Foot's Bay, Bala and Port Carling stations.

- The Glen Orchard station is quite simply a one bay garage that houses one vehicle and related firefighting equipment. It has no on-site showers, washrooms, office space or even a proper training room. To renovate this station to bring it up to a more functional level would be cost prohibitive. It is true that this station does supply a service to the community but when the 10-minute map is reviewed, it becomes apparent that the Foot's Bay, Port Carling and Bala stations are able to cover this area. Also, this facility will not go to waste as the Works Department could take full advantage of having this space made available for them.
- The Torrance fire station is better equipped than the Glen Orchard fire station to meet the needs of the firefighters but due to its close proximity to the Bala fire station, an opportunity also exists to merge the two stations into one. This merging would still offer a good level of coverage in the area (as noted by the 10-minute response map).

These two closings would equate to a reduction in the cost of fire equipment and fire trucks. By even reducing the fleet by one or two trucks, this could equate to a future savings of almost one million dollars (for future truck purchases). There would also be savings related to station upkeep and operating costs. The funds identified for fire station upkeep (for Glen Orchard and Torrance) may not seem like a large savings but over time the fact that a fire truck (or two) may be reduced from the rolling stock, and annual maintenance costs for two stations could either be reduced or (even better) redirected back into the fire department's budget for future training and equipment needs would be a benefit.

During a review of the department's budget process, it was identified that that in the long-term capital planning process fire station infrastructure investments are earmarked for the Minett Fire Station #5 in 2027 and the Torrance Fire Station #4 in 2031. If Council does approve the recommendation to close the Torrance fire station, the money that was earmarked for this investment could be applied to upgrades of one of the other fire stations. Or put aside for the building of a new fire station.

6.3 Future Station Options

Option #1:

The maps located on the following page under the heading of **Fire Station Option #1 – Two Station Reduction** outline the present 10 station coverage model and how the response coverage looks with an 8-station model. As can be noted, there is still overlapping coverage in the areas where the Glen Orchard and Torrance stations have been removed. It should also be noted that the two stations combined only respond to approximately 160 calls per year, which could be handled by the four surrounding fire stations.

Option #2:

As a second option, EMG, working with the Fire Chief have also identified another model in which the 10-station model is now reorganized as a five-station model. As can be seen in the maps under the heading of **Fire Station Option #2 – Five Station Arrangement**, the coverage for the community is quite good. However, the issue with this option is the overall cost of building five new fire stations at an approximate cost of 1.5 million to 3.5 million per fire station (depending on size and overall design). This could theoretically be an overall cost of 7.5 to 17.5 million. If this option were to be considered, it would be a long-term implementation over the course of 10 to 20 years.

Option #3:

A third and final option, **Fire Station Option #3 – Three Super Stations**. EMG also evaluated the possibility of making three of the fire stations as key stations with the remaining stations being more of a satellite set up.

This issue with this super station concept is that all the stations are already at maximum capacity, which means that none of the fire trucks can be moved to another location without over stressing an already maximum capacity arrangement.

In this option, the Bala, Port Carling and Windermere fire stations would become the super stations to house the larger equipment. With the following stations being assigned a single pumper/tanker truck – Walkers Point, Milford, Foot's Bay and Minett. Part of the reasoning here is that Milford, Minett and Foot's Bay are also responsible for the marine units.

6.4 Feasibility Study

There is a great deal of information to be considered with the three options noted here. Before any decision is made, a full feasibility study by the Works Department or third party is recommended to understand what will be required to bring any of the noted stations (that will be kept) up to a state that will allow them to continue to serve the community for the next 10 to 20 years.

This study could be the deciding factor in what stations may in fact need to be rebuilt or even relocated.

The decision by Council on what option is approved, will be the starting point for this feasibility study. As noted, for Option #1 – this recommends the closing of two stations, which may not require a large study.

For Option #2 – the questions here revolve around the cost of building new fire stations over the long term and the land availability for each site.

For Option #3 – this is where, the upgrading of the three key stations would need to be evaluated, along with the cost of the possible upgrades.

Call Cluster Map – General location of responses by Fire Department

The call cluster map is utilized to confirm the locations of the calls, which helps with deciding on fire station locations, present and future.

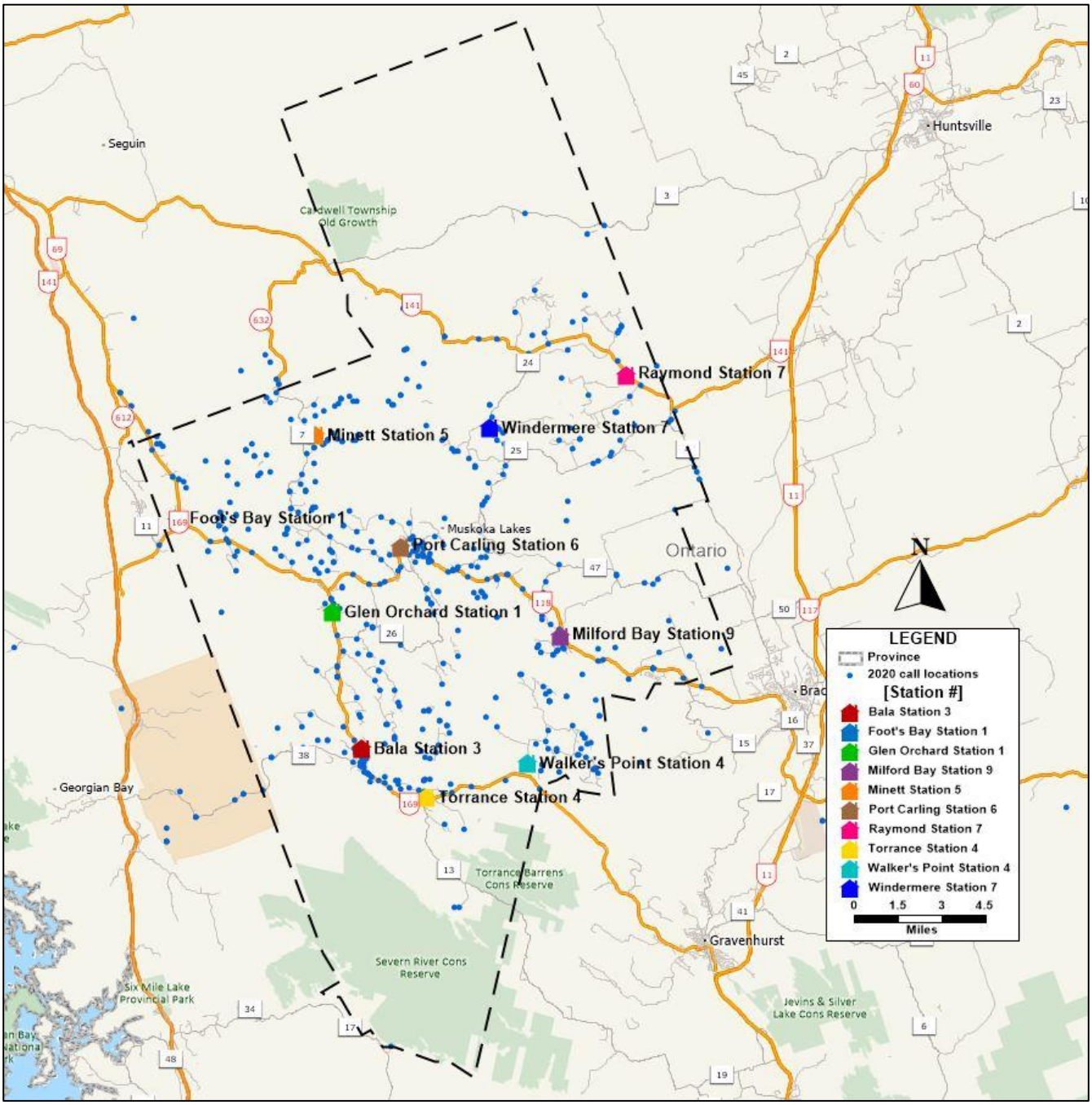
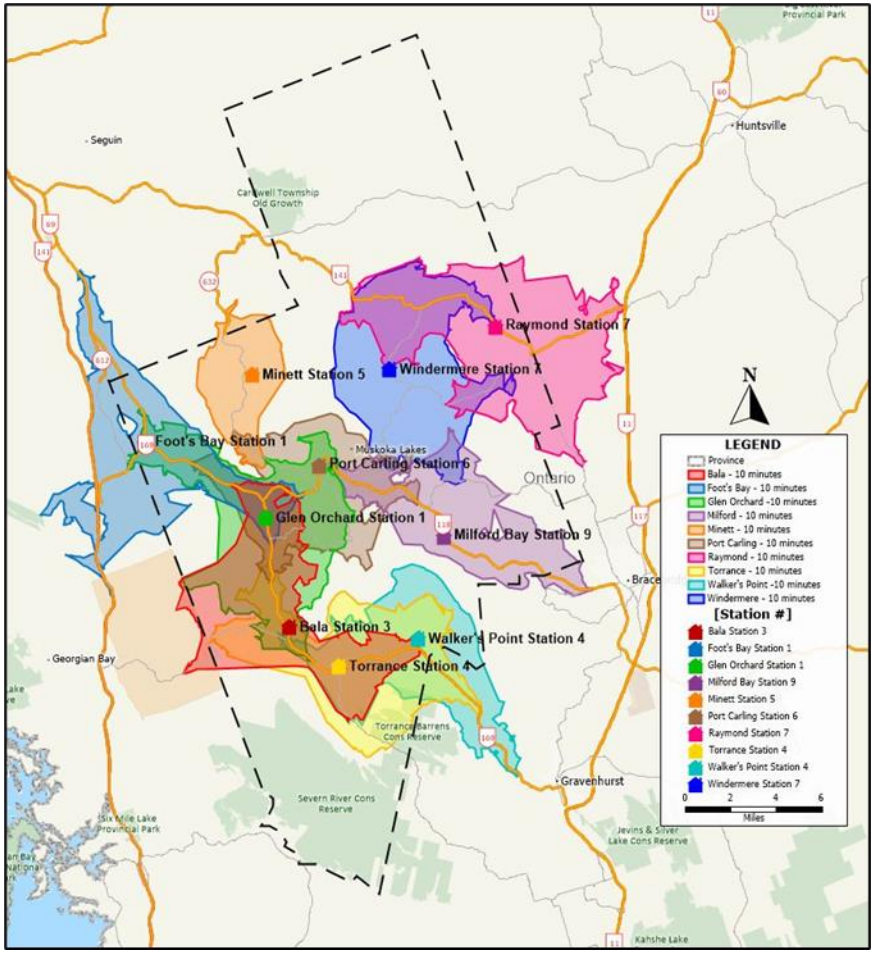


Figure #13: Fire Station Option #1 – Two Station Reduction

Present Fire Station Set Up – 10 Stations



Recommended 8 Station Set Up

This 8-station set up still offers good coverage to the community based on the noted all locations (as noted in the previous map).

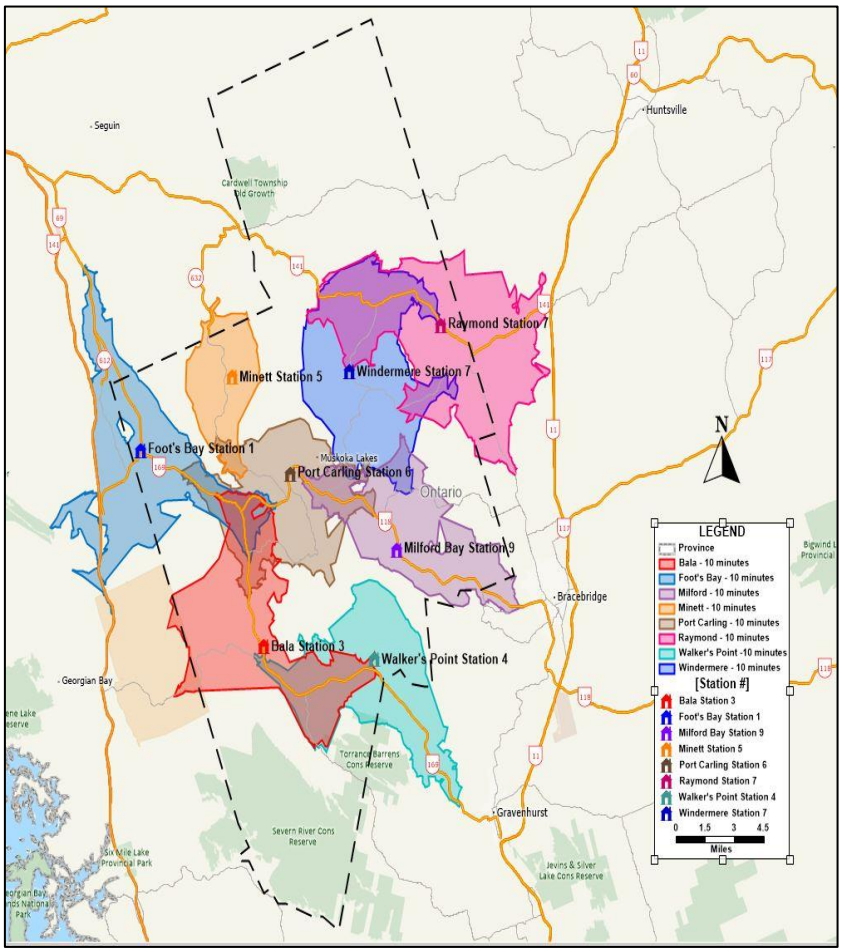
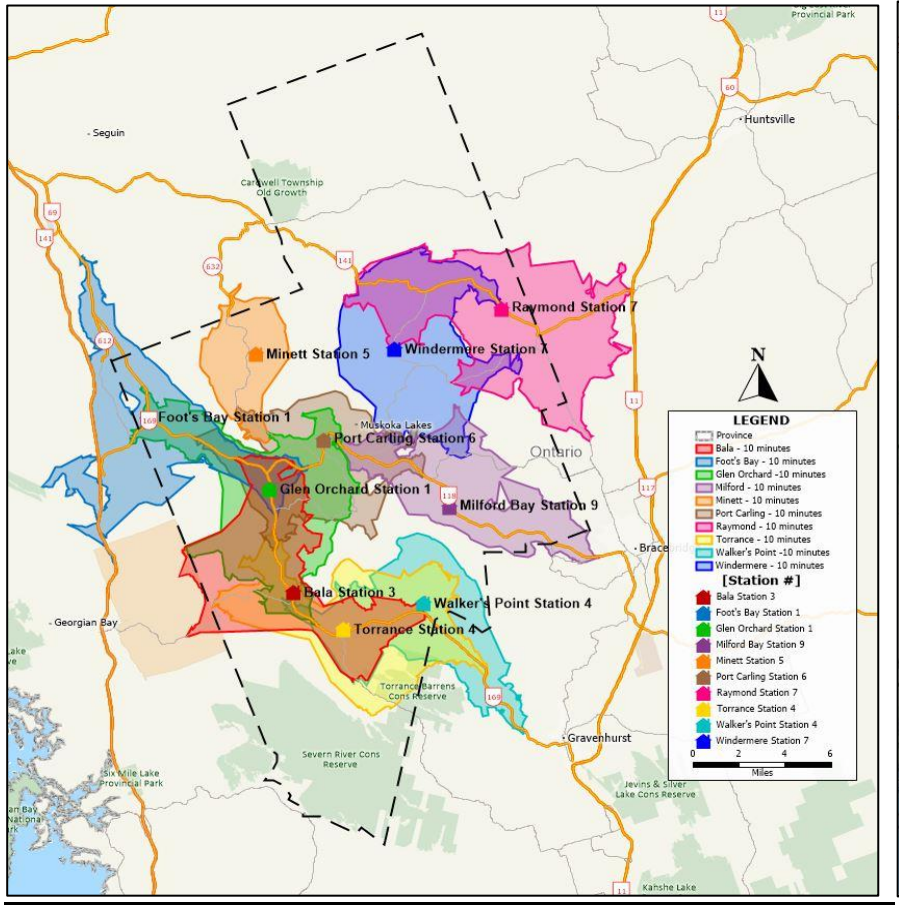


Figure #14: Fire Station Option #2 – Five Station Arrangement

Present Fire Station Set Up – 10 Stations

Five Station Set Up

This 5-station model also offers good coverage in the areas where the bulk of the Fire Department responses.



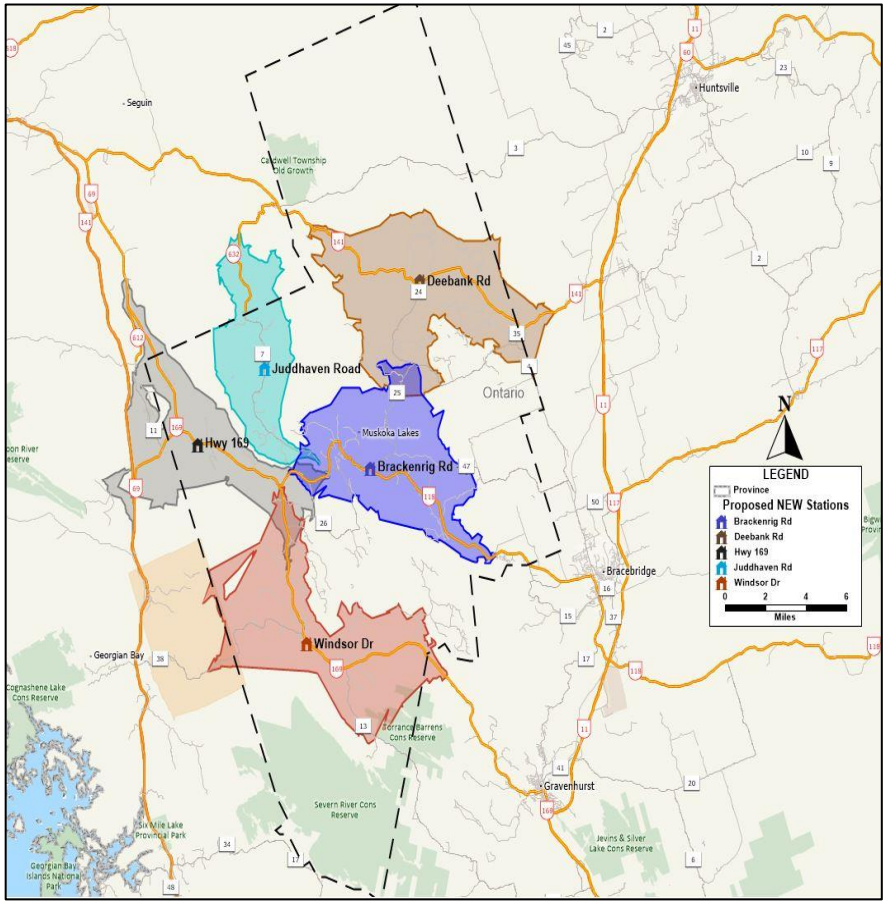
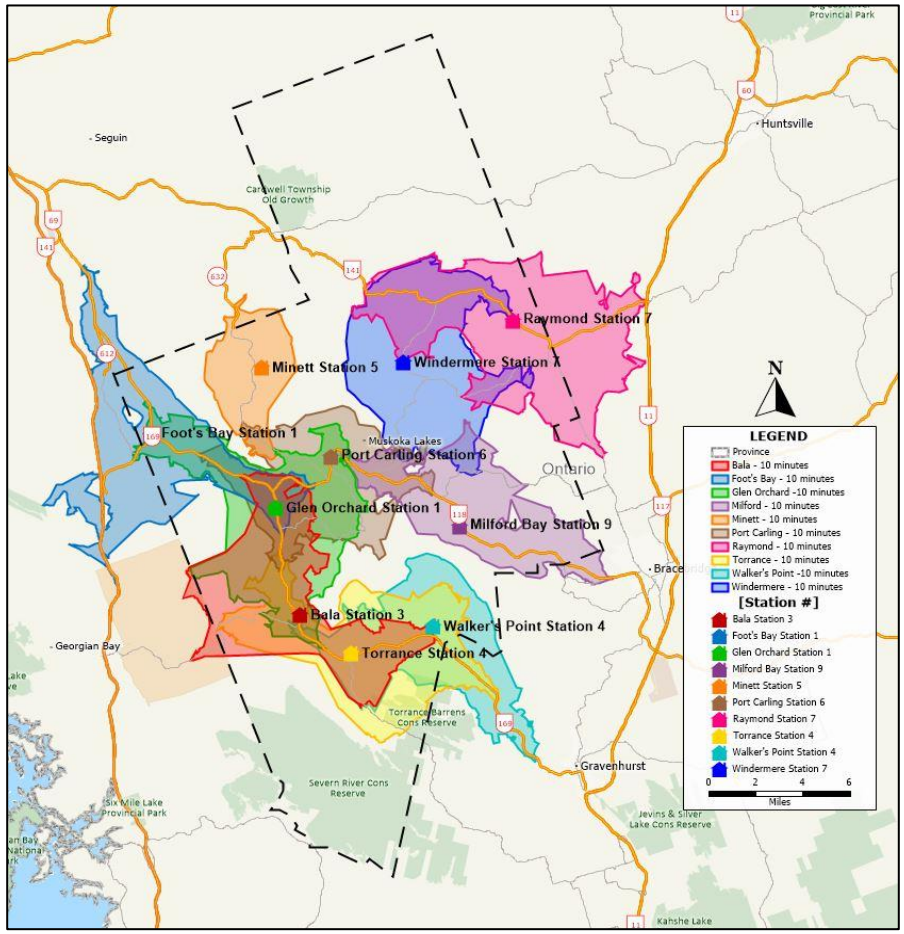


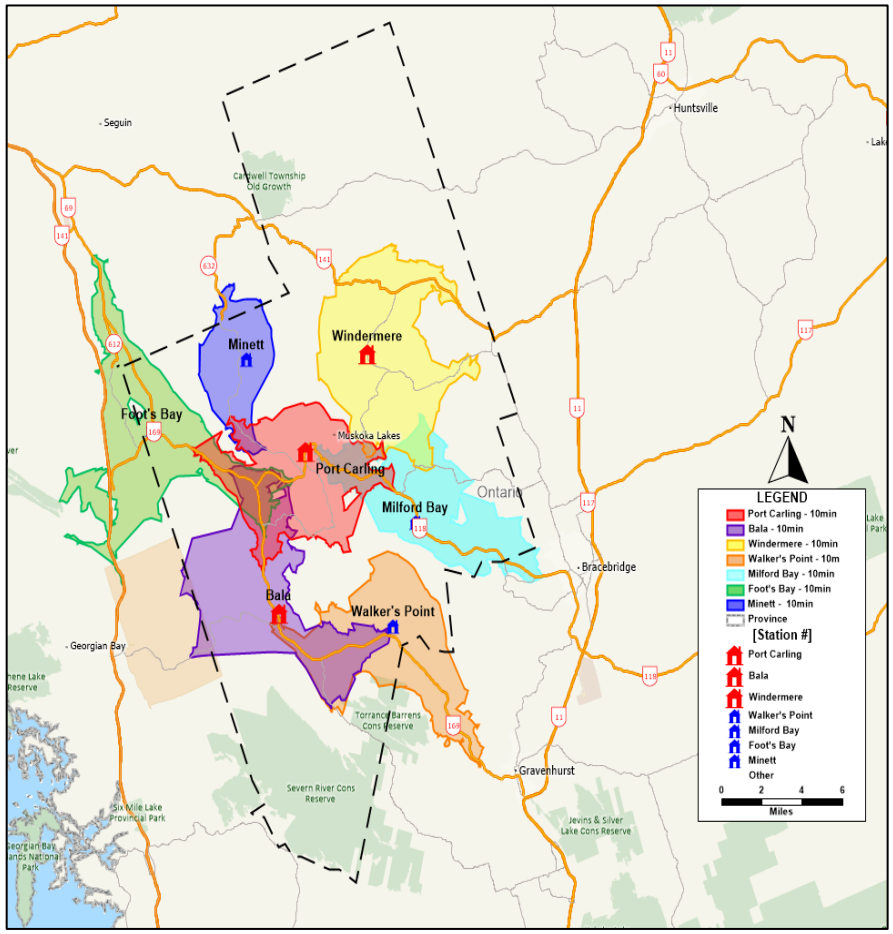
Figure #15: Fire Station Option # – Super Station plus Sub-Stations

Present Fire Station Set Up – 10 Stations

Super Stations plus Sub-Stations

This super station model does not change response areas, but it does help to reduce the space needs of the sub-stations which could increase these stations life expectancy.





6.5 Type of Buildings and Options for Fire Stations

Traditionally, fire stations have been stand-alone structures. Municipalities like Muskoka Lakes have been shifting to integrating services into shared-use buildings with emergency service response stations being built into community centres, libraries, public works buildings, etc. MLFD has taken advantage of joint facilities, in which they have built some of their fire stations into either a community centre, or as with the Glen Orchard Station, attached to the works yard facility. This partnership with other community buildings is a cost-effective measure in both the use of an existing/new facility but also, sensible use of available lands.

It is common across Canada to have different emergency services co-located; this has included fire and police, fire and paramedics, or all three in the same building. These stations normally have separate quarters within the same building, with separate entrances and facilities. This permits each service to operate independently while taking advantage of the efficiencies of a single structure.

As technology, community demographics, and operational requirements evolve, maintaining an ability to be flexible in the station design, construction, and location will benefit the community in the long-term. Leasing of a facility reduces the initial capital outlay, placing building maintenance responsibility on the landlord and allows the municipality the flexibility to move, should there be a change in community development.

The following is the City of Vancouver Fire Station #5 that has been integrated into a community housing project run by the YWCA. The two main floors make up the fire station with the upper four floors of the six-storey building providing 31 affordable housing units for single mothers and their children.

While the fire station was funded by the City, the YWCA housing portion of the building received funding from the municipal, provincial, and federal governments as well as the YWCA who launched a capital fundraising campaign. Having the two services integrated provides a sense of safety and security for the single mothers and their children.

In Calgary, a unique fire station exists that includes a two-storey podium building with two separate high-rise towers. The 11-storey east tower contains 88 affordable housing units with the 18-storey west tower containing 132 market housing units. The fire hall is at the base of the building, composing two-storeys. This is a public/ private partnership.[12]

The City of Barrie has leased the end unit of a commercial strip mall as a fire station *(pictured below)*. The unit was constructed by the landlord to meet the city's requirements.

[12] "838 – 4th Avenue SW," ITC Construction Group, accessed January 24, 2022, https://www.itc-group.com/project/solaire-louise-station

EXTREME fire stations are a new concept that is a Canadian built product out of Lethbridge, Alberta. It is a modular-based building, built to seismic and building code standards, using high efficiency, energy code compliant HVAC systems and fire suppression systems; these are standard on EXTREME stations.

The positive aspects about EXTREME fire stations are that they are custom built at a factory and transported to the site where they are quickly placed onsite and ready for occupancy.

Extreme Fire Station Assembly (On-Site)

A typical fire station has a life expectancy of approximately 50 years before the cost/benefit ratio starts to work against the municipality in terms of maintenance, basic function, and design. The EXTREME fire stations have, the ability to meet that life cycle because they are made from steel and aluminum and additional modules can also be added if the station needs to expand its footprint.

Extreme Fire Station (Multi-Bay Example)

The West Conrad station is an example of the diversity of EXTREME fire station designs and how they can be designed and expanded to meet the customer's needs.

A partnership with non-profit organizations, EMS, or leasing of available space in a new fire station are options as municipalities become more innovative in how they incorporate a fire station into the community. This model may not work or be a fit in every community, but these options are worth exploring to decrease costs while simultaneously increasing the fire department's response capacity.

Calgary Fire Department Waldon Station

Prior to March 2021 a two-bay EXTREME fire station with appliances, diesel extraction system, exercise room and administration space, was estimated to be $2.4 million. Unfortunately, the construction industry is experiencing unprecedented spikes in building materials like wood, cement, and steel which creates challenges in projecting final price.

6.6 Fire Apparatus - New and Replacement Schedules

Reliability of fire apparatus is critical to the successful operation of a fire service. Over the long-term, delaying the replacement of a vehicle is inadvisable as it will add to the overall maintenance costs of the apparatus and can influence insurance costs based on the emergency service's Fire Underwriters Survey rating.

The MLFD is well-equipped with pumper trucks, tankers and support vehicles required for primary response to calls within the township. All the vehicles have been identified in the department's capital replacement plan.

EMG is supporting the inclusion of a new aerial device as it will enhance the emergency service's ability to battle 'above ground' fires that are out of the reach of conventional ground ladders. Aerials or any type of elevated device truck plays a vital role at the scene of a structure fire; securing building access for upper floors, rescue, assisting with rooftop ventilation, and suppression can be achieved from an aerial ladder. These factors are especially important when dealing with apartment buildings and/or other structures of two storeys or more, such as commercial buildings and industrial facilities. As such, it is recommended that this replacement be incorporated into the fleet's future replacement plan.

6.6.1 Fire Underwriters Survey – Vehicle Replacement Recommendations

When assessing an emergency service's ability to respond and meet the needs of the community, the Fire Underwriters Survey considers the age of a fire truck as one of its guidelines.

The Small Communities and Rural Centres section (outlined in blue) is the recommendation for vehicle replacement for a township the size of Muskoka Lakes. This allows for up to a 20-year replacement cycle, in which the fire vehicle can be utilized as 2nd Line response status. It is, however, recommended that all First Line units be replaced by a new or younger unit when it reaches 15 years of age.

TABLE #3: FUS Vehicle Replacement Recommendations[13]

Apparatus Age	Major Cities [3]	Medium Sized Cities [4] or Communities Where Risk is Significant	Small Communities [5] and Rural Centres
0 – 15 Years	First Line Duty	First Line Duty	First Line Duty
16 – 20 Years	Reserve	2nd Line Duty	First Line Duty
20 – 25 Years [1]	No Credit in Grading	No Credit in Grading Or *Reserve* [2]	No Credit in Grading Or 2nd Line Duty [2]
26 – 29 Years [1]	No Credit in Grading	No Credit in Grading Or *Reserve* [2]	No Credit in Grading Or *Reserve* [2]

[13] TECHNICAL BULLETIN, FIRE UNDERWRITERS SURVEY™, A Service to Insurers and Municipalities, INSURANCE GRADING RECOGNITION OF USED OR REBUILT FIRE APPARATUS, accessed January 31, 2022, file:///C:/Users/EmergencyLT/Downloads/FUS-TechnicalBulletin-InsuranceGradingRecognitionofUsedorRebuilt%20(1).pdf

30 Years +	No Credit in Grading	No Credit in Grading	No Credit in Grading

[1] All listed fire apparatus 20 years of age and older are required to be service tested by a recognized testing agency on an annual basis to be eligible for grading recognition (NFPA 1071).
[2] Exceptions to age status may be considered in small to medium sized communities and rural centre conditionally, when apparatus condition is acceptable, and apparatus successfully passes required testing.
[3] Major cities are defined as an incorporated or unincorporated community that has:

- a populated area (or multiple areas) with a density of at least 400 people per square kilometre; AND
- a total population of 100,000 or greater.

[4] Medium Communities are defined as an incorporated or unincorporated community that has:

- a populated area (or multiple areas) with a density of at least 200 people per square kilometre; AND
- a total population of 1,000 or greater.

[5] Small Communities are defined as an incorporated or unincorporated community that has:

- no populated areas with densities that exceed 200 people per square kilometre; AND
- does not have a total population in excess of 1,000.

Fire Underwriters Survey definition of First Line Duty, 2nd Line Duty, and Reserve is:

- 1st line is the first fire truck utilized for response at the fire station
- 2nd line is the next truck to be used if the 1st line unit is tied up at a call, and
- Reserve is the vehicle kept in the fleet to be put into service if a 1st line or 2nd line vehicle is out of service.

The FUS is reviewed by insurance companies. Provided that the Emergency services adheres to the recommended replacement timelines through an approved capital replacement schedule, the department will retain its fire rating for vehicle replacement. By ensuring that the vehicles are being replaced on a regular schedule, Muskoka Lakes is also demonstrating due diligence towards ensuring a dependable response fleet for the Emergency services and the community it serves through its vehicle replacement schedule.

6.6.2 National Fire Protection Association – Vehicle Replacement Recommendations

The NFPA 1911, *Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Automotive Fire Apparatus* also supports a regular replacement schedule of fire vehicles. This standard includes guidance on retirement criteria for fire apparatus. NFPA 1911 recommends that all front-run vehicles are replaced on a 15 to 20-year cycle, depending on the community size.

For emergency services that are considering refurbishing their vehicles to extend the in-service life, reference can be made to the NFPA 1912, *Standard for Apparatus Refurbishing*. It should be noted that although the FUS do take refurbishment of vehicles into consideration, no credit rating is assigned to vehicles over 30 years of age.

During the station and equipment review, it was noted that the vehicles and small engines (pumps, generators, etc.) are on a standard replacement cycle and that maintenance and repair work is addressed as quickly as possible by Muskoka Lakes or other recommended facilities.

6.7 Elevated Devices – Aerial Verses Tele-squirt

Presently, the MLFD does not have an elevated device and must depend on basic ground ladders to provide access above ground floors of a building. These ground ladders will only provide safe access to the second floor of a structure. With the growth of the infrastructure and building stock within the township, EMG is supporting the inclusion of an aerial device to enhance the fire department's ability to battle 'above ground' fires that are out of the reach of conventional ground ladders.

Aerials or any type of elevated device trucks play a vital role at the scene of a structure fire; securing building access to upper floors, rescue, assisting with rooftop ventilation, and suppression can be achieved from an aerial ladder. These factors are especially important when dealing with apartment buildings and/or other structures of two storeys or more, such as commercial buildings and industrial facilities. As such, it is recommended that this type of apparatus be incorporated into the fleet's future replacement plan.

There are options relating to the types of elevated devices that a fire department can purchase. The following two pictures help to display the difference between an aerial truck and a tele-squirt. The aerial truck (in the left photo) is specifically designed to be used for access to upper floors of a structure for rescue. As such, it has a very large ladder structure that is generally 30 meters (100 feet) or more in length. Most of these ladders are equipped with a large capacity nozzle to assist with fire extinguishment on upper floors of a building or roof tops that are out of reach of regular ground ladders. Recently, manufacturers have designed aerial trucks with single axles, that have a reach of 22 meters (75 feet) or more, which are less expensive and much easier to manoeuvre around buildings, narrow roads, and laneways.

The tele-squirt (photo on the right) in many cases is a regular fire truck style frame that can raise a large capacity water nozzle, generally up to 15 or 20 meters. A tele-squirt has a much smaller ladder on it that can be used for firefighting purposes but is not specifically intended for rescues.

The key differences between the two vehicles are the size of the vehicle (the aerial can be much larger), the reach of the elevated device and what the elevated device was designed for. Another key difference is the cost. A new aerial truck can cost as much as 1.5 - 2 million dollars. Whereas a new tele-squirt can cost as much as 1 to 1.5 million dollars.

A third, but more expensive option to the previous two types of vehicles is the platform truck. This truck incorporates all of what the aerial and tele-squirt contain, with the added safety of a bucket for firefighters to work safely from. These buckets make rescues much easier and safer for all concerned. The cost for a platform truck can (like an aerial truck) can run from 1.5 - 2 million dollars. These vehicles come with the option of the bucket being over the front of the vehicle or in a bed at the rear of the vehicle. Both variants serve the same purpose.

The advantages of having an elevated device in a department's fleet are more than just having access to the upper floors of a building. They can also be used for rescues on angled slopes, they can be used to extend a firefighter beyond a shoreline to affect a water/ice rescue. Also, by having a more stable platform to work from, the elevated device offers a greater level of firefighter safety as opposed to working from a smaller ground ladder.

Based on the Fire Underwriters Technical document on Aerial devices, the MLFD should have at least one, if not two of these units in their fleet. Based on this information, along with the need for the

department to have proper and safe access to above ground situations, EMG is recommending that MLFD budget for the future purchase of an aerial device.

6.8 Maintenance

MLFD does not have its own mechanical division all work is handled by the township's maintenance yard. The repair shop does have a certified Emergency Vehicle Technician (EVT). As such, vehicle repairs can be done by a certified technician, which is a cost savings because the vehicles do not always need to be sent out to a 3rd party shop. It also is a more effective in relation to conducting repairs/service in a more expedient manner.

6.8.1 Vehicle Technology

The MLFD should endeavour to advance the technological perspective on the fire apparatus through the acquisition of tablets. These units are data enabled and will permit the responding crews to acquire information about the incident they are responding to directly from the Communications Centre including mapping, responding apparatus, pre-incident plans, hydrant locations and access to the internet. Some data terminals can open the overhead doors of the fire stations rather than a small remote control that can become lost. The township's Information Technology Division would be responsible for supporting the operating systems.

The tablets will have the capability to provide any pre-incident plans that are completed for a particular location. These plans will provide information such as a footprint of the structure, man and overhead doors, electrical panels, gas valves, hazardous materials storage area, sprinkler and fire hose connections, fire hose cabinets, etc. The Incident Command will use this information to direct their crews to specific areas of a structure to perform an assigned task and improve the situational data. MLFD should initiate and develop a pre-incident plan program with the completion of plans. MLFD currently has no pre-incident plans completed. Resources should be allocated that enable the quality and quantity required of the plans developed to be consistent and current.

Focus should be on vulnerable occupancies, industry, main streets with commonly joint buildings, marinas, assembly occupancies, campgrounds, fuel storage and retail such as propane and gasoline and any structures with known hazardous materials. It would aid in the completion of additional plans if an individual were to be the co-ordinator of the program and direct crews on which structures to complete. They would also be responsible for drawing the diagrams and uploading information into the computer system. All pre-incident plans should be completed in compliance with NFPA 1620, *Standard for Pre-Incident Planning*.

6.8.2 Bunker Gear

Every year, firefighters in ever-increasing numbers are being diagnosed with cancer. A contributing factor to their illness has been proven to be the contaminants that adhere to the structural firefighting gear during fire fighting operations. After a fire, the structural firefighting gear should be packaged and sent for cleaning to reduce this risk. The MLFD fire station has a commercial extraction washing machine made specifically for this type of cleaning.

While structural firefighting gear is being cleaned, the firefighter requires a replacement set. This is achieved by the fact that each firefighter will soon be issued a second set of gear, so they do not go without clean gear to wear. Ensuring that the cleaning of gear is a high priority after fires and that firefighters have access, to properly fitting bunker gear during the cleaning process, will assist the department in meeting its decontamination and hygiene program.

When used for interior structural firefighting, bunker gear has a life span of 10 years as stated in NFPA 1851, *Standard on Selection, Care and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting*. MLFD is following this replacement standard or if the gear is compromised in any way.

Further to contaminating the bunker gear, toxins also contaminate the firefighter's uniform/personal clothing. Each firefighter should have a clean uniform/personal clothing available to wear so that the uniform/personal clothing they wore into a fire is cleaned and the contaminates not taken home with them, where others could become exposed to the toxins. The risk of toxin exposure is not just to firefighting personnel, full-time or volunteer, but to their at-home families as well?

MLFD should ensure that SOGs pertaining to the cleaning, inspection of and maintenance of bunker gear is current and meet manufactures requirements. Special attention should be taken when reinstalling the drag rescue device (DRD), which may also require an SOG to provide guidance on the procedure.

6.9 New Technologies

Technology is ever evolving within the fire service, with new pieces of equipment being added to the resources used by an incident commander. One such technology which has proven to be a valuable tool is the use of drones (Transport Canada refers to these as Remotely Piloted Aircraft Systems (RPAS). Police services have been using them for some time to locate missing persons or document accidents and crime scenes.

The use of drones in the fire service is a growing trend as a multi-purpose tool that can assist with large scale assessments of fireground and hazardous material incidents, enhance search and rescue functions, and be used in pre-incident planning.

Drones can cover a lot of ground thus allowing valuable fire services personnel to be utilized elsewhere. They have proven beneficial for hazardous materials incidents and large-scale emergencies as the drone can be quickly deployed and give the Incident Commander a live view of the incident. The reduction of risk to firefighting personnel is a significant benefit of drone technology along with the live view capabilities that provides invaluable information to the Incident Commander. Drone pilots must follow the Canadian Aviation Regulations (CARs) Part IX-Remotely Piloted Aircraft Systems that contain the rules for drones up to 25 kilograms. Advanced operations include flying in a controlled airspace, flying over bystanders, or flying within 30 meters of bystanders.

New technologies are being developed each year to protect the firefighters; these include the use of robotics to fight fires, which are being actively used in Europe and Asia.

New SCBA have built in telemetry systems that, like some portable radios, identify the location of the firefighter. New technology SCBAs can transmit GPS data, the amount of air in the SCBA cylinder, monitor the heart rate, level of exertion the firefighter is being exposed to, and body temperature. As the technology progresses it is important to monitor the benefits and opportunities to integrate these devices into the fire service.

6.10 Hydrants

The Township of Muskoka Lakes supplies water to some of the populated areas and has installed fire hydrants which are tested to an unidentified schedule ensure a level of operability. The records of testing made available to EMG did not have a test date nor the name of the individual who completed the testing. The reliability of the hydrants may be in question in parts of the township as the quantity of water supply is low in some areas. The form also lacked information on the hydrant's flow test or if one was completed. The township needs to ensure there is adequate flow rates to sustain firefighting operations especially in high-risk areas in which vulnerable occupancies, schools, community centres, hospitals, youth residences and medical treatment centres are located.

All fire hydrants should be inspected and tested as noted within, NFPA 24, *Standard for the Installation of Private Fire Service Mains Their Appurtenances,* along with NFPA 291, *Recommended Practises of Fire Flow Testing and Marking of Hydrants*. The hydrants should also be painted in colours appropriate to their flow rate, as identified in NFPA 291. The township should ensure that every hydrant is flushed each year. The failure of a hydrant to operate as required may present catastrophic results and expose the township to risk of litigation.

When a fire hydrant is out of service, repairs should be completed in an expedited manner, notifying the fire department of such breakages and the anticipated time to complete the required repairs. During winter months some hydrants will have markers installed beside for ease of location amongst snowbanks. It would aid firefighters year-round to locate a hydrant at night with reflectors being installed on the 65mm ports and be colour coded to the hydrant's flow rate.

Section 6 Recommendations

Rec #	Recommendation	Estimated Cost	Suggested Timeline
19	Recommendations noted relate to: • Removal of firefighting gear from apparatus floor to reduce vehicle exhaust contamination • Separation of workstations and food preparation stations from the apparatus floor • Provide more storage capacity through the implementation of additions to stations and/or the use of sea-cans or storage sheds • Upgrading of washrooms to include proper shower/decontamination facilities • Installation of vehicle exhaust systems to reduce exposure to diesel exhaust by the firefighters • Installation of proper floor drain systems for oil capture.	Full station assessment is required before full costing can be determined	Short-term (1-3 years) and ongoing
20	Council to consider in consultation with the Fire Chief, a feasibility study of the three options presented in relation to: • Option #1 – closing of two fire stations • Option #2 – creation of a new five fire station model, or • Option #3 – creation of three key stations, with four sub-stations And that a full feasibility study be conducted by either the Director of the Works Department or through a third party.	Depending on Option chosen and Feasibility Study	Long-term (6-10 years) or longer dependent on option
21	Work towards adherence to the NFPA and FUS vehicle replacement cycles.	Replacement costing is dependant on type of vehicle	Long-term (6-10 years)
22	Purchase of an elevated device to support MLFD personnel with battling above ground fires.	Approx. cost of 1.5 million dollars	Short-term (1-3 years)

Rec #	Recommendation	Estimated Cost	Suggested Timeline
23	Greater utilization of the tablets to incorporate a pre-incident planning program, available on each responding fire truck.	Staff time	Short-term (1-3 years)
24	Work with the District of Muskoka water department to have the fire hydrants painted in colours appropriate to their flow rates.	Staff time	Short-term (1-3 years)

Section 7

SECTION 7: EMERGENCY MANAGEMENT

7.1 Emergency Management Program Overview

As mandated by the *Emergency Management and Civil Protection Act* (EMCPA), all municipalities in Ontario must have an emergency response plan and an emergency planning program. The *Act* also stipulates that municipalities are to conduct a training exercise on an annual basis. Also, every community in Ontario must have an identified Community Emergency Management Co-ordinator (CEMC). Currently this duty falls to the Fire Chief as CEMC of the Township of Muskoka Lakes and the Fire Prevention Officer (FPO) as alternate.

The latest version of the Emergency Response Plan (ERP) is noted as October 2017. It is a legislative requirement for emergency response plans to be reviewed and updated each year. Changes could be minor, not requiring a complete document update. To catalog such changes, the CEMC should insert a page at the front of the document to include the following:

- The date changes were completed.
- A brief outline of the changes and the sections involved.
- Name of individual completing the updates.
- Whether the revised document requires council approval.

Both the primary and secondary (including tertiary) Emergency Operations Centre (EOC) locations all have automatic standby generators. Even though the EOC may not be placed in operation frequently, they are maintained in a state of readiness including updates to the information technology system. The EOCs are reflective of the ERP in that the Incident Management System (IMS) command model has been followed, reflecting the Province of Ontario, and surrounding municipalities model. The township is well positioned with IMS functioning and appropriately resourced EOCs.

Given the abundance of bodies of water in the township and as with many area municipalities, each spring there is always the threat of significant flooding. Prior to the spring melt, a community should receive direction on what could occur, the resulting effects to expect, what they should be prepared for in the event of significant flooding, and ways to self prepare for such events. This is achieved through social media, public messaging on radio and television stations, and print media.

The Emergency Control Group is established and compliant in the requirements to meet, train, exercise the ERP, and update as necessary. The CEMC ensures that the Primary Control Group contact information is reviewed and updated annually. Based on EMG's review, the emergency management program is well administered and resourced in Muskoka Lakes.

7.1.1 Incident Management System

Interagency, multi-jurisdictional, multi-government and multi-disciplinary are terms used when operating in a large-scale emergency environment. On May 1, 2016, a wildfire seven kilometers outside of Fort McMurray became the worst wildfire incident in Canadian history with losses and economic impacts to the community close to $10 billion. The Incident Command System (ICS) is based upon best practices in Canada and the United States and is used for both small or large emergency and non-emergency planned events. It identifies roles and responsibilities to improve resource and interagency communications for a common purpose. In the Province of Ontario, the ICS is known as the incident management system (IMS).

During some emergencies there is a likelihood of the IMS being expanded into a Unified Command. The type of incident, complexity and location of an incident may require a Unified Command structure. The Unified Command "is a management structure that brings together the 'Incident Commanders' of all major agencies and organizations involved in the incident to coordinate an effective response while at the same time carrying out their own jurisdictional or functional responsibilities."[14]

The EOC is critical for providing coordination, resource management, communications, and critical assessments of the event with the Incident Commander. The strength of the IMS is in ensuring the safety of responders and other personnel are a priority and an effective use of resources or elimination of the duplication of services is achieved. Individuals that are expected to be part of the EOC, including designated alternates, should have training in IMS.

There are four different types of Incident Command levels and Emergency Management Ontario (EMO) identifies the following levels:

- **IMS 100**: The awareness level training that introduces the participant to IMS topics and concepts.
- **IMS 200:** The awareness level training that is designed to help people function within the IMS. This level of training provides a greater depth regarding the functional areas and positions in the IMS.
- **IMS 300**: The level that is directed for supervisory functions and provides exposure to setting objectives, unified command, planning, demobilization, and termination of command. This level is focused on developing skills through practical exercises.
- **IMS 400**: The level that is directed for supervisory functions and is orientated to developing skills for complex incidents and the coordination of multiple incidents.

[14] Deal, Bettercour, Deal, et al, (2010) Beyond Initial Response, ICS, p.I-33.

There is no minimum training identified for the EOC, however, the IMS is identified in the township's Emergency Response Plan. Most incidents are routinely dealt with without activating the EOC and it must be noted that the EOC is activated when an event is expected to expand in complexity and duration, requiring an efficient coordination among departments or responding agencies.

7.1.2 Emergency Planning Training and Exercises

Emergency planning and IMS are skills that need to be used regularly. Several training options as noted below, can be utilized to plan, and exercise in IMS and the community's emergency plan activation.

EOC Activation: Planning for a practice activation of the primary and secondary EOC keeps staff orientated to their roles and all staff members that are expected to have a role in the EOC should participate in these practice sessions.

Discussion-Based Exercise: In Discussion-Based Exercises, the primary intent is to have dialogue regarding the emergency plan, procedures, bylaws, and any policies that could impact an emergency. The discussion sessions are low key, low pressure and a great tool for familiarization of plans, procedures, bylaws, and policies. The secondary intent of discussion-based exercises is to build confidence through familiarization amongst team players in the application of the plan. These discussion-based exercises are great tools to facilitate the learning process for the staff designated as alternates expected to fill a role in the EOC.

Discussion based training is a great way to orientate new staff or existing staff that have not had a real opportunity to familiarize themselves with the emergency plan or organizational plans, bylaws, procedures, and policies.

Tabletop Exercise: These exercises are low cost with minimal stress, but preparation can require some time to create a scenario that is relevant to the municipality. A tabletop exercise is generally led by one facilitator depending upon the complexity of the scenario. Tabletop exercises are great ways to identify gaps in plans, policies, and procedures in the post-exercise discussions. To complete the exercise, an After-Action Report is completed to identify any shortcomings or deficiencies that need to be addressed.

Operations-Based Exercise: The primary intent is to deploy personnel and equipment in a drill, functional exercise, or a full-scale exercise. The disadvantage of an operations-based exercise is that they require a significant amount of time to plan and prepare for, as resources will be required from multiple agencies. Operations-based exercises generally reveal gaps and weaknesses in training, inter-agency communications, resource allocation and operational procedures. Operations-based exercises include:

- Drills – These are exercises that are intended to evaluate a specific operation. For example,

MLFD along with Paramedic Service may conduct a drill of a carbon monoxide leak in a vacation resort.

- Functional exercises – These exercises can be complex with a high degree of realism and are used to test plans, procedures and policies in the training scenario which is at a single site. These exercises are used by agencies to test their capabilities of performing multiple functions.

Full-scale exercises: A complex exercise that tests multiple agencies in a single scenario at multiple sites. These exercises are in real time, highly realistic and usually stressful for agency personnel participating in the exercise.

- A full-scale exercise can take from 6-10 months to prepare for and require a significant investment in resources and funds.
    - Several facilitators are required to ensure safety and compliance to the storyline of the exercise.
- A full-scale exercise is developed with clear objectives to test multiple agencies. Upon completion of the exercise, a hot wash is conducted which is a formal discussion of the involved agencies performance during the exercise.
- An After-Action Report and a formal Improvement Plan are prepared and distributed that identify actions required to address and improve performance.

7.2 Emergency Management Program Opportunities

The ERP should be updated regularly and as per legislative requirements. Given the most recent version of the ERP is 2017, best practice would suggest that this should be done at least so that the ERP version is within a year of the current date.

EMG recommends the 2017 ERP be updated, if required, and a revision tracking page be included at front of document outlining the sections updated and confirming Council approval as minimum.

EMG recommends that due to the importance of staff understanding their roles and responsibilities in the EOC, that a policy be implemented that identifies IMS 100 for all township staff, IMS 200 as the minimum standard for staff required to be in the EOC, and IMS 300 being the minimum for all department heads.

With so many acts of domestic terrorism taking place each year throughout the world, including Canada, a municipality must plan for the possibility of such events within their own community. As such, EMG recommends that the ERP should have a section dedicated to domestic terrorism. The section should include an integrated response program comparable to NFPA 3000, Standard for an Active Shooter/Hostile Event Response (ASHER) Program. Partnerships could be achieved with outside

agencies such the OPP and EMS to develop and deliver a presentation to the public and include local businesses as sponsors to assist in offsetting any expenses.

Section 7 Recommendations

Rec #	Recommendation	Estimated Cost	Suggested Timeline
25	Update ERP and insert a page at the front of the document to include the following: • The date changes were completed. • A brief outline of the changes and the sections involved. • Name of individual completing the updates. • Whether the revised document requires Council approval.	Staff time	Immediate
26	Consideration of a potential partnership with the Fire Marshal's Office, police, or other bordering communities may be possible as an adequately functional mobile command centre could be utilized for multi-agency deployment.	$20,000 - $50,000 (estimate)	Short-term (1-3 years)
27	Due to the importance of staff understanding their roles and responsibilities in the EOC, it is recommended that a policy be implemented that identifies IMS 100 for all staff, IMS 200 as the minimum standard for staff required to be in the EOC with IMS 300 minimum for all department heads.	Staff time (courses are offered at no charge)	Short-term (1-3 years) and ongoing

SECTION 8

Fire Service Agreements

8.1 Mutual Aid, Automatic Aid, & Fire Protection Agreements

SECTION 8: MUTUAL AID, AUTOMATIC AID AND FIRE SERVICE AGREEMENTS

8.1 Mutual Aid Partners and Agreements

A mutual aid plan provides the framework by which assistance can legally be provided by all parties identified within the plan. The Township of Muskoka Lakes has a mutual aid plan and Service Agreements with the following partners:

- Bylaw No. 2005-58 – District of Muskoka Mutual Aid Plan and Program (April 18, 2005)
- Bylaw No. 2005-114 - Muskoka Central Ambulance Communications Center (July 11, 2005)
- Bylaw No. 2012-42 – Ministry of Natural Resources: Municipal Forest Fire Management (March 26, 2012)
- Bylaw No. 2014-76 – First Aid Assistance Agreement/District of Muskoka Lakes (July 18, 2014)
- Bylaw 2018-93 – Town of Huntsville: Shared Services Agreement (August 17, 2018)

In support of mutual aid efforts across the Province of Ontario, the OFMEM requires fire departments to update their equipment lists as to what apparatus they have and could be available for mutual aid purposes. However, it is incumbent upon each participating fire department to also have a clear understanding of what is available from its neighbouring fire department(s) and how to access during times of need.

8.2 Automatic Aid and Fire Protection Agreements

Automatic aid and fire protection agreements exist between fire departments and communities when time and resources are a factor in responding to an emergency. Many times, these agreements identify the personnel and equipment that will be dispatched automatically in certain conditions. In the case of Muskoka Lakes, some of these agreements also reference specific geographic areas to which resources will be deployed.

The benefits of an automatic aid agreement in contrast to a mutual aid agreement, means that the necessary equipment and resources will automatically be dispatched for suppression services, rescue and other identified emergencies that fall within the parameters of the automatic agreement, thereby saving critical time. Oftentimes, these automatic aid agreements involve a reciprocal arrangement between two or more agencies. Typically, fire protection agreements in contrast, follow this same model in terms of response, however the arrangement is often weighted more heavily towards one agency providing a service rather than being focused on reciprocity.

The MLFD has Automatic Aid agreements with the following partners:

- Bylaw No. 2007-76 Township of Seguin (June 26, 2007)
- Bylaw No. 2012-27 Township of Huntsville (May 7, 2012)

- Bylaw No. 2017-134 Town of Gravenhurst (October 13, 2017)
- Bylaw No. 2019-53 Township of Georgian Bay: MacTier & Foot's Bay Area (May 17, 2019)
- Bylaw No. 2019-54 Township of Georgian Bay: East Shore Road Area & Trent Severn Waterway (May 17, 2019)

The MLFD has Fire Protection agreements with the following partners:

- Bylaw No. 2005-57 – Lake Joseph Cottager's Landing Inc. (April 18, 2005)
- Bylaw No. 2006-59 – Wahta Mohawks of the Wahta Mohawk Territory (June 12, 2006)
- Bylaw No. 2012-28 Township of Seguin (March 26, 2012)

EMG has reviewed the noted agreements and observed that in many cases they are very dated and a review of all fire related bylaws and agreements is needed to ensure that they are current, approved, and remain in effect. The effort that goes into maintaining these relationships has a direct benefit to the citizens being served, to protecting lives, homes, and infrastructure, and to keeping firefighters safe.

This review process has also identified several considerations for improvements that support and strengthen the provision of fire protection services. With that said, a greater level of clarity would be achieved for all parties by following a standard template around wording and structure for these agreements. While many are similar, there remains enough differences that detract from a consistent approach. Defining on a regional level with the partners involved, what constitutes a mutual aid, automatic aid, and/or fire protection agreement would be an excellent starting point to clarify and standardize this approach. It may also be worth considering a regional mutual aid or automatic aid agreement that can still define geographic areas if required as laid out in the agreements already in-place, and yet the current signatories could leverage these relationships within one over-arching document to the benefit of overall operational readiness and response in each area.

It is also in the best interest that fire departments in a fire protection agreement, automatic aid agreement or mutual aid plan identify annual training sessions where firefighters get acquainted with the equipment of other departments. These combined training sessions also build the working relationship and morale between fire departments. Automatic aid agreements bring fire departments together to work as a team for the benefit of the public, but without combined training sessions to practice as a team, the team cannot effectively function, and breakdowns can occur.

Another benefit of the mutual training session is the identification of gaps in equipment, communications, or training prior to a real emergency. It is highly recommended that when the current agreements are revised and updated, that a defined commitment to regular training be included that designates the position accountable for completion of this task. In addition, the agreements should lay out a commitment to ongoing meetings with senior fire department

leadership. These mutual aid/automatic aid meetings allow fire chiefs and chief officers from the participating departments to discuss issues or gaps in response protocols and to identify a collaborative path forward that enhances fire protection for all participating agencies and communities.

As an enabling document, the District of Muskoka Mutual Aid Plan and Program (Bylaw No. 2005-58) provides wide latitude and authorization for the MLFD to deploy beyond the boundaries of the municipality or fire area. It would also seem to provide the basis for the approach noted above to support the Fire Chief in implementing a more unified approach to automatic/mutual aid. Conceptually, this approach provides participating agencies with the discretion to deploy resources in aid of one another in an efficient and effective manner. Of note, this Bylaw is approaching 17 years of age with no evident notations around expiry dates and/or regular review periods. At the very least, adjustments should be made to the Bylaw No. 2005-58 to set out defined timelines for review, renewal, and/or expiry of the Mutual Aid Plan and Program.

Adjustments should also be made to the Fire Protection Agreement Bylaw No. 2006-59 between the Municipality of Muskoka Lakes and the Wahta Mohawk Territory related to the current fees for services. Given the requirements placed on all fire departments related to training and equipping personnel to ensure an effective and efficient response force can be deployed to emergency incidents, a ‘pay per incident’ model may no longer be in the best interest of both parties. Collaboratively determining and agreeing to a set annual financial contribution would allow the Wahta Mohawk Territory to be an active partner in a revised agreement. In alignment with the efforts being made across Canada towards reconciliation with Indigenous peoples, having the Wahta as an active financial partner would also support a more integrated and informed approach to MLFD efforts at community risk reduction within Wahta Mohawk Territory. This would also provide the MLFD with a consistent financial contribution that could be then directed towards operations, training, and/or agreed upon fire prevention activities. In addition, this agreement contains an automatic renewal clause, which should be revised to include a defined review/renewal timeline. This will ensure the agreement continues to meet the needs of all parties and remains evergreen. Should the participating agencies wish to remain in a ‘Fee for Service’ model, consideration should be given to aligning the fee structure with rates for service as laid out in the Ministry of Transportation (MTO) for emergency response activities (vehicle collisions, brush fires, spills) on provincial highways located within municipal boundaries. While there is a defined need to provide rescue and suppression services by the MLFD, consideration should be given to a delivery model for public fire safety education, fire prevention including inspections, investigations, and enforcement within the Wahta Mohawk Territory.

The Shared Service Agreement (Bylaw No. 2018-93) with the Town of Huntsville is an innovative and industry best-practice for the delivery of this specific training specialty. The regional partners of the MLFD would be well served to look at this model across the full scope of their organizations. By

aligning training, operations, equipment and apparatus procurement, a level of consistency can be implemented that will enhance service delivery and be cost effective for the fire departments and their tax paying constituents. In reference to the MFP from 2014, there were comments provided regarding increasing synergies between and amongst the fire service partners that MLFD has. By exploring additional shared services opportunities, the MLFD can continue down this path as was previously suggested whereby resources devoted to all the participating fire services can be leveraged to greatest effect.

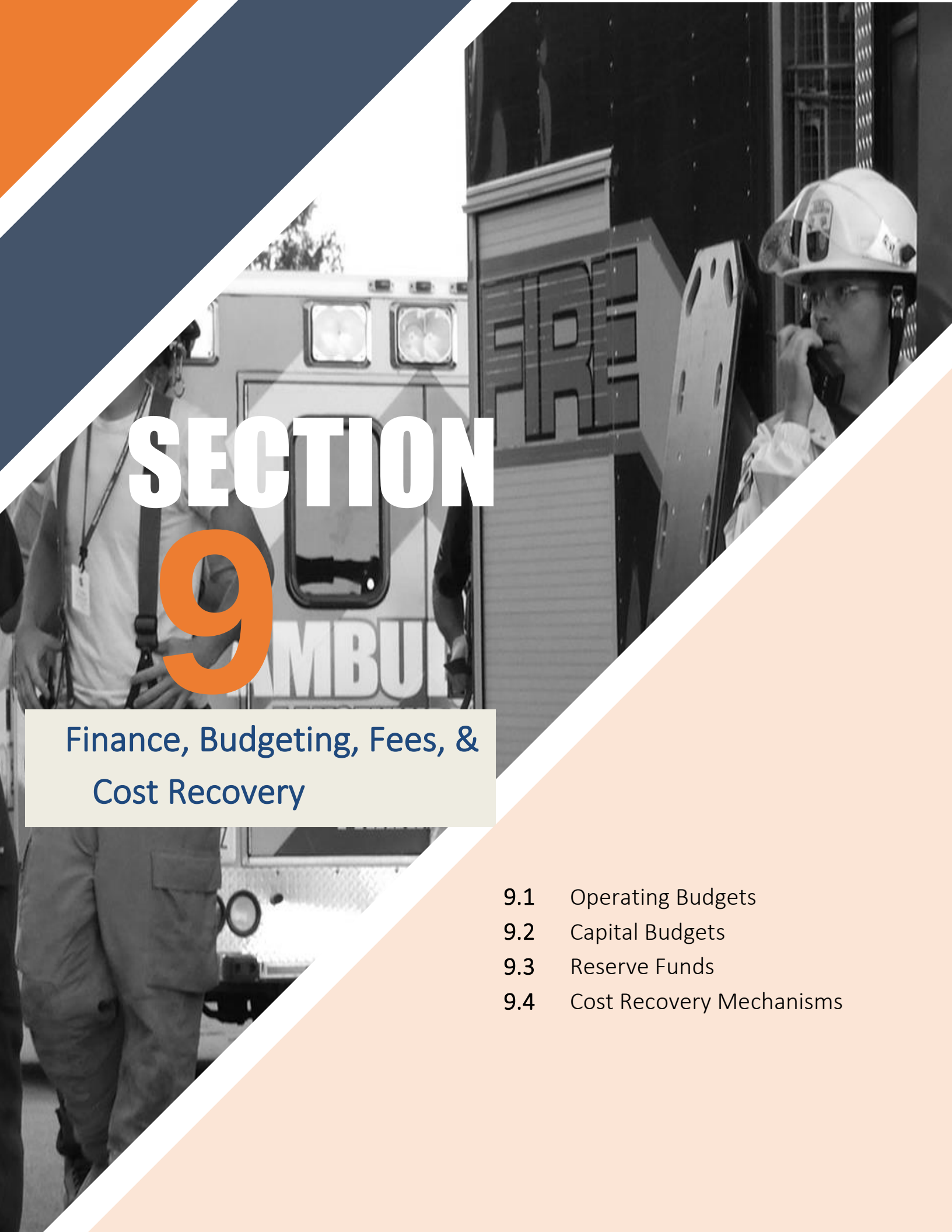
Pre-Hospital Care:

While a key service area for citizens, the delivery of pre-hospital care by a primarily volunteer-based fire service can have challenges. The over-arching First Aid Assistance Agreement Bylaw No. 2014-76 between the Township of Muskoka Lakes and the District Municipality of Muskoka Lakes would be well served by a thorough review. With current training and competency requirements, in addition the increasing scope and cost of medical equipment used at these types of incidents, opportunities may exist to re-examine the cost sharing relationship outlined in this agreement and determine a more suitable arrangement that reduces the financial burden being placed upon the MLFD with the intent of ensuring sustainability in the fire service-based delivery of pre-hospital care to citizens in need.

Section 8 Recommendations

Rec #	Recommendation	Estimated Cost	Suggested Timeline
28	All Automatic Aid, Mutual Aid and Fire Protection Agreements organized as Muskoka Lakes Bylaws be reviewed and revised, with regular defined review periods and/or expiry dates identified. A page listing the dates of review and areas revised should be an addendum to any of the revised Bylaws.	Staff time	Immediately (Reviewed annually)
29	An immediate review should be undertaken of the agreement authorized under Bylaw No. 2005-114 - Muskoka Central Ambulance Communications Center (July 11, 2005). Opportunities exist to improve the service being delivered by the CACC to MLFD.	Staff time	Immediately (Reviewed annually)
30	The First Aid Assistance Bylaw No. 2014-76 be reviewed and revised. Efforts should be undertaken to identify true costs and impacts to the MLFD in the delivery of pre-hospital care as outlined in the agreement and re-align the cost-sharing arrangement to ensure sustainability and consistency in the delivery of this service.	Staff time	Short-term (1-3 years)
31	A collaborative review process be undertaken on Bylaw No. 2006-59 to assess feasibility of moving from a 'fee for service' model and to a more active partnership model resulting in a pre-defined annual financial contribution from the Wahta Mohawks to MLFD. Consideration should be given to collaboratively reviewing and agreeing upon the full scope of services that MLFD can provide including community risk reduction activities such as Fire Prevention/Public Education.	Staff time	Short-term (1-3 years)
32	A review be taken of all Mutual Aid, Automatic Aid, and Fire Protection Agreements to simplify language used, ensure consistent terminology,	Staff time	Short-term (1-3 years)

	and where possible increase similarity in content and structure. Consideration should be given to amalgamating these into one over-arching regional document.		
33	A review be undertaken of the extent to which geographic areas currently designated within the Municipal Protection Area (MPA) may be more appropriately allocated within the Crown Protection Area (CPA). The current allotments of geographic areas within the MPA as opposed to CPA could place undue strain on the resources of the MLFD and should be reviewed in a collaborative process with the Ministry of Natural Resources (MNR) related to Bylaw No. 2012-42.	Staff time	Short-term (1-3 years)
34	A regional Automatic Aid/Mutual Aid/Shared Services committee be established to explore the potential for a multi-jurisdictional agreement. A multi-jurisdictional Shared Services Agreement could encompass the different agreements already in-place and bring all stakeholders together to identify areas where enhancements can be made around operational readiness & response, joint training, and equipment/apparatus procurement.	Staff time	Mid Term (3-5 years)



SECTION 9

Finance, Budgeting, Fees, & Cost Recovery

SECTION 9: FINANCE, BUDGETING, FEES, & COST RECOVERY MECHANISMS

The costs associated with supporting public safety and operating a fire department can make up a large part of municipal finances, in this case the township's operating and capital budget. That said, the vast majority of a fire department's budget, such as with the MLFD, is a relatively fixed cost.

Presently, when we assess the MLFD operating and capital budgets comparatively with that of the township overall, the percentages align with common industry practice. The MLFD operating budget, inclusive of contributions to reserves and exclusive of potential revenue generation, equates to 13.6% (2022) of the township's annual operating budget. The MLFD percentage of the capital budget of the township for 2022 is approximately 11.3%. When comparing these percentages to other fire services, the advantages the township gains from having a predominantly 'Paid-on-Call' volunteer firefighting force is evident through staffing expenditures that comprise a small portion of the overall operating costs. As is the case with the MLFD, fire department budgets should be strategically built to meet the public safety needs of the community being served in a sustainable manner. It has been scientifically demonstrated that if fire department resources are deployed to match the risks inherent to hazards in the community, then the community will be far less vulnerable to negative outcomes.

During municipal budget deliberations, internal departments are essentially competing against each other for scarce budget resources. The job of the Fire Chief is to educate civic administration and elected officials explaining why these costs are necessary for the fire department to provide the service levels identified in the Emergency Services Bylaw and for the safety of staff and citizens in the community. It appears that due to co-location of township infrastructure, such as fire stations and community centres, the investment of resources from both an operating perspective and from a capital investment lens, is being leveraged to the advantage of the citizens being served.

9.1 Operating Budget

Over a five-year period beginning in 2020, the MLFD has seen an increase in the percentage of the township operating budget allocated to its operations. In 2019 & 2020, the MLFD comprised 8.6% and 8.1% respectively of the overall township annual budgets, inclusive of reserves and exclusive of potential revenue. These percentages may not have reflected the true costs associated with the provision of emergency services within the township. The need to ensure appropriate and adequate training for staff and costs related to wages will both require a sustainable funding stream and attention in the coming years. As of 2021, the percentage of

the township budget allocated to the MLFD rose to 12.5% and appears to have been stabilized thereafter with 2022 projected at 13.6% and both 2024 and 2025 at 13.3% and 13.6% respectively.

During a review of the operating budget, it was found that key account operating sections are identified and tracked with sufficient detail that supports both transparency and accountability. Budget items include:

- Salaries & Benefits (Staffing costs)
- Contract Services, Materials, Equipment
- Utilities and Facility Maintenance
- Insurance
- Professional Fees and Honorarium
- Staff Development (Training)
- Administration
- Grants and Community Programs
- Other Expenses

Each of the preceding items were further delineated and categorized according to expenditures within the detailed MLFD 2022 Fire General Budget. While the Township of Muskoka Lakes Financial Services Department is the primary stakeholder in managing the budget process, the MLFD is engaged and involved in this process through participation of the Fire Chief. This level of engagement ensures that township's leadership and elected officials are kept informed of the public safety needs of the community and its fire department.

9.2 Capital Budget

The Township of Muskoka Lakes 10-Year Capital Plan identified capital funding for the MLFD which is further broken down into detailed categories such as fire stations, fire vehicles, SCBA, and turnout gear replacement as required by the department.

Based on projections as laid out in the 10-Year capital plan, each year the township approves an updated spending plan for its capital budget. The capital budget generally consists of large investments into the community and the township is to be commended for their efforts and long-range planning. Examples of the long-term capital planning process include the fire station infrastructure investments earmarked for the Minett Fire Station #5 in 2027 and the Torrance Fire Station #4 in 2031.

During the budget process the Fire Chief prepares a capital budget report and works closely with the Township of Muskoka Lakes Financial Services to review, revise, and update as necessary. The request is evaluated on whether it is a forced growth request that is a need based upon the ability to provide a level of service. The recommended projects are then consolidated into a report for Council to deliberate and approve or deny.

9.3 Revenues

The township identifies fire department revenues within the Operating Budget. These revenues are further broken down into User Fees; Licenses/Permits/Rentals; Cost Recoveries; and Other Revenues. In terms of cost recovery processes in place, much of this is related to by-laws associated with fire protection agreements. Specifically, agreements in place with the Wahta Mohawks, with the Ministry of Natural Resources, and through the first aid agreement provide for reimbursement for services delivered. Elsewhere in this fire master plan, it has been recommended that these by-laws and the associated cost recovery schedules be reviewed for relevancy and equity to ensure the MLFD is not carrying a disproportionate financial burden for the delivery of these services.

The fire department is potentially looking at significant expenditures in the coming years. As noted previously, staffing costs associated with provision of training to meet standards and ensure adequate service provision and interoperability with neighboring jurisdictions should be a priority. The amount to be directed for fire protection from both the municipal operating and capital budget should be reviewed, and opportunities for additional revenues to support an appropriately resourced fire department should be examined to lessen the impact on the tax base.

It is worth noting that providing direct comparisons to other local jurisdictions regarding the fire department budget as a percentage of the municipal budget can be challenging. This is primarily due to the geographically distributed nature of the township and the need to deploy and support disbursed resources for efficient and effective incident response. As noted, the co-location of fire stations with other community amenities is a sound financial approach, one that leverages community infrastructure investments to enhance public safety and should be continued.

9.4 Fees By-Law

A means of fire services in generating revenue to offset the operating costs of the fire department is through a Fees By-Law for services provided. The Township of Muskoka Lakes is

permitted to charge for services provided, as outlined in the *Municipal Act* of Ontario (2001), Part XII.
The township has by-laws in place for the charging of fees for several municipal services provided, primarily in the form of agreements with partner entities and agencies. During this review it was found that the list of fees for service currently being charged is limited and should be reviewed and enhanced. Doing so will capture more invoicing opportunities for the services provided by the fire department. The opportunity of generating revenue could be expanded with the review and update of the current fee schedule to meet standards. This recommendation to review and update service fees is not a stand-alone approach and is captured under the recommendations in *Section-9: Fire Service Agreements & Mutual Aid Plan* as part of the comprehensive by-law review.

Another form of revenue generation is the invoicing of all fire responses to the property owners' insurance companies through a third-party company specializing in these services. Many fire services in the province have implemented such means to aid in offsetting the cost of operating the fire service. Within insurance policies for both vehicles and structures, there are provisions for the payment of services provided by fire departments.

The following are some services that fire services may charge for:

1. COMMERCIAL PERMITS AND INSPECTION FEES
    - Single occupancy less than 20,000 ft^2
    - Single occupancy greater than 20,000 ft^2
    - Multi-tenant Building. Fee covers the first three units. A fee of ½ of the current hourly rate will be charged for each additional unit.
    - Fireworks & Pyrotechnics Display Inspections

2. RESIDENTIAL PERMITS AND INSPECTION FEES
    - Multi-tenant (up to and including 12 units)
    - Multi-tenant (over 12 units)
    - Two-unit House Registration Ontario Fire Code Inspection - The fee covers the cost of the initial inspection and follow-up inspection to a maximum of two (2) working hours. If subsequent inspections are required, the current hourly rate will be billed to the applicant.

3. OTHER INSPECTIONS
    - Liquor Licence
    - Day Care, Foster Care and Group Homes
    - Business Licence Inspection Fee (hourly rate)

- Fire Inspection Fee (hourly rate)
- Shows, Exhibitions, Special Events (hourly rate)
- 3rd or subsequent review of Fire Safety Plans

4. FIRE APPARATUS STANDBY
    - Shows, Exhibitions, Demonstrations - Current overtime rates per hour for the entire time fire department is in attendance and includes all assigned apparatus at the scene. $200 per apparatus per hour. Full cost recovery for 1 Captain & 3 Firefighters, minimum of 3 hours per apparatus.
    - Respond to all vehicle fires: (vehicles as described in the OFM Standard Fire Report). No charges to permanent residents and businesses. Current MTO* hourly rate per hour.
    - Fire Watch - Current rates per hour for the entire time fire department is in attendance and includes all assigned apparatus at the scene. $200 per apparatus per hour. Full cost recovery for 1 Captain & 3 Firefighters, minimum of 3 hours per apparatus.

5. TECHNICAL RESCUE
    - Technical Rescue (such as ice/water rescue, confined space, high angle, trench, elevator,
    - Hazmat and vehicle extrication). Full Cost Recovery.
    - Motor Vehicle Collisions (all) Cost equally divided by all parties involved. No charges to permanent residents and businesses. Current MTO* hourly rate per hour.

6. MISCELLANEOUS FEES
    - Administrative charge for invoices
    - File Search
    - Fire Report (Copy)
    - Training other Fire Departments and Agencies - by the hour per trainer plus course materials and expenses, i.e., fire extinguisher training
    - Environmental - Service Calls***: Permanent residents and businesses. If fire department required on scene greater than two (2) hours, or failure of companies for persons to obtain service locates. Current MTO* rates per hour per apparatus.
    - Environmental - Service Calls***: Non-Residents - fee charged from time fire department receives the call. *Current MTO hourly rate per hour
    - Burn permit – annually, for trailer parks
    - Outdoor Solid Fuel Burning Appliances Annual Permit

- Review and approval of Risk and Safety Management Plans submitted by propane operators related to the storage and handling of propane (hourly rate)

7. ADDITIONAL EXPENSES
    - If it is necessary to retain a private contractor, rent special equipment not normally carried on a fire apparatus to determine origin and cause, suppress, or extinguish a fire, preserve property, prevent fire spread, make safe or otherwise eliminate an emergency (actual costs).

By exploring additional opportunities for revenue generation/cost recovery, the MLFD can ensure resources required to support effective and efficient fire service delivery remain available. From the review completed by EMG, the MLFD currently employs a sound approach to budget management, and the recommendation to investigate alternative funding sources will simply support the growth and development of this critical community service.

Section 9 Recommendations

Rec #	Recommendation	Estimated Cost	Suggested Timeline
35	The Muskoka Lakes Fire Department include a review of all fees for services provided as part of the comprehensive review recommended for the fire service agreements and mutual aid plans.	Staff time	Short-term (1-3 years)
36	The Township of Muskoka Lakes develop a Bylaw that would require the insurance company or policy holder (property owner) for payment of fire department response fees. If not paid, the municipality in turn would add the amount to the property owner's tax bill.	Staff time	Short-term (1-3 years)

SECTION 10

Review of Previous Plans

SECTION 10: REVIEW OF PREVIOUS FIRE MASTER PLAN AND FUS REPORT

Listed below are the recommendations submitted in the 2014 MLFD fire master plan (FMP). Many of the recommendations have not yet been resourced to allow them to be actioned, or they are in the process of being actioned by the Fire Chief, as appropriate.

10.1 Status of Previous Recommendations

EMG reviewed the 2014 Muskoka Lakes Fire FMP recommendations. It was crucial to review the document as it provides a measurement of what recommendations have been acted on and what changes the MLFD has undergone since 2014. It should also be noted that the MLFD has progressed on a path to continuous improvement since the foundational fire protection survey was completed by the Ontario Fire Marshall's Office (OFM) in 1987. A subsequent review was conducted in 2004 by WJB Consulting Services that focused mainly on Fire Stations and Fire Apparatus.

Some of the recommendations from the 2014 Muskoka Lakes Fire Department FMP have been or are in the process of being actioned on by the Fire Chief, as appropriate. Other recommendations are no longer applicable or are part of regular capital planning (e.g., replacement of apparatus), while some have been included or are covered by recommendations in this FMP. In the Final Summary of Recommendations, Solutions, and Estimated Costs from the 2014 FMP there are twenty (20) recommendations sorted into the following categories:

- Fire Stations
- Immediate
- Short Term
- Mid Term
- Long Term and Ongoing

Fire Stations

Recommendation #1: Identification and acquisition/implementation of items required at all 10 Fire Stations.

Update: Ongoing. Assessments have been undertaken and items identified, though acquisition remains outstanding.

Immediate Recommendations

Recommendation #1: Mission Vision Values: Fire Chief and senior staff to roll out new mission vision values to all fire staff

Update: Complete.

Short Term Recommendations

Recommendation #1: Establishing and Regulating By-Law: 2006 By-law be reviewed and updated with a report to Council

Update: Complete. This by-law was reviewed, updated and repealed as recommended to COW October 13, 2016, in resolution COW-7-13-10-16 and a new by-law was established 2016-125.

Recommendation #2: Response Criteria: Fire Chief to identify a baseline and benchmark set of response criteria and report to Council.

Update: Not Complete. No progress on creating response criteria.

Recommendation #3: Fire Prevention: Volunteer firefighters, should be utilized as much as possible to assume more responsibility for inspections of existing structures and for educating the public about fire safety. Annual program for Fire prevention and education to be developed.

Update: Not Complete.

Recommendation #4: Fire Prevention By-Law Officer: The Fire Prevention/By-law officer should track his time to accurately identify what percentage of his time is being utilized for either of his duties.

Update: Complete. Fire Prevention is wholly a full-time position now, not shared as was the case.

Recommendation #5: Simplified Risk Assessment: Work on the updated Simplified Risk Assessment should be started in 2014 to meet the SRA program's goals and expectations.

Update: Not Complete.

Recommendation #6: Special Operations: Fire Chief to conduct a review of the special services offered by the fire department and report back to Council with recommendations relating to continuation of these services for available options for service agreements.

Update: Not Complete.

Recommendation #7: Training: MLFD should work with neighboring fire departments to bring any required programs to regional facility whenever possible.

Update: Ongoing. Efforts to engage with interested partner agencies continues. Attempted partnerships with Georgian Bay Fire Dept and Huntsville Fire Dept and have had varied success.

Recommendation #8: NFPA Standards: MLFD needs to update their programs to reflect the recent adoption of the NFPA Standards.

Update: Not Complete. Muskoka Lakes Firefighter recruits are trained to the NFPA 1001 level 1 and 2 standard and offered opportunity to become certified. Balance of NFPA standards used for training only.

Recommendation #9: Dispatch Agreement: Dispatch 2005 agreement to be reviewed and updated.

Update: Not Complete. Agreement with Muskoka Central Ambulance Communications Centre (CACC) has not been reviewed/revised and/or updated.

Recommendation #10: Fire Department Apparatus: An assessment to be conducted in relation to free and clear access to properties for all emergency vehicles.

Update: Not Complete. A media awareness program has not been implemented that educates the public about the expectation to keep access to property lanes free and able to support all responding emergency vehicles.

Recommendation #11: Recruitment and retention: A review of the OFM document on recruitment and retention is recommended along with implementation of the document's recommendations.

Update: Not Complete. A review of the recruitment and retention document and satisfaction survey has not been implemented by the Fire Chief.

Recommendation #12: Fire Service Agreement: Review the agreement between Georgian Bay Fire and Muskoka Lakes Fire to identify any future opportunities for the two communities.

Update: Complete. This has been done and the agreement seems to meet the needs identified in the FMP.

Mid Term Recommendations

Recommendation #1: Emergency Generator: The following stations requires backup generators:

1. Minett
2. Glen Orchard
3. Bala
4. Milford bay
5. Raymond
6. Windermere
7. Foots Bay.

Update: 40% Complete. Emergency Power is still required at four of seven Fire Stations: Foots Bay, Raymond & Milford Bay.

Long Term and Ongoing Recommendations

Recommendation #1: Policy and Guidelines Committee: Continue review of all policy and guidelines and update on a periodic basis with the use of the present committee.

Update: Not Complete. All current Guidelines established by the Fire Chief only.

Recommendation #2: Response Time Reports: Fire Chief to continue to provide a detailed review and annual update on quantifiable data for Council.

Update: Not Complete.

Recommendation #3: Station Call Volumes: To monitor and track call volumes per station to identify needs related to staffing and if closing or relocating fire station would improve response times.

Update: Not Complete. Ability exits but not currently implemented.

Recommendation #4: Vehicle Replacement: township should maintain a replacement schedule that complies with the Fire Underwriters Survey Recommendations. NFPA Standard 1901 should be utilized for the replacement and refurbishing of vehicles.

Update: Complete.

Recommendation #5: Finance: Monitoring of Fire Prevention and Public education activities and associated costs should be tracked to evaluate effectiveness of programs. MLFD to review replacement forecast to ensure the township will be able to meet these targeted timelines. Establish a capital forecast for the renovation/replacement of fire stations.

Update: Complete.

Following the review of the 2014 FMP recommendations, a strategy for the MLFD moving forward would be to compare these recommendations with those arising from the 2022 FMP. This should support the Fire Chief in determining a path forward that ensures time, energy and resources are being directed to the right areas for enhanced service delivery.

10.2 Fire Underwriters Survey

The FUS is a national organization that provides data on public fire protection for fire insurance statistical work and underwriting purposes of subscribing insurance companies. Subscribers of FUS represent approximately 85% of the private sector property and casualty insurers in Canada.

FUS Certified Fire Protection Specialists conduct detailed field surveys of the fire risks and fire defences maintained in built up communities including incorporated and unincorporated communities of all types across Canada. To complete this task, the specialists at FUS perform a detailed analysis of the overall fire protection by adding four key areas: fire department, water supplies, fire prevention and emergency communications. The results of these surveys are used to establish a Public Fire Protection Classification (PFPC) for each community. While the FUS is not involved in setting rates, the information provided through the Fire Insurance Grading Index is a key factor used in the development of commercial lines property insurance rates. The PFPC is also used by underwriters to determine the amount of risk they are willing to assume in each community or section of a community.

The overall intent of the PFPC system is to provide a standardized measure of the ability of the protective facilities of a community to prevent and control the major fires that may be expected to occur. This is done by evaluating, in detail, the adequacy, reliability, strength, and efficiency of the protective facilities and comparing the level of protection against the level of fire risk in the built environment.

The FUS also uses PFPC information to develop the Dwelling Protection Grade (DPG), which is used by personal lines insurers in determining property insurance rates for detached dwellings, with not more than two dwelling units. The DPG is a measure of the ability of the protective facilities of a community to prevent and control the structure fires in detached dwellings by evaluating the adequacy, reliability, strength, and efficiency of the protective facilities and comparing the level of protection against the level of fire risk associated with a typical dwelling. The fire insurance grading system used does not consider past fire loss records, but rather fire potential based on the physical structure and makeup of the built environment. When a community improves its PFPC or DPG, insurance rates may be reduced while the underwriting capacities may increase. Every insurance company has its own formula for calculating their underwriting capacities and insurance rates; however, the PFPC and DPG classifications are extremely useful to insurers in determining the level of insurable risk present within a community.

The MLFD has not underwent an assessment by the FUS as of this report. However, the MLFD has incorporated best practices as outlined by FUS through achieving and maintaining the Accredited Superior Tanker Shuttle Service. This indicates the MLFD has the experience and capability to pursue to a greater degree the industry standards and best practices as outlined through FUS assessments. It is recommended that the MLFD through the Fire Chief, make an application to Fire Underwriters for a review of MLFD's fire protection.

Historically, community assessments were conducted by FUS on a predetermined basis, varying from 10 to 25 years. Best practice and changing industry standards suggest that moving to a grade update every five years would better reflect ongoing changes to fire protection and communities at large. The FUS has also introduced the FUS Municipal Fire Portal that would provide MLFD the ability to access and update data relevant to Muskoka Lakes and forward updates in a timely fashion. By accessing this system regularly, the MLFD can provide frequent updates from which FUS Specialists will analyze and publish grade updates as deemed necessary. It is recommended that once a FUS assessment is complete, that the Fire Chief regularly access and provide input to the FUS Municipal Fire Portal.

Section 10 Recommendations

Rec #	Recommendation	Estimated Cost	Suggested Timeline
37	The MLFD through the Fire Chief, make an application to Fire Underwriters Survey for a review of MLFD's fire protection.	Staff time	Short-term (1-3 years)
38	Once a FUS assessment has been completed that the Fire Chief regularly access and provide input to the FUS Municipal Fire Portal to communicate improvements and/or updates. This data could relate to new fire apparatus replacements, new fire stations, new construction, hydrants in new sectors, etc.	Staff time	Mid Term (3-5 years)

SECTION 11

Recommendations, Timelines, & Associated Costs

SECTION 11: RECOMMENDATIONS, TIMELINES, & ASSOCIATED COSTS

11.1 Recommendations, Estimated Costs and Rationale

During the review conducted by EMG, it was demonstrated that the Muskoka Lakes Fire Department staff are truly dedicated to the community they serve. Council, the Township CAO, and the Fire Chief are sincerely committed to ensuring the safety of the community and all personnel of the Fire Department. Based on the present staffing, equipment, and fire station's locations, Muskoka Lakes Fire Department is endeavoring to offer the most efficient and effective service possible. But there is still room for improvement.

11.2 Recommendations, Estimated Costs and Rationale

All costs and associated timelines are approximate estimates that can be implemented through prioritization between the Fire Chief, Township CAO, and Council.

The following chart provides a detailed overview of the recommendations found throughout this report along with any estimated costs and suggested timelines for implementation. A section has also been added to the chart identifying potential efficiencies upon implementation of the recommendations presented by EMG. This FMP document is a culmination of 38 recommendations.

Due to some of the specific recommendations made in this document, it is advisable that the Fire Chief view this plan as a "living document", conducting frequent reviews of the recommendations, and bringing forward updates to Council annually, or sooner if required.

It is the responsibility of the Muskoka Lakes Fire Department management to ensure that all recommendations contained within this FMP, and CRA document are noted, captured, and set up in a format that allows Muskoka Lakes Fire Department to continually monitor, evaluate and update each recommendation as needed. Part of a risk reduction plan is to ensure that the loop is closed on recommendations.

Whether a recommendation is implemented, deferred, or rejected, all recommendations need to be addressed. By doing this, Fire Department management is ensuring that all opportunities to reduce risk within the community have been explored.

MLFD Recommendations Chart

Rec #	Recommendation	Estimated Costs	Suggested Timeline	Rationale
	Section 2 – Planning			
1	That the Fire Chief bring forth a revised version of the Establishing & Regulating By-Law for Council's approval and going forward the Fire Chief annually review and update, the By-Law as necessary. • And that all other by-laws noted in this document be reviewed and updated as required. All by-laws should be reviewed annually to ensure currency of document.	Staff time	Short-term (1-3 years) and ongoing	Having an up-to-date E&R By-Law will guide the operations of the MLFD and identifies response guidelines, fire prevention and public education programs and levels of training.
2	That an SOG Committee be established with representation of all divisions of the fire department. It is further recommended that the department's SOGs be reviewed and regularly.	Staff time	Short-term (1-3 years)	Establishing an SOG committee will aid in maintaining current guidelines while allowing participation of members of MLFD in the operations of the department.
	Section 3 – Risk Assessment			
3	That Muskoka Lakes develops a comprehensive Community Risk Reduction Plan that falls in line with the Community Risk Assessment and the Fire Master Plan recommendations.	Staff time	Short-term (1-3 years) and ongoing	With the risks to the township identified, the CRRP will aid in prioritizing the who, what, when and how these will be lessoned or mitigated.
	Section 4 – Fire Department Divisions – Non-Suppression			

Rec #	Recommendation	Estimated Costs	Suggested Timeline	Rationale
4	The Fire Prevention Officer position focus on inspection, enforcement, and review matters specifically. • A subsequent plan should be developed to identify what other inspections can be reasonably accomplished by the one full-time FPO, and what options are needed to address the other fire prevention related concerns.	Staff time	Short-term (1-3 years) and ongoing	The Fire Protection & Prevention Act., specifically mandates public education and fire prevention inspections based on requests and demands. With only one Fire Prevention Officer for the township, prioritization of these required duties needs to be the focus.
5	All firefighters be offered the opportunity to become trained and qualified to the NFPA 1035 Public Fire & Life Safety Educator Level I as well NFPA 1031 Fire Prevention Officer, Level I. • And that consideration be given to resourcing Public Education with a part-time dedicated, fully trained and qualified staff position.	Staff time	Short-term (1-3 years) and ongoing	Greater utilization of department resources to support the fire prevention and public education initiatives will ensure that MLFD is meeting the FPPA mandated requirements.
6	MLFD to work in conjunction with residential developers in promoting the advantages of installing residential fire sprinklers.	Staff time	Short-term (1-3 years) and ongoing	Sprinkler systems have been proven to save lives and property, by promoting this initiative the MLFD is demonstrating a proactive, life saving program.
7	Full-Time Chief of Training/Training Officer position be developed and staffed	$115,000 - $125,000	Short-term (1-3 years)	With the growth of the Department, along with the new Training/Certification

Rec #	Recommendation	Estimated Costs	Suggested Timeline	Rationale
				Regulation, this position will be needed more than ever.
8	A more robust and efficient process of training records entry is required. This should involve the officer inputting the training. • Officers to provide initial training records entry. This may include research and training records management system demonstrations to determine which records management system(s) would work best for MLFD.	Staff Time	Immediate (0-1 year)	With the introduction of the new Training and Certification Regulation, more accurate training records will be required.
9	The Fire Chief to provide a business case to senior administration (only if no other options for live fire training exist) supporting either: • a fixed training facility, or • the purchase of a mobile training unit or a fixed site unit for the purposes of Live Fire Training.	$200,000 - $700,000 (Mobile training unit)	Short-term (1-3 years)	This is an option that the Fire Chief needs to evaluate if no other facility is available for the firefighters to receive regular and ongoing hands-on training.
10	All firefighters receive live fire training annually.	Dependent on facility costs and/or the	Short-term (1-3 years) and ongoing	With the introduction of the new Training and Certification Regulation,

Rec #	Recommendation	Estimated Costs	Suggested Timeline	Rationale
		purchase of a live fire training unit.		more ongoing and relevant training will be required and documented.
11	MLFD adopts an educational progression plan. The proposed training programs and succession path should be supported for current and proposed positions with the following suggested training: • The position of captain, emergency management training should start with IMS-100 Introduction to the Incident Management System (IMS) for Ontario and IMS-200 Basic Incident Management System for Ontario. The position of district chief, emergency management training continues with IMS 250 – IMS in EOCs.	Staff time	Short-term (1-3 years) and ongoing	Succession/educational planning is paramount to the future success of any organization.
12	Create a formal organization development program that identifies technical and core competencies for Fire Chief, Deputy Fire Chief, district chief, captain, and firefighter and be formally implemented.	Staff time	Short-term (1-3 years)	Succession/educational planning is paramount to the future success of any organization.

Rec #	Recommendation	Estimated Costs	Suggested Timeline	Rationale
13	MLFD facilitate the experience component required as part of the development of individuals and implement a process for individuals that are interested in Chief Officer positions.	Staff time	Short-term (1-3 years)	Succession/educational planning is paramount to the future success of any organization.
14	Develop job descriptions with a list of the minimum core job responsibilities. Further, the education and experience required for each of those positions should be outlined to chart the path for succession.	Staff time	Short-term (1-3 years)	Succession/educational planning is paramount to the future success of any organization.
	Section 5 Suppression			
15	MLFD monitor its ability to meet effective response times. This includes the following: • Achieve a goal of 80 seconds for firefighter turn-out time. • Four firefighters arriving on scene within four minutes of travel time. • Sixteen firefighters arriving on scene within an eight-minute travel time.	Staff Time	Immediate (0-1 year) and ongoing	By monitoring and measuring the department's response times, the Fire Chief will be better able to report the level of effectiveness of the Department to Council. This type of measurement will also help to identify issues and possible gaps in response coverage.
16	MLFD invest in more decontamination equipment and develop the appropriate policies and SOGs in performing decontamination of firefighters at the scene of a fire.	Approx. cost of $10,000.00	Short-term (1-3 years)	MLFD does have some decontamination equipment on the vehicles, but more equipment such as showers and catchment equipment are still needed.

Rec #	Recommendation	Estimated Costs	Suggested Timeline	Rationale
17	The present practice of having the volunteers responding to an emergency scene in their personal vehicles should cease. • This can be done in a practical manner that would see the transition occur gradually as crew carrying vehicles are introduced at each station.	Staff time and possible vehicle upgrades when being replaced	Transitional time – Short term (1-3 years)	By having the firefighters responding to the station first ensures the following: • No contaminated equipment is being transported by personal vehicles • A full accountability of all responders • less congestion of personal vehicles at the site of an emergency.
18	MLFD develop a formal health and wellness program that includes all facets relating to fitness, cancer prevention, PTSD and peer support.	Staff time	Short-term (1-3 years) and ongoing	The health and wellness of all Township employees is an ongoing requirement to ensure everyone's well being.
	Section 6 – Facilities and Vehicles			
19	Recommendations noted relate to: • Removal of firefighting gear from apparatus floor to reduce vehicle exhaust contamination • Separation of workstations and food preparation stations from the apparatus floor • Provide more storage capacity through the implementation of additions to stations and/or the use of sea-cans or storage sheds	Full station assessment is required before full costing can be determined	Short-term (1-3 years) and ongoing	Facility upgrades are required to meeting the needs of the firefighters.

Rec #	Recommendation	Estimated Costs	Suggested Timeline	Rationale
	• Upgrading of washrooms to include proper shower/decontamination facilities • Installation of vehicle exhaust systems to reduce exposure to diesel exhaust by the firefighters • Installation of proper floor drain systems for oil capture.			
20	Council to consider in consultation with the Fire Chief, a feasibility study of the three options presented in relation to: • Option #1 – closing of two fire stations • Option #2 – creation of a new five fire station model, or • Option #3 – creation of three key stations, with four sub-stations And that a full feasibility study be conducted by either the Director of the Works Department or through a third party.	Depending on Option chosen and Feasibility Study	Long-term (6-10 years) or longer dependent on option	Many of the fire stations are either slated for replacement and/or in need of upgrades. But adopting one of the noted recommendations, this will identify what stations are to remain in the inventory, and what related upgrades or even new builds will be required for the future.
21	Work towards adherence to the NFPA and FUS vehicle replacement cycles.	Replacement costing is dependant on type of vehicle	Long-term (6-10 years)	Meeting the recommended replacement cycles noted by NFPA and FUS will ensure a sustainable fleet for emergency response.

Rec #	Recommendation	Estimated Costs	Suggested Timeline	Rationale
22	Purchase of an elevated device to support MLFD personnel with battling above ground fires.	Approx. cost of 1.5 million dollars	Short-term (1-3 years)	The need for an elevated device to allow the firefighters safe working access to heights at building of more than two-storeys is required.
23	Greater utilization of the tablets to incorporate a pre-incident planning program, available on each responding fire truck.	Staff time	Short-term (1-3 years)	Utilizing technology in the record keeping and information availability allows quicker access, along with ability to better collate information.
24	Work with the District of Muskoka water department to have the fire hydrants painted in colours appropriate to their flow rates.	Staff time	Short-term (1-3 years)	Adheres to the NFPA related recommendations.
	Section 7 Emergency Management			
25	Update ERP and insert a page at the front of the document to include the following: • The date changes were completed. • A brief outline of the changes and the sections involved. • Name of individual completing the updates. • The emergency response plan should have a section dedicated to domestic terrorism.	Staff time	Immediate (0-1 year)	Keeping this plan up to date is a requirement under the Act.

Rec #	Recommendation	Estimated Costs	Suggested Timeline	Rationale
26	Consideration of a potential partnership with the Fire Marshal's Office, police, or other bordering communities may be possible as an adequately functional mobile command centre could be utilized for multi-agency deployment.	$20,000 - $50,000 (estimate)	Short-term (1-3 years)	Such a partnership would prove to be a cost-effective use of a vehicle at large scale events.
27	Due to the importance of staff understanding their roles and responsibilities in the EOC, it is recommended that a policy be implemented that identifies IMS 100 for all staff, IMS 200 as the minimum standard for staff required to be in the EOC with IMS 300 minimum for all department heads.	Staff time (courses are offered at no charge)	Short-term (1-3 years) and ongoing	More efficient utilization of trained staff resources.
	Fire Service Agreements			
28	All Automatic Aid, Mutual Aid and Fire Protection Agreements organized as Muskoka Lakes Bylaws be reviewed and revised, with regular defined review periods and/or expiry dates identified. A page listing the dates of review and areas revised should be an addendum to any of the revised Bylaws.	Staff time	Immediate (Reviewed annually)	More of a housekeeping recommendation.

Rec #	Recommendation	Estimated Costs	Suggested Timeline	Rationale
29	An immediate review should be undertaken of the agreement authorized under Bylaw No. 2005-114 - Muskoka Central Ambulance Communications Center (July 11, 2005). Opportunities exist to improve the service being delivered by the CACC to MLFD.	Staff time	Immediate (Reviewed annually)	Review recommended to ensure services requirements under this contract.
30	The First Aid Assistance Bylaw No. 2014-76 be reviewed and revised. Efforts should be undertaken to identify true costs and impacts to the MLFD in the delivery of pre-hospital care as outlined in the agreement and re-align the cost-sharing arrangement to ensure sustainability and consistency in the delivery of this service.	Staff time	Short-term (1-3 years)	Review recommended to ensure services requirements under this agreement.
31	A collaborative review process be undertaken on Bylaw No. 2006-59 to assess feasibility of moving from a 'fee for service' model and to a more active partnership model resulting in a pre-defined annual financial contribution from the Wahta Mohawks to MLFD. Consideration should be given to collaboratively reviewing and agreeing upon the full scope of services that MLFD can provide including community risk	Staff time	Short-term (1-3 years)	Review recommended to ensure services requirements under this agreement.

Rec #	Recommendation	Estimated Costs	Suggested Timeline	Rationale
	reduction activities such as Fire Prevention/Public Education.			
32	A review be taken of all Mutual Aid, Automatic Aid, and Fire Protection Agreements to simplify language used, ensure consistent terminology, and where possible increase similarity in content and structure. Consideration should be given to amalgamating these into one over-arching regional document.	Staff time	Short-term (1-3 years)	Review recommended to ensure services requirements under this agreement.
33	A review be undertaken of the extent to which geographic areas currently designated within the Municipal Protection Area (MPA) may be more appropriately allocated within the Crown Protection Area (CPA). The current allotments of geographic areas within the MPA as opposed to CPA could place undue strain on the resources of the MLFD and should be reviewed in a collaborative process with the Ministry of Natural Resources (MNR) related to Bylaw No. 2012-42.	Staff time	Short-term (1-3 years)	Review recommended to ensure services requirements under this agreement.
34	A regional Automatic Aid/Mutual Aid/Shared Services committee be established to explore the potential for a	Staff time	Mid Term (4-6 years)	Review recommended to ensure services requirements under this agreement.

Rec #	Recommendation	Estimated Costs	Suggested Timeline	Rationale
	multi-jurisdictional agreement. A multi-jurisdictional Shared Services Agreement could encompass the different agreements already in-place and bring all stakeholders together to identify areas where enhancements can be made around operational readiness & response, joint training, and equipment/apparatus procurement.			
	Section 9 - Finance			
35	The Muskoka Lakes Fire Department include a review of all fees for services provided as part of the comprehensive review recommended for the fire service agreements and mutual aid plans.	Staff time	Short-term (1-3 years)	Review recommended to ensure services requirements under this requirement.
36	The Township of Muskoka Lakes develop a Bylaw that would require the insurance company or policy holder (property owner) for payment of fire department response fees. If not paid, the municipality in turn would add the amount to the property owner's tax bill.	Staff time	Short-term (1-3 years)	Review recommended to ensure services requirements under this requirement.
	Section 10 – Previous Recommendations and Fire Underwriters			

Rec #	Recommendation	Estimated Costs	Suggested Timeline	Rationale
37	The MLFD through the Fire Chief, make an application to Fire Underwriters Survey for a review of MLFD's fire protection.	Staff time	Short-term (1-3 years)	Updating of this survey would ensure that the MLFD is current.
38	Once a FUS assessment has been completed that the Fire Chief regularly access and provide input to the FUS Municipal Fire Portal to communicate improvements and/or updates. This data could relate to new fire apparatus replacements, new fire stations, new construction, hydrants in new sectors, etc.	Staff time	Mid Term (4-6 years)	Updating of this survey would ensure that the MLFD is current.

APPENDICES

Appendix A: Five-Step Staffing Process

Appendix B: Fire Underwriters Survey Technical Document on Elevated Devices

Appendix C: Call and Response Data for

SECTION 12: APPENDICES

Appendix A – Five-Step Staffing Process

Step 1: Scope of Service, Duties, and Desired Outputs

Identify the services and duties that are performed within the scope of the organization. Outputs should be specific, measurable, reproducible, and time limited. Among the elements can be the following:

- Administration
- Data collection, analysis
- Delivery
- Authority/responsibility
- Roles and responsibilities
- Local variables
- Budgetary considerations
- Impact of risk assessment

Step 2: Time Demand

Using the worksheets in Table C.2.2(a)-(d), quantify the time necessary to develop, deliver, and evaluate the various services and duties identified in Step 1, taking into account the following:

- Local nuances
- Resources that affect personnel needs

Plan Review - Refer to Plan Review Services Table A.7.9.2 of the standard to determine Time Demand.

Step 3: Required Personnel Hours

Based on Step 2 and historical performance data, convert the demand for services to annual personnel hours required for each program *[see Table C.2.3(a) through Table C.2.3(e)]*. Add any necessary and identifiable time not already included in the total performance data, including the following:

- Development/preparation
- Service
- Evaluation
- Commute
- Prioritization

Step 4: Personnel Availability and Adjustment Factor

Average personnel availability should be calculated, taking into account the following:

- Holiday
- Jury duty
- Military leave
- Annual leave/vacation
- Training
- Sick leave
- Fatigue/delays/other

Example: Average personnel availability is calculated for holiday, annual, and sick leave per personnel member (see Table C.2.4).

Step 5: Calculate Total Personnel Required

Branch of the unassigned personnel hours by the adjustment factor will determine the amount of personnel (persons/year) required. Any fractional values can be rounded up or down to the next integer value. Rounding up provides potential reserve capital; rounding down means potential overtime or assignment of additional services conducted by personnel. (Personnel can include personnel from other agencies within the entity, community, private companies, or volunteer organizations).

Correct calculations based on the following:

(1) Budgetary validation
(2) Rounding up/down
(3) Determining reserve capital
(4) Impact of non-personnel resources (materials, equipment, vehicles) on personnel

More information on this staffing equation can be found within the National Fire Protection Association 1730 standard. The Fire Prevention should assess the previous five steps and evaluate their present level of activity and the future goals of the Branches.

Appendix B– Fire Underwriters Survey Technical Document on Elevated Devices

Fire Underwriters Survey™

TECHNICAL BULLETIN

FIRE UNDERWRITERS SURVEY™

A Service to Insurers and Municipalities

LADDERS AND AERIALS: WHEN ARE THEY REQUIRED OR NEEDED?

Numerous standards are used to determine the need for aerial apparatus and ladder equipment within communities. This type of apparatus is typically needed to provide a reasonable level of response within a community when buildings of an increased risk profile (fire) are permitted to be constructed within the community.

Please find the following information regarding the requirements for aerial apparatus/ladder companies from the Fire Underwriters Survey Classification Standard for Public Fire Protection.

Fire Underwriters Survey

Ladder/Service company operations are normally intended to provide primary property protection operations of

1.) Forcible entry;
2.) Utility shut-off;
3.) Ladder placement;
4.) Ventilation;
5.) Salvage and Overhaul;
6.) Lighting.

Response areas with 5 buildings that are 3 stories or 10.7 metres (35 feet) or more in height, or districts that have a Basic Fire Flow greater than 15,000 LPM (3,300 IGPM), or any combination of these criteria, should have a ladder company. The height of all buildings in the community, including those protected by automatic sprinklers, is considered when determining the number of needed ladder companies.
When no individual response area/district alone needs a ladder company, at least one ladder company is needed if the sum of buildings in the fire protection area meets the above criteria."

The needed length of an aerial ladder, an elevating platform and an elevating stream device shall be determined by the height of the tallest building in the ladder/service district (fire protection area) used to determine the need for a ladder company. One storey normally equals at least 3 metres (10 feet). Building setback is not to be considered in the height determination. An allowance is built into the ladder design for normal access. The maximum height needed for grading purposes shall be 30.5 metres (100 feet).

POWERED BY opta
AN SCM COMPANY

Western region 1-877-255-5240 fus@optaintel.ca
Central region 1-800-268-8080 fireunderwriters.ca
Eastern region 1-800-263-5361 optaintel.ca

Fire Underwriters Survey™

Exception: When the height of the tallest building is 15.2 metres (50 feet) or less no credit shall be given for an aerial ladder, elevating platform or elevating stream device that has a length less than 15.2 metres (50 feet). This provision is necessary to ensure that the water stream from an elevating stream device has additional "reach" for large area, low height buildings, and the aerial ladder or elevating platform may be extended to compensate for possible topographical conditions that may exist. See Fire Underwriters Survey - Table of Effective Response (attached).

Furthermore, please find the following information regarding communities' need for aerial apparatus/ladder companies within the National Fire Protection Association.

NFPA

Response Capabilities: The fire department should be prepared to provide the necessary response of apparatus, equipment and staffing to control the anticipated routine fire load for its community.

NFPA *Fire Protection Handbook, 20th Edition* cites the following apparatus response for each designated condition:

HIGH-HAZARD OCCUPANCIES (schools, hospitals, nursing homes, explosive plants, refineries, high-rise buildings, and other high-risk or large fire potential occupancies):

*At least four pumpers, **two ladder trucks** (or combination apparatus with equivalent capabilities), two chief officers, and other specialized apparatus as may be needed to cope with the combustible involved; not fewer than 24 firefighters and two chief officers.*

MEDIUM-HAZARD OCCUPANCIES (apartments, offices, mercantile and industrial occupancies not normally requiring extensive rescue or firefighting forces):

*At least three pumpers, **one ladder truck** (or combination apparatus with equivalent capabilities), one chief officer, and other specialized apparatus as may be needed or available; not fewer than 16 firefighters and one chief officer.*

LOW-HAZARD OCCUPANCIES (one-, two-, or three-family dwellings and scattered small businesses and industrial occupancies):

At least two pumpers, one ladder truck (or combination apparatus with equivalent capabilities), one chief officer, and other specialized apparatus as may be needed or available; not fewer than 12 firefighters and one chief officer.

In addition to the previous references, the following excerpt from the 2006 BC Building Code is also important to consider when selecting the appropriate level of fire department response capacity and building design requirements with regard to built-in protection levels (passive and active fire protection systems).

Excerpt: National Building Code 2012

A-3 Application of Part 3.

In applying the requirements of this Part, it is intended that they be applied with discretion to buildings of unusual configuration that do not clearly conform to the specific requirements, or to buildings in which processes are carried out which make compliance with particular requirements in this Part impracticable. The definition of "building" as it applies to this Code is general and encompasses most structures, including those which would not normally be considered as buildings in the layman's sense. This occurs more often in industrial uses, particularly those involving manufacturing facilities and equipment that require specialized design that may make it impracticable to follow the specific requirements of this Part. Steel mills, aluminum plants, refining, power generation and liquid storage facilities are examples. A water tank or an oil refinery, for example, has no floor area, so it is obvious that requirements for exits from floor areas would not apply. Requirements for structural fire protection in large steel mills and pulp and paper mills, particularly in certain portions, may not be practicable to achieve in terms of the construction normally used and the operations for which the space is to be used. In other portions of the same building, however, it may be quite reasonable to require that the provisions of this Part be applied (e.g., the office portions). Similarly, areas of industrial occupancy which may be occupied only periodically by service staff, such as equipment penthouses, normally would not need to have the same type of exit facility as floor areas occupied on a continuing basis. It is expected that judgment will be exercised in evaluating the application of a requirement in those cases when extenuating circumstances require special consideration, provided the occupants' safety is not endangered.

The provisions in this Part for fire protection features installed in buildings are intended to provide a minimum acceptable level of public safety. It is intended that all fire protection features of a building, whether required or not, will be designed in conformance with good fire protection engineering practice and will meet the appropriate installation requirements in relevant standards. Good design is necessary to ensure that the level of public safety established by the Code requirements will not be reduced by a voluntary installation.

Fire Underwriters Survey™

Firefighting Assumptions

The requirements of this Part are based on the assumption that firefighting capabilities are available in the event of a fire emergency. These firefighting capabilities may take the form of a paid or volunteer public fire department or in some cases a private fire brigade. If these firefighting capabilities are not available, additional fire safety measures may be required.

Firefighting capability can vary from municipality to municipality. Generally, larger municipalities have greater firefighting capability than smaller ones. Similarly, older, well established municipalities may have better firefighting facilities than newly formed or rapidly growing ones. The level of municipal fire protection considered to be adequate will normally depend on both the size of the municipality (i.e., the number of buildings to be protected) and the size of buildings within that municipality. Since larger buildings tend to be located in larger municipalities, they are generally, but not always, favoured with a higher level of municipal protection.

Although it is reasonable to consider that some level of municipal firefighting capability was assumed in developing the fire safety provisions in Part 3, this was not done on a consistent or defined basis. The requirements in the Code, while developed in the light of commonly prevailing municipal fire protection levels, do not attempt to relate the size of building to the level of municipal protection. **The responsibility for controlling the maximum size of building to be permitted in a municipality in relation to local firefighting capability rests with the municipality. If a proposed building is too large, either in terms of floor area or building height, to receive reasonable protection from the municipal fire department, fire protection requirements in addition to those prescribed in this Code, may be necessary to compensate for this deficiency.** Automatic sprinkler protection may be one option to be considered.

Alternatively, the municipality may, in light of its firefighting capability, elect to introduce zoning restrictions to ensure that the maximum building size is related to available municipal fire protection facilities. This is, by necessity, a somewhat arbitrary decision and should be made in consultation with the local firefighting service, who should have an appreciation of their capability to fight fires.

The requirements of Subsection 3.2.3. are intended to prevent fire spread from thermal radiation assuming there is adequate firefighting available. It has been found that periods of from 10 to 30 minutes usually elapse between the outbreak of fire in a building that is not protected with an automatic sprinkler system and the attainment of high radiation levels. During this period, the specified spatial separations should prove adequate to inhibit ignition of an exposed building face or the interior of an adjacent building by radiation. Subsequently, however, reduction of the fire intensity by firefighting and the protective wetting of the exposed building face will often be necessary as supplementary measures to inhibit fire spread.

Fire Underwriters Survey™

In the case of a building that is sprinklered throughout, the automatic sprinkler system should control the fire to an extent that radiation to neighbouring buildings should be minimal. Although there will be some radiation effect on a sprinklered building from a fire in a neighbouring building, the internal sprinkler system should control any fires that might be ignited in the building and thereby minimize the possibility of the fire spreading into the exposed building. NFPA 80A, "Protection of Buildings from Exterior Fire Exposures," provides additional information on the possibility of fire spread at building exteriors.

The water supply requirements for fire protection installations depend on the requirements of any automatic sprinkler installations and also on the number of fire streams that may be needed at any fire, having regard to the length of time the streams will have to be used. Both these factors are largely influenced by the conditions at the building to be equipped, and the quantity and pressure of water needed for the protection of both the interior and exterior of the building must be ascertained before the water supply is decided upon. Acceptable water supplies may be a public waterworks system that has adequate pressure and discharge capacity, automatic fire pumps, pressure tanks, manually controlled fire pumps in combination with pressure tanks, gravity tanks, and manually controlled fire pumps operated by remote control devices at each hose station.

For further information regarding the acceptability of emergency apparatus for fire insurance grading purposes, please contact:

Western Canada	Quebec	Ontario	Atlantic Canada
Fire Underwriters Survey	Fire Underwriters Survey	Fire Underwriters Survey	Fire Underwriters Survey
3999 Henning Drive	255, boul. Crémazie E	175 Commerce Valley Drive, West	238 Brownlow Avenue, Suite 300
Burnaby, BC V5C 6P9	Montreal, Quebec H2M 1M2	Markham, Ontario L3T 7P6	Dartmouth, Nova Scotia B3B 1Y2
1-800-665-5661	1-800-263-5361	1-800- 268-8080	1-877-634-8564

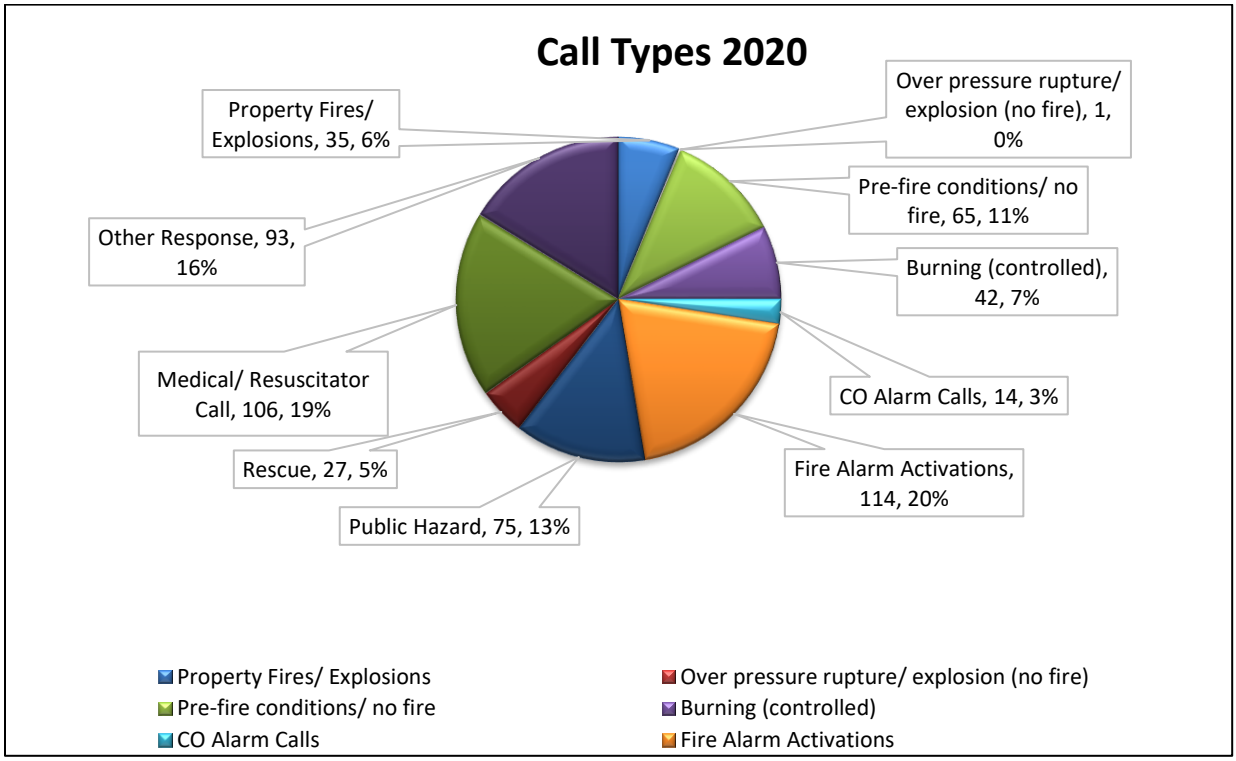
POWERED BY opta

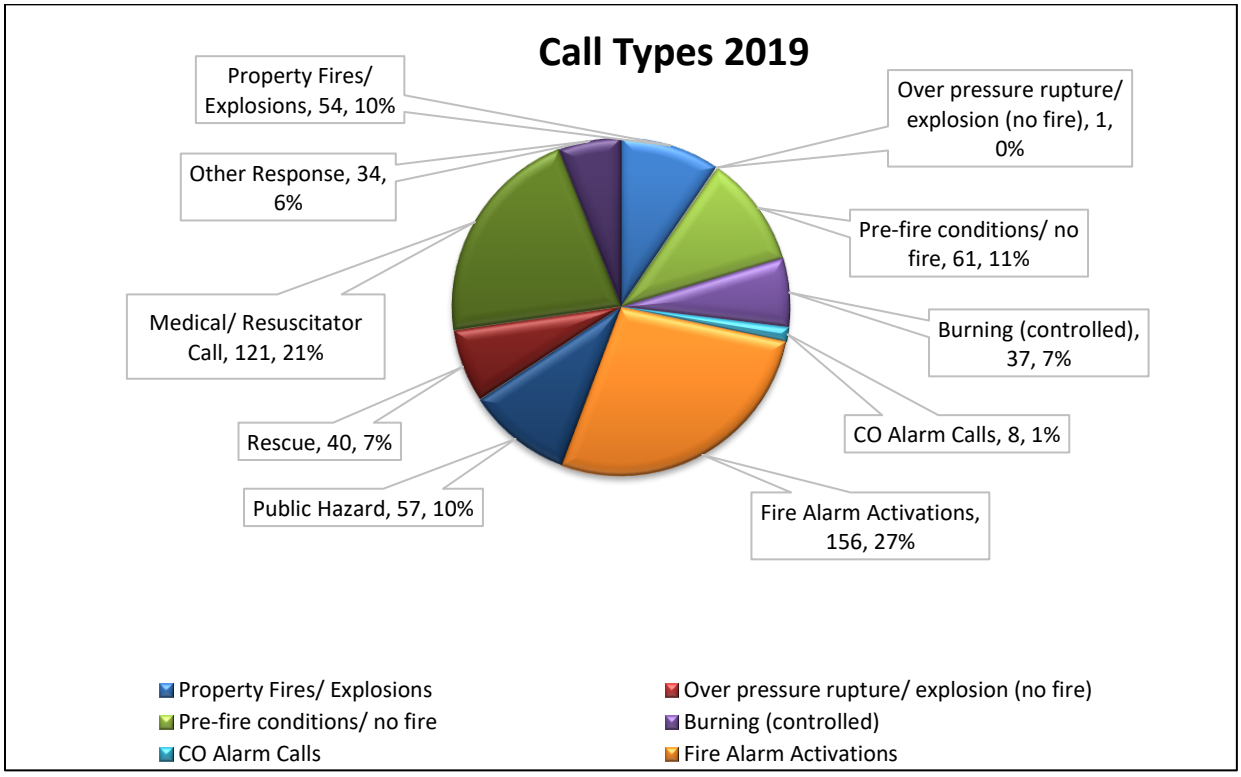
AN SCM COMPANY

Western region 1-877-255-5240 fus@optaintel.ca
Central region 1-800-268-8080 fireunderwriters.ca
Eastern region 1-800-263-5361 optaintel.ca

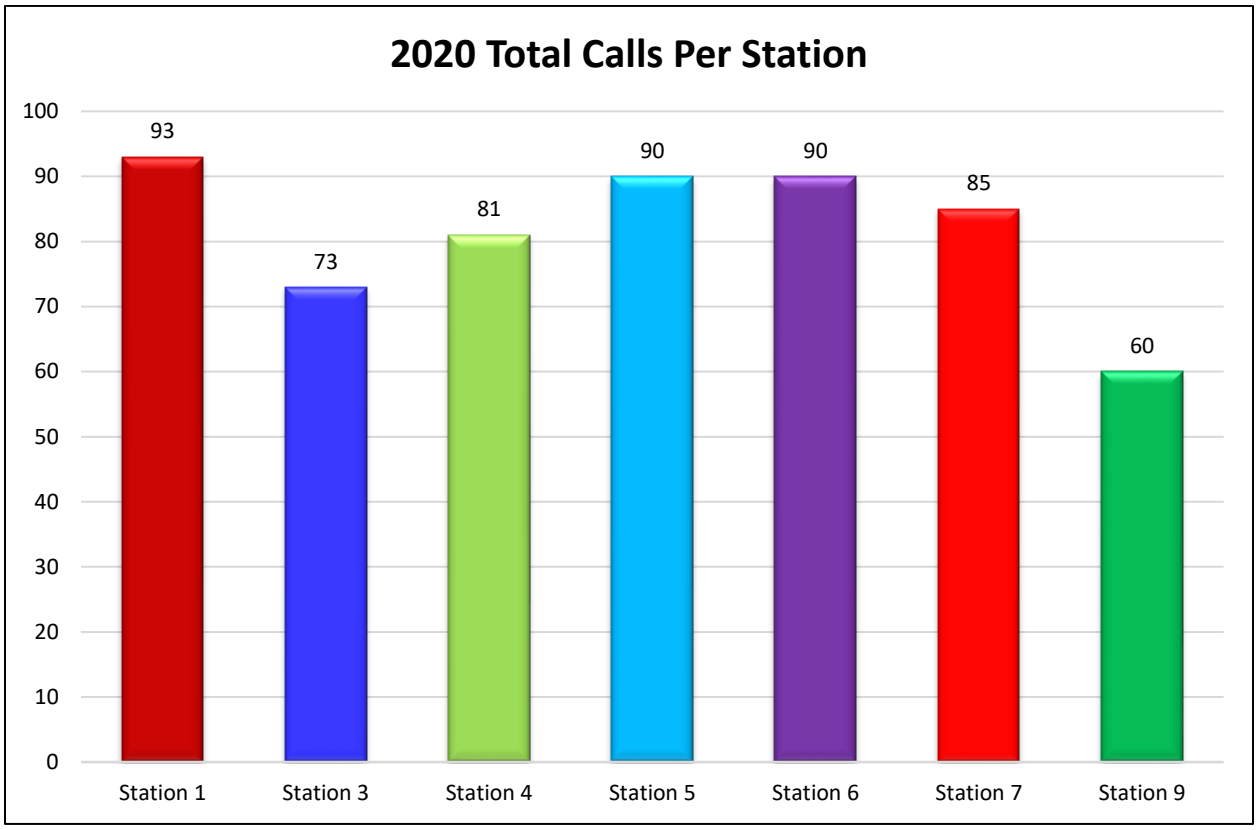
Appendix C – Call and Response Data for 2019 and 2020

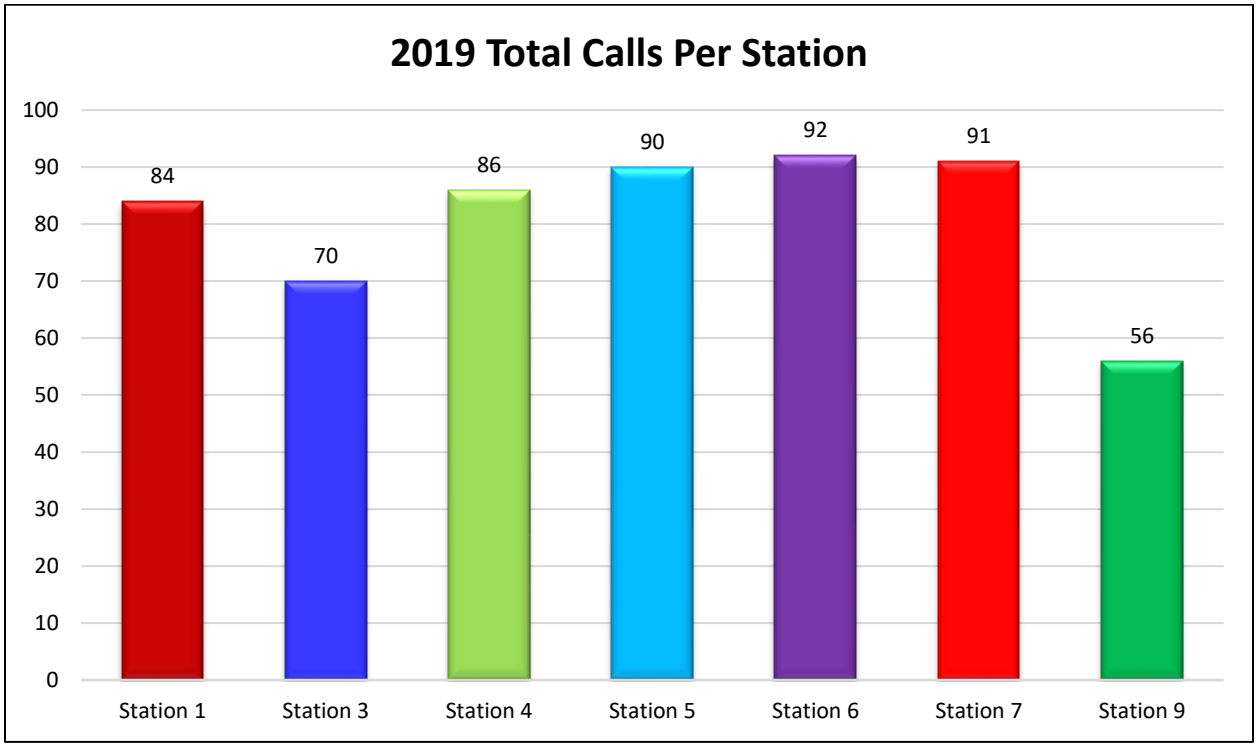
2020 and 2019 - Yearly Comparisons of All Calls Type



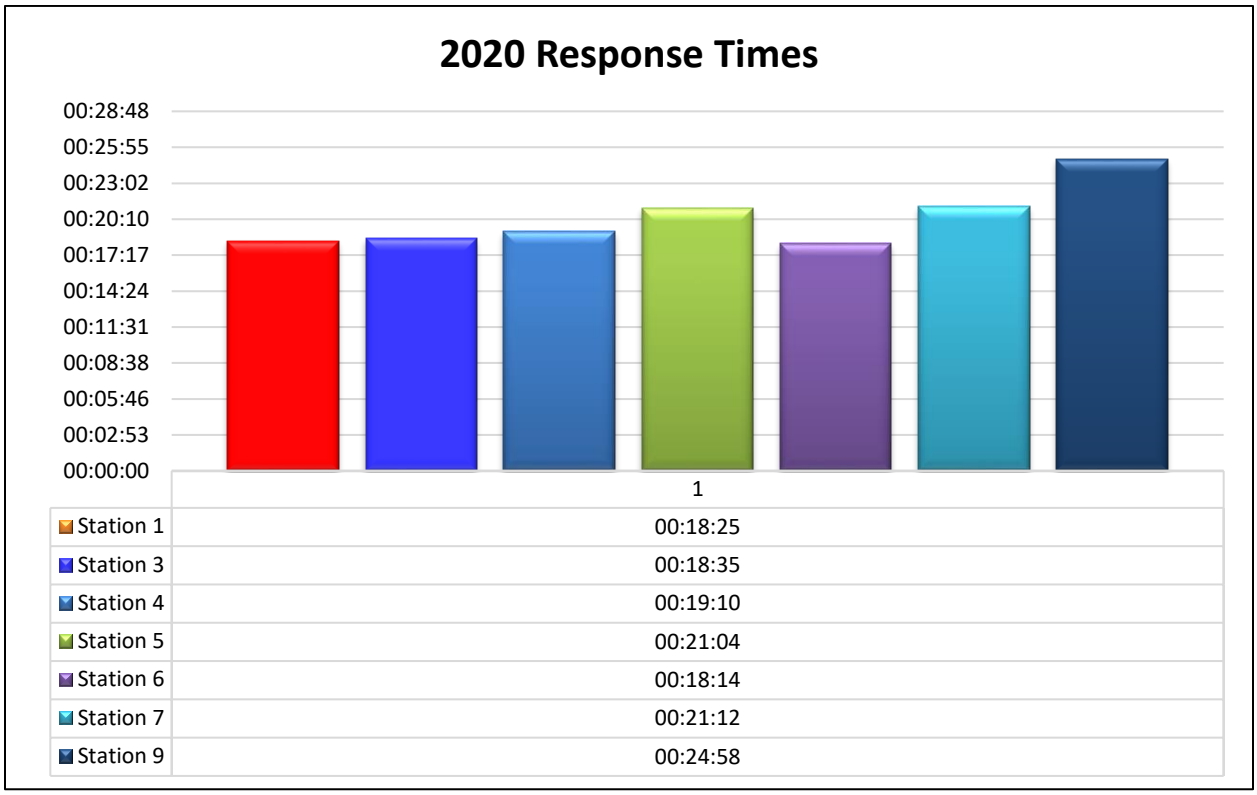


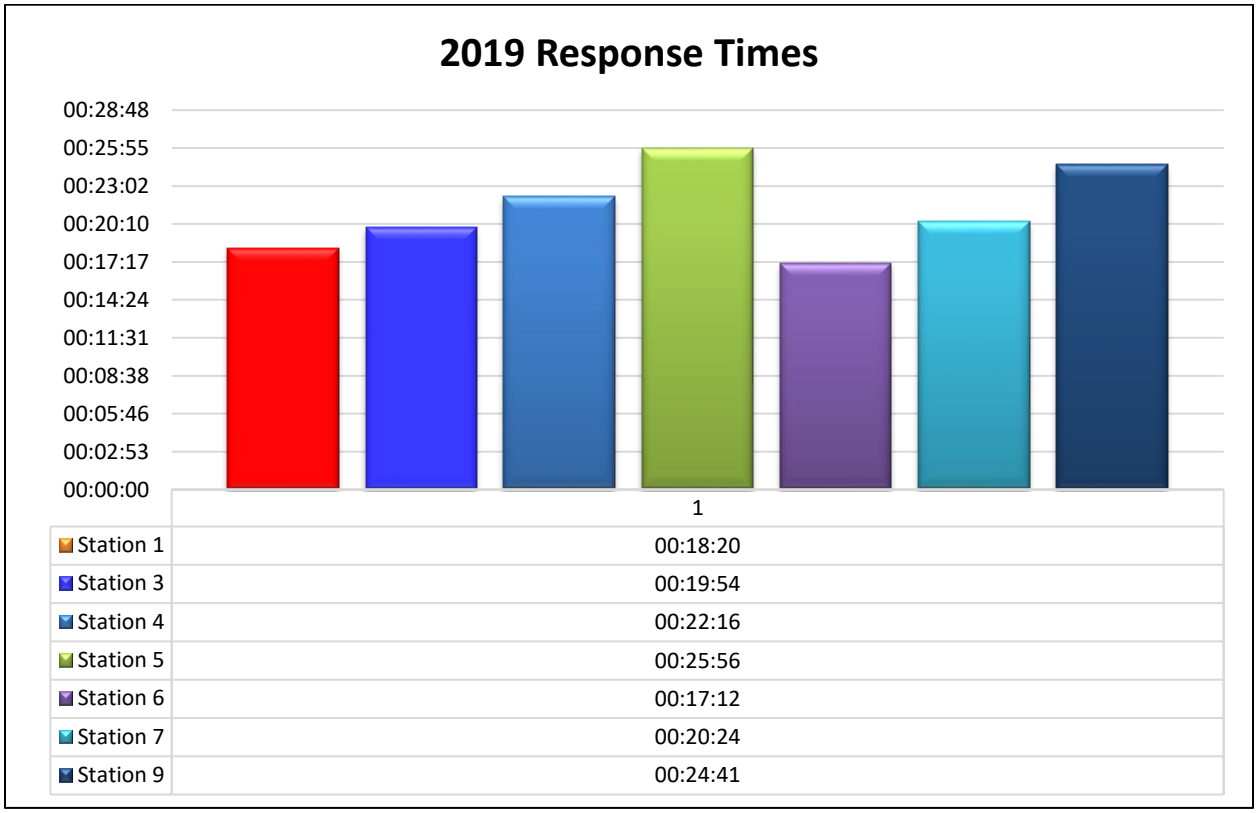
2020 and 2019 - Total Calls Per Station





2020 and 2019 - Response Times





Yearly Comparisons of 80th Percentile Response Times

Note: The 80th percentile criterion is the recommended practice that is endorsed by the National Fire Protection Association and the Commission on Fire Accreditation International. This data is considered more accurate since it is evaluating the times based on 80 percent of the calls, as opposed to averaging the times at the 50th percentile. For example:

- *8 out of 10 times the fire department arrives on scene in 14 minutes or less. Which means that only 20 percent of the time they are above that 14-minute mark, as opposed to 5 out of 10 times the fire department arrives on scene in 14 minutes or less, which means that 50 percent of the time they are above the targeted minute mark.*
- *Travel Time is the time tracked from when the fire vehicle has left the station until arrival at the incident location.*
- *Response time is the total time from receipt of page (on 9-1-1) to the time the fire vehicle arrives at the incident location.*