Lakeshore Fire Department Fire Master Plan 2023

Lakeshore

OUR COMMUNITIES. OUR HOME.

EXECUTIVE SUMMARY

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

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 the Council in making decisions relating to the efficient allocation of LFD resources and staffing. The recommendations provided by EMG have been broken down into the following timelines:

- **Immediate**: 0 – 1 year; 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 the Municipal Council provides, as well as the allocation of associated resources and the ability to move forward with the associated recommendations contained within the document.

Scope of Work

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

- The development of a Community Risk Assessment (CRA) that will be based on the requirements of the *Fire Protection and Prevention Act, 1997 Ontario Regulation 378/18 Sections 1 – 4* and Schedule 1.
- Fire Master Plan (FMP) that will include an analysis of current and forecasted fire service delivery needs and provide a detailed 10-year implementation strategy for Council consideration. The report will consider the Fire Underwriters Survey (FUS) municipal grading system and opportunities per FUS category to improve those ratings.
    - The FMP will identify staffing options considering a full-time-hybrid firefighter model supplemented by a volunteer firefighter component and the associated costs.

This study and final document will include as minimum project deliverables:

- Governance Section
- An Executive Summary with high-level conclusions and recommendations
- A Table of Contents that details the various category sections and page numbers.
- An Introduction Section
- A Background Section
- Explanation of the Study Consultation Process with stakeholders
- Detailed conclusions and recommendations by category
    - Include suggested implementation timelines, funding and associated operational and capital costs.
- The CRA

The recommendations will include options for various service levels and associated funding models for the Council to consider.

Summary Overview of Recommendations

Based on the information received during the meetings, review of supplied documentation and reference to industry standards and best practices, there are 43 recommendations for consideration and inclusion by the fire chief, senior management, and council to assist in the development of the plan.

More information surrounding each recommended option can be found within the section from which it is derived.

Each recommendation noted in the following chart has been **presented in the order of timeline for implementation,** along with estimated cost and a brief rationale for the recommendation. This will assist the Fire Chief and Council in identifying budgetary needs for any recommendations requiring significant investments.

A chart containing an overview of the recommendations contained within this master plan and the "Treatment Options to Consider" found in the Community Risk Assessment can be found in Appendix C.

It must be emphasized that any cost estimates noted in this document can vary significantly based on when the option is implemented and the level of implementation, along with what is eventually recommended by the Fire Chief.

***Note**: A chart entailing all the recommendations, timelines for implementation, estimated costs and rationale in the order that they are presented in the document can be found in Section 9.*

Recommendation #4

Increase administrative support for each of the divisions (training, suppression, and fire prevention) in line with departmental growth.

Cost: The hiring of one or more Admin Assistants, Approx. cost of $60,000 - $75,000 per position (plus benefits).

Suggested Timeline: Immediate (0 to 1 year)

Rationale: The present Administrative Assistant is tasked with all general administrative (day-to-day) duties, including records management, reports filing, and dealing with public enquiries.

With the inclusion of the OFM training and certification requirements, more support of the Training Division will be required, necessitating another Administrative Assistant.

A possible challenge here is the lack of space at the fire station to house another Administrative Assistant.

Recommendation #5

Refresh and revise all fire prevention SOGs to reflect current LFD practices.

Cost: Staff Time (and availability of staff to complete this task)

Suggested Timeline: Immediate to Short-term (0-3 years)

Rationale: Contemporary SOGs reflective of industry-informed practices guide staff and decrease liability risk to the community.

Recommendation #10

Consider expanding the designated training nights at all stations from two to three per month.

Cost: To be determined

Suggested Timeline: Immediate to Short-term (0-3 years)

Rationale: To allocate additional time for focus on maintaining existing skill sets and to allow for emerging issues to be identified and trained on.

Recommendation #12

Train and certify all members to the appropriate NFPA standards (1001, 1002, 1006, 1021, 1031, 1041, etc.)

Cost: Staff Time (based on availability of staff to complete this task)

Suggested Timeline: Immediate to Short-term (0-3 years)

Rationale: Required by Ontario Regulations

Recommendation #13

Train all firefighters who participate in vehicle, water, or ice rescue responses to the current NFPA 1006 Standard.

Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate to Short-term (0-3 years)

Rationale: Required by Ontario Regulations

Recommendation #14

Convene regular (bi-annual) meetings for all chief officers.

Cost: Staff Time (based on availability of staff to complete this task)

Suggested Timeline: Immediate to Short-term (0-3 years)

Rationale: Enhances communications at all command levels within the organization.

Recommendation #15

In consultation with Human Resources, fire department staff develop and implement a policy or SOG specifically with the internal promotional process for all departmental line officers (training officers, captains, and district chiefs).

Cost: Staff Time (based on availability of staff to complete this task)

Suggested Timeline: Immediate to Short-term (0-3 years)

Rationale: To allow for a consistent approach to promotions and afford those desiring promotion with a clear understanding of how to prepare for and pursue promotional opportunities.

Recommendation #16

The fire chief to review the present recruitment and retention programs and make enhancements based on the information noted in the FMP body.

Cost: Staff time, but some costs may be incurred

Suggested Timeline: Immediate to Short-term (0-3 years) ongoing

Rationale: Volunteer firefighters are the most valuable resource for the fire department. Ongoing recruitment and retention of the firefighters is critical to the fire department's success.

Recommendation #17

Recruit a full-time contingent of firefighters with two options in mind:

1. A total of two full-time day crews be hired to cover times that volunteer responses are at their lowest (e.g., 8 am to 5 pm, Monday to Friday) and assign them to either station #1 or station #3.

2. Implement a full-time, 24/7 at either station #1 or station #3, to ensure full-time, 24-hour community coverage.

Hire a second 24/7 crew incrementally (as call volumes increase) to be assigned to whichever station is available (station #1 or #3).

Financial implications of both recommendations should be assessed.

Cost: Depending on the option implemented, the cost could range from $1 to $2 million annually

Suggested Timeline: Immediate to Mid-term(0-6 years)

Rationale: Based on anticipated growth, expected call volumes (due to a larger population) could exceed the capabilities of the present volunteer firefighter. response capabilities.

The incremental hiring of full-time firefighters can start with one station offering 24/7 coverage. With the second set of fulltime firefighters starting on a Monday to Friday 8am to 4pm coverage and building from there as needed.

Recommendation #18

LFD review their Health, Fitness and Wellness programs to ensure that their firefighters receive proper coverage for PTSD, Cancer Prevention, and Mental Well-Being.

Cost: Costs will be incurred based on the programs provided to the Firefighters

Suggested Timeline: Immediate to Short-term (0-3 years) and ongoing

Rationale: Firefighters are the greatest asset of any fire service, and it is imperative that their Health, Fitness and Wellness is addressed in a genuine, consistent, and professional manner. This may include establishing 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.

Recommendation #19

When researching for an RMS implementation, LFD should consider the ability of the systems to provide dispatch information and call management directly into the RMS from the dispatch service provider.

Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate (0-1 year)

Rationale: The ability to receive call information from the dispatch service directly into the RMS will ensure accurate records and decrease the administrative burden.

Recommendation #27

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.

Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate (0-1 year)

Rationale: This documentation provides a tracking of changes over time and the rationale for the changes.

Recommendation #32

Investigate and include in planning alternative communications between the EOC and emergency site(s) and from the Head of Council to the public.

Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate (0-1 year)

Rationale: After action, reports of many major emergencies find that the greatest difficulties in managing an emergency are due to communication issues. Providing guidance in communication sources and alternate sources will ensure linkages to the site and to the public are maintained.

Recommendation #33

Fire departments within the County of Essex and Windsor, including the LFD, should ensure the local mutual aid plan is reviewed and updated. It is further recommended that with the updating of Mutual Aid Plans (i.e., 2022) the plan is presented to council with an updated By-Law for enactment.

Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate (0-1 year)

Rationale: The Provincial Mutual Aid program is updated every 4 – 5 years. The local plans need to be updated to keep in step with the provincial plan.

Recommendation #34

When the current Automatic Aid Agreement with Chatham-Kent is revised and updated, including a defined commitment to regular training that designates the position accountable for completing this task.

Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate (0-1 year) and ongoing

Rationale: Joint training initiatives under an Automatic Aid Agreement ensure a smooth operation on the emergency scene. This also increases the overall health and safety of all fire crews working collectively and the residents being served.

Recommendation #35

Formally introduce the Medical Tiered Response Agreement with EWEMS to Council and support it with the passage of a by-law once the agreement is reviewed and updated.

Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate (0-1 year)

Rationale: As council sets the level of service for a local fire department it is incumbent upon the fire chief to present agreements to council for passage via by-law before providing the service therein.

Recommendation #36

The Medical Tiered Response Agreement does not provide any guidance for training required to respond to any types of medical and/or trauma related injuries other than those that are cardiac related. An increased level of training should be considered either within the agreement or through the Fire Department's regular training initiatives.

Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate (0-1 year) ongoing

Rationale: Ensuring firefighters have the skills, knowledge and tools required to respond to emergency calls provides better outcomes for those needing assistance.

Recommendation #37

Revise the cost projections for the Rescue Truck due for acquisition in 2024 to reflect the recent cost increases in the fire apparatus market.

Cost: $380,000

Suggested Timeline: Immediate (for 2024 Capital Budget)

Rationale: To be reflective of the current marketplace.

Recommendation #39

Finance and fire department administrators work collaboratively to establish a strategy for Council's approval that properly funds the fire department Equipment and Vehicle Reserve in anticipation of the shortfall that is identified to occur in 2025.

Cost: To be determined

Suggested Timeline: Immediate (for 2025 Capital Budget)

Rationale: Current funding allocations are inadequate.

Recommendation #40

Add two additional line items to the Capital Forecast for the Fire Department (Hose Replacement and Small Equipment) and that these line items be funded with an annual allocation of funds going forward.

Cost: To be determined

Suggested Timeline: Immediate (for 2024 Capital Budget)

Rationale: These assets have a life cycle and annual diminishing value based on usage.

Recommendation #41

The next iteration of the Development Charges By-law considers a revision to the cost allocation for the fire services portion of the assigned fees.

Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate to short term (1-3 years)

Rationale: Current allocation for fire service requires revision.

Recommendation #42

Revise the Fees By-Law to include/ specify cost recovery elements for:

Emergency response to hazardous materials/spill/leak incidents

Fire Code Enforcement related costs where the department orders closure of a premises

Fire investigation purposes, rental of heavy equipment to facilitate safety or investigative needs.

Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate to short-term (1-3 years)

Rationale: To protect the Municipality/ ratepayers from incurring costs that should not be borne by individual property owners.

Recommendation #43

The municipality review the Fire Station Location study conducted by FUS and that the Fire Department develop a pragmatic approach and plan to implement the study, presenting this to Council for further discussion, debate, and financing.

Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate to Short term (0-3 years)

Rationale: This report is relatively recent and reflects a thoughtful and standards- based approach to improving fire station re-locations such that response times can be approved across the municipality for the benefit of ratepayers.

Recommendation #1

The Fire Chief brings forth a revised version of the Establishing & Regulating By-Law for Council's approval and, with annual review and updates as necessary.

All other by-laws noted in this document should be reviewed and updated as required. All by-laws should be reviewed annually to ensure currency of the document.

Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Short-term (1-3 years) ongoing

Rationale: Having an up-to-date E&R By-Law will guide the operations of the LFD and identify response guidelines, fire prevention and public education programs and levels of training.

Recommendation #2

Fire Administration to review by-laws that affect the daily operations of the fire department.

Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Short-term (1-3 years)

Rationale: Having current by-laws will reflect changing the circumstances of the Municipality and meet federal or provincial Acts and Regulations.

Recommendation #3

Establish an SOG Committee representing all divisions of the LFD that develops new SOGs and reviews current ones regularly.

Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Short-term (1-3 years)

Rationale: Establishing an SOG committee will aid in maintaining the information in the database while allowing the participation of LFD members to determine the fire department's operations.

Recommendation #6

LFD expand and formalize its Public Education activities by establishing and funding a Public Education Program and Plan with supporting SOGs.

Cost: Staff Time (based on availability of staff to complete this task)

Suggested Timeline: Short-term (1-3 years)

Rationale: Active and engaging Public Education Programming can reduce the incidence of unwanted fires and change unwanted and unhealthy behaviours.

Recommendation #7

LFD continue to invest in its fire cause and determination program through certification and continuing educational opportunities for designated members with supporting SOGs.

Cost: Staff Time (based on availability of staff to complete this task)

Suggested Timeline: Short-term (1-3 years)

Rationale: Comprehensive fire cause determination efforts help to direct fire prevention and public education efforts to community specific needs.

Recommendation #8

LFD review its current inspection practices with a view to changing from a report-based practice to that of an order-based practice.

Cost: Staff Time (based on availability of staff to complete this task)

Suggested Timeline: Short-term (1-3 years)

Rationale: This will facilitate a more straightforward prosecution process should it be necessary to move non-compliant buildings to a state of compliance.

Recommendation #9

LFD examine opportunities to digitize its fire inspection reporting and record-keeping practices, including the use of handheld computing devices for inspectors.

Cost: Staff Time (based on availability of staff to complete this task)

Suggested Timeline: Short-term (1-3 years)

Rationale: The use of handheld computing devices (i.e., tablets) can optimize administrative-related inspection and reporting activities, saving time.

Recommendation #11

Add the position of Full-time/Career Training Officer to its compliment of FTEs.

Cost: $90.000 to start

Suggested Timeline: Short-term (1-3 years)

Rationale: To address immediate and future training needs; conduct on-going gap analysis and address deficits.

Recommendation #20

While it is still not clear what changes will be required downstream in the 911 system at local fire departments that purchase dispatch services from Public Safety Answering Point or Secondary-Public Safety Answering Point, the municipality should contact the Canadian Radio and Telecommunications Commission (CRTC) for updates and potential financial impacts.

Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Staff time Short-term (0-3 years)

Rationale: The Municipality of Lakeshore should identify the potential funding needs for Next-Generation 911 impacts. Currently, EMG is unable to estimate costs for this upgrade because the CRTC has not provided this information.

Recommendation #21

Develop a preventative maintenance program as well as a backup plan in the event of failure of the radio system's infrastructure.

Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Staff time Short-term (0-3 years)

Rationale: A consistent and dependable radio system is imperative for the health and safety of firefighters.

Recommendation #22

The Municipality to budget funds for upgrading the radio system to the 800 MHz, which includes new mobile and portable radios, pagers, transmission towers and transmitters, generators at each transmission tower, and possibly mobile repeaters if the audit warrants their purchase.

Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Staff time Short-term (0-3 years)

Rationale: Motorola will no longer support the radio system in place after 2024. Providing a budget for the replacement radio system will ensure a timely transition to an updated radio system.

Recommendation #23

Create an IT support position to provide in-station and remote connectivity, hardware and software management, and life-cycle updates.

Cost: IT review required to estimate cost

Suggested Timeline: Short-term (0-3 years)

Rationale: For fire services of today, it is essential for IT systems to be up to date and managed appropriately, ensuring both in-station and remote connectivity.

Recommendation #24

Address the list of station concerns noted in section 4.2 of the report.

Note: an overview of concerns is also noted in the adjoining Rationale section.

A full assessment will be required by the facilities department to obtain an estimate of costs.

Cost: Repairs could range from $40,000 to $100,000 or more.

Suggested Timeline: Short to Mid-term (1-6 years)

Rationale: The Lakeshore fire stations are nearing or at maximum capacity for storage of vehicles and equipment. Overall, the concerns noted during the station visits include:

- The proximity of the firefighter's gear to the vehicle exhaust could create an exhaust contamination issue. Firefighters' gear should be stored in a separate room away from any exhaust contamination.

- Washrooms including showers are required in all stations. Facilities for both male and female firefighters.
- Stations require generators

Recommendation #26

To meet the FUS recommendations, the fire chief needs to identify the present fire vehicle stock to ensure that there is a spare pumper truck and elevated device available in the case that one of the front-line units is put out of service for any mechanical reason.

Cost: A new pumper truck or elevated device can range from $900,000 up to $2 million

Suggested Timeline: Short-term assessment to be made and plans put into place for future spare units, as needed based on FUS recommendations.

Rationale: The FUS recommends and assess a fire service based on their stock of spare pumper trucks, tankers and aerial/elevated devices. The key point to note is that for every eight vehicle types in the departments inventory, there should be a spare unit that can be put into service as needed.

Recommendation #27

Develop a plan to understand the full logistical ramifications of using the Alternate EOC at its current location.

Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Short-term (1-3 years) and ongoing

Rationale: In the event of a major emergency within the Municipality of Lakeshore that expands into other municipalities within the County of Essex, the County EOC may be required to be activated and therefore be staffed by County personnel, deeming them unavailable for the Municipality of Lakeshore.

Recommendation #28

The Municipality of Lakeshore adopt IMS to aid in understanding the means of mitigating and recovering from an emergency, including IMS within the ERP and other specific hazard plans.

Due to the importance of staff understanding their roles and responsibilities in the EOC, implement a policy that identifies IMS 200 as the minimum standard for staff required to be in the EOC with IMS 300 being the goal for all department heads.

Cost: Staff time (courses are offered at no charge)

Suggested Timeline: Short-term (1-3 years) and ongoing

Rationale: Incident Management training will provide all EOC members consistent training and understanding of their roles within the EOC structure.

Recommendation #29

Recognition of services required in response to emergencies be noted within the HIRA. Agreements with NGOs to aid in the provision of services beyond the scope and/or resources of local staff will ensure adequate responses. Formalized agreements with the needed NGOs will provide some assurances of capability.

Cost: TBD – Agreement Costs

Suggested Timeline: Short-term (1-3 years)

Rationale: The utilization of NGOs under formalized agreements will provide ongoing services for the response and mitigation of major emergencies over a longer term.

Recommendation #30

With the assistance of policing agencies, the Municipality of Lakeshore include, as a Response Plan, the Active Shooter/Hostile Event Response (ASHER) program. The section should include an integrated response program comparable to NFPA 3000, Standard for an ASHER Program.

Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Short-term (1-3 years)

Rationale: Preparing a response plan for ASHER will ensure adequately resourced responders, with equipment and training, to respond to potential and real threats.

Recommendation #25

In consultation with the fire chief, Council to consider a feasibility study of the two future staffing options presented:

- Option #1 – Full-time Day Crews
- Option #2 – 24/7 coverage at two of the present stations.
- Option #3 – a combination of a daytime station with the other being 24/7 coverage.

Conduct a feasibility study by the Director of the Works Department or through a third party.

Cost: Option #1 - $600,000 $1 million;

Cost: Option #2 - $1.9 – 2.4 million; and the Feasibility Study

Suggested Timeline: Mid to Long-term (3-10 years) or longer dependent on the option

Rationale: The intent of the options suggested are to provide the most efficient use of resources while improving coverage for the community.

Recommendation #37

In 2030, update the cost projections contained in the Capital Forecast for the replacement of the breathing air compressor, fill station, and air storage to reflect anticipated acquisition costs.

Cost: $100,000

Suggested Timeline: Long-term (7-10 years) 2030 (for 2034 purchase)

Rationale: The current acquisition cost estimate is overly conservative.

TABLE OF CONTENTS

ACRONYMS

CAO	Chief Administrative Officer	**LFD**	Lakeshore Fire Department
CEMC	Community Emergency Management Co-Ordinator	**LWC**	Lightweight construction
CPI	Consumer Price Index	**NFPA**	National Fire Protection Association
CRA	Community Risk Assessment	**NGO**	Non-Governmental Organization
CRRP	Community Risk Reduction Plan	**NIST**	National Institute of Standards and Technology
CRTC	Canadian Radio-television and Telecommunications Commission	**OBC**	Ontario Building Code
DPG	Dwelling Protection Grade	**OFC**	Ontario Fire Code
EAP	Employee Assistance Program	**OFM**	Office of The Fire Marshal
EMCPA	Emergency Management and Civil Protection Act	**OHSA**	Ontario Occupational Health and Safety Act
EMG	Emergency Management Group Inc.	**OPP**	Ontario Provincial Police
ERP	Emergency Response Plan	**PFPC**	Public Fire Protection Classification
EOC	Emergency operation centre	**PPE**	Personal protective equipment
EWEMS	Essex-Windsor Emergency Medical Services	**PTSD**	Post-Traumatic Stress Disorder
FMP	Fire Master Plan	**RFP**	Request for Proposal
FPO	Fire Prevention Officer	**RMS**	Records Management System
FUS	Fire Underwriters Survey	**SCBA**	Self-contained breathing apparatus
HAZMAT	Hazardous material	**SOG**	Standard Operating Guidelines
HRFP	Health-Related Fitness Programs	**SOP**	Standard Operating Procedures
ICS	Incident Command System	**SWOT**	Strengths, weaknesses, opportunities, and threats
IMS	Incident Management System	**WSIB**	Workplace Safety & Insurance Board

INTRODUCTION

Project Methodology

EMG has based its review process on the municipality's initial RFP and proposal response document. The specific scope of work noted in the RFP was reviewed and included in 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 the community's current and future needs and circumstances.

Overall, the methodology involves a considerable amount of research, documentation review, and data analysis, along with stakeholder consultation. From that, the draft report and recommendations are derived. The final product is a living document that provides a high-level strategic direction for the Municipality of Lakeshore's Council and the LFD.

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 the community and areas of growth projections over the next 10-20 years.
- Reviewed any previous risk assessment, council's strategic priorities, and other pertinent documents.
- Prepared a CRA 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 trends, 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 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 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 Municipality (development fees).

Based on these criteria, through meetings with members of council, the municipality'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 LFD.

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 (FPPA)*
- 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
- The FUS 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 (in order of involvement):

- Lyle Quan, Fire Service Consultant/VP of Operations - Project Lead
- Rick Monkman, Fire Service Consultant
- Larry Brassard, Fire Service Consultant
- Richard Hayes, Fire Service Consultant

- Darryl Culley, President

Together, the team has amassed considerable 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 to the creation of strategic and master fire plans and the development of emergency response programs for clients.

SECTION 1: COMMUNITY & FIRE DEPARTMENT OVERVIEW

1.1 Community Overview

The Municipality of Lakeshore is located within Southwestern Ontario along the south shore of Lake St. Clair. The municipality is approximately of 525 km^2 in size with a 40 km Lake St. Clair shoreline, 40 km section of Highway 401, two rail lines, a large industrial park, and multiple communities throughout. Of approximately 40,000 residents, 76% live in the urbanized northwest corner. Much of the municipal landmass is rural.[1]

The Municipality was incorporated in 1999 by amalgamating the Town of Belle River with the townships of Maidstone, Rochester, Tilbury North, and Tilbury West. It is the largest and the most populous municipality within Essex County[2].

TABLE #1: Lakeshore Permanent Population by Year

Year	2016	2021
Population	**36,611**	**40,410**
Population Increase/ Decrease		**+10.2%**

NOTE: *Retrieved from Stats Canada website, January 12, 2023.*[3]

1.2 Fire Service Overview

The LFD consists of five fire stations staffed by volunteer firefighters under the direction of a full-time fire chief who is assisted by one deputy chief, two assistant deputy fire chiefs, one administrative assistant, and two fire prevention officers (FPOs).

The LFD responds to approximately 420 to 540 calls for service per year. These calls range from medical assistance to fire-related incidents and motor vehicle collisions.

[1] Municipality of Lakeshore, Accessed January 25, 2023, https://www.lakeshore.ca/en/index.aspx

[2] Profile table, Census Profile, 2021 Census of Population - Lakeshore, Town (T) [Census subdivision], Ontario (statcan.gc.ca), Accessed January 25, 2023, https://www12.statcan.gc.ca/census-recensement/2021/dp-

[3] Census Profile (statcan.gc.ca), Accessed June 7, 2022, https://www12.statcan.gc.ca/census-recensement/2011/dp-pd/prof/details/page.cfm?Lang=E&Geo1=CSD&Code1=3512076&Geo2=PR&Code2=01&Data=Count&SearchText=hastings%20highlands&SearchType=Begins&SearchPR=35&B1=All&Custom=&TABID=1

1.3 Assessment of Current Fire Services By-Laws and Agreements

When reviewing a fire department and its operations, a review of fire service-related by-laws provides a good overview of the goals and expectations of the fire department. The following set of by-laws were reviewed and commented on by EMG.

1.3.1 Governance and Establishing & Regulating By-law

To assist the fire administration in meeting the needs and expectations of council, the Establishing and Regulating By-law (E&R By-law) is reviewed and updated to identify changes based on the municipality's needs and the fire department's overall operational needs. The E&R By-law must align with the expectations of the *Fire Protection and Prevention Act* of 1997.

The E&R By-law is Council's direction to the LFD and prescribes what services to provide. The current E&R By-law has not been updated since 1999, making this an outdated document. However, it is recommended that by-laws affecting fire department operations be reviewed annually or as significant changes occur in either community. Doing so will ensure that the fire chief's noted service levels, expectations, and authority are correctly aligned with the community's needs.

As part of any by-law update process, drafts should be vetted by the municipality's solicitor before being presented to council for approval. The fire chief should also consider bringing the E&R By-law forward to newly sitting councils every four years. Doing so will allow new council members to understand the level of service provided to the community and the Council's responsibility to fund this level of service as set by the Council.

In collaboration with the fire chief, the council needs to establish an objective, definitive response time to be included in the E&R By-law. The NFPA recommends completing some assessments to evaluate a baseline for a department's response time goal. This review will offer an understanding of how the department has been performing and identifying areas for possible improvement in station location, vehicle, and staffing distribution.

The E&R By-law should reflect new legislation, changes in the types and levels of response, and training expectations. Consideration should also include reference to such guidelines and standards as:

- Section 21 Firefighter Guidance Notes
- *OHSA*
- OFM Guidelines concerning staffing and response recommendations.
- *FPPA* 1997

- Related NFPA Standards that deal with:
    - Training
    - Fire prevention and public safety programs
    - Fire department response goals and objectives
    - Communications and vehicle dispatching
    - Response times.
    - Fleet and Maintenance

By incorporating these guidelines and standards, Council supports LFD's efforts to ensure that staffing, training programs, fire prevention, public education initiatives, and response to the community adhere to industry best practices.

The LFD has not developed a Mission, Vision, or Values statement; it would be wise for the LFD to develop these as they are the guiding forces behind the fire department. The following are definitions of what each statement is and what they include:

Mission Statement – Identifies and communicates the purpose of the fire department.

- Questions to be answered in the development of a mission statement could include:
    - What does the LFD do today?
    - Whom does the LFD serve?
    - What does the LFD wish to accomplish?
    - What goals does the LFD wish to achieve?

Vision Statement – Provides insight into the fire department's hopes to achieve both now and in the future.

- Questions to be answered in developing a visions statement could include:
    - Where is LFD going forward into the future?
    - What goals does LFD wish to achieve in the future?
    - What will society look like in the future?

Values Statement – This should reflect the fire department's core principles and ethics.

- The questions to be answered in developing the values statement could include:
    - What does the LFD stand for?
    - What behaviours does the LFD value over all else?
    - How will the LFD conduct its activities to achieve what the Mission and Vision Statements stand for?
    - How will the LFD treat its members and the citizens of the community it serves?

The updated by-law should refer to the Office of The Fire Marshal (OFM), *Regulation 378/18*, CRA which came into effect on July 1st, 2019.[4] It should also specify the need for an annual review and a new document produced every five years. It should also identify the Community Risk Reduction Plan (CRRP) that should be initiated as part of the CRA.

The *FPPA* requires fire departments to have a smoke alarm program. The program, including its purpose, goals, and expected outcomes, should be included in the new document.

To LFD's credit it was noted that smoke alarms are on the apparatus, so firefighters will only leave a residence after ensuring one is installed. This is a great community fire safety initiative.

Other items to consider changing within the current by-law include:

- The inclusion of applicable NFPA standards.
- References made as required to the Ministry of Labour's Section 21 Guidance Notes.
- Review the organizational structure and update it to reflect the structure of LFD, including the number of firefighters assigned to each station, aside from the captains.
- List the Divisions found within LFD.
- Identify the level of service provision for Technical Rescues and hazardous material (HAZMAT) incidents, including elevator rescue.
- Strategies for technical rescue responses, through the implementation of response agreements with neighbouring fire services.
- Consider updating the name "volunteers" to "paid-per-call" firefighters to reflect that they are receiving a stipend for their participation in the department's activities.

[4] O. Reg. 378/18: COMMUNITY RISK ASSESSMENTS (ontario.ca), Accessed December 14, 2022, https://www.ontario.ca/laws/regulation/180378

- Include that there are Mental Wellness and Respiratory programs.
- Include response time baseline and goals based on NFPA 1720.
- Identify who is responsible for fire investigations and their required qualifications, including certification.
- Make mention of Asset and Record Management Programs and retention policies.
- Make mention of any Response or Automatic or Mutual Aid Agreements in place.
- Include the dispatching agreement and by-law.
- Include that LFD responds to tiered medical calls, that there is a responses agreement in place with the Essex-Windsor Emergency Medical Services (EWEMS), and the level of medical training (First Responder or Emergency Medical Responder).
- Mention that fees may be levied for some services provided by the LFD.

1.4 Assessment of Other Current Fire Services Related By-Laws

The following fire service-related by-laws that were also reviewed for this FMP:

- Automatic Aid By-law 77-205 (with Municipality of Chatham-Kent) *(Discussed in Section 6)*.
- Mutual Aid Participation By-law 118-2005 *(Discussed in Section 6)*
- Development Charges By-law 46-2015 (*Discussed in Section 7*)
- Fees and Charges By-law 97-2020 (*Discussed in Section 7*)
- Fire Dispatch Services By-law was not available during this review. *(Discussed in Section 3.5)*
- Open Air Burning By-law 2017-12
- Tiered Medical Response Agreement and By-law (*By-law was not available for review*) *(Discussed in Section 3.4)*.

1.4.1 Open Air Burning By-Law – 61-2010

The Open-Air Burning By-law stipulates the parameters for outdoor burning within Lakeshore, which came into effect in 2010. This by-law is 13 years old and should be reviewed and updated in preparation for being presented to Council for consideration.

The following needs to be considered for inclusion in the revised by-law:

- The amended by-law should reference the Ontario Fire Code Article 2.4.4.4.
- Should also reference O. Reg 256/14, amendments to the *FPPA*.

- By-law should also reference O. Reg. 207/96, Outdoor Fires, from the *Forest Fires Prevention Act*.
- With the increase in residential occupancies and population, expressly prohibit burning leaves and grass clippings.
- Should note the necessity of in ensuring proper installation and use of wood-burning outdoor furnaces, which are becoming quite popular. If not properly installed and used, they can be a fire hazard.
- By-law should include approved manufactured burning appliances with spark arrestors, as found in chimineas.
- It should also state that manufactured appliances cannot be placed and used on wooden surfaces such as decks and porches.

1.4.2 Fireworks By-law

Most municipalities have a stand-alone by-law specific to selling and discharging fireworks. Lakeshore does not currently have a by-law to regulate the sale and discharge of fireworks. If a by-law is developed and brought forward for council's approval, the following clauses should be considered:

The by-law should include specifics regarding recreational usage, public high-hazard displays, and those released during a show or music concert (pyrotechnics).

The municipal authority to control fireworks rests within the Ontario Fire Code (OFC) O. Reg. 213/07, Division B, Part 5, ss 5.2.

The following needs to be considered for inclusion in a stand-alone Fireworks By-law:

- Reference the federal regulation regarding the training required to set off commercial and pyrotechnic fireworks.
    - Doing so will direct those who need this training and education and assist them in locating the supporting information. The by-law should list the differentiation between the consumer, display, and pyrotechnic fireworks, as listed in the *Explosives Act, R.S. c. E-15*.
- The by-law should include the importance of fire safety while setting off fireworks. Therefore, it would also be appropriate to have safety information on the proper method of setting off fireworks and the equipment worn by those setting off consumer fireworks.

    - Along with this document, it will also be essential to outline the need for some form of extinguishment that should be readily available, such as a pail of water and a fire extinguisher or garden hose.

- List the occasions/ holidays that fireworks may be discharged, such as Victoria Day, Canada Day, Simcoe Day (Civic Holiday), New Year's Eve and some religious celebrations.
- Beaches and parks are a popular and prevalent location for parties, and there should be a section that speaks to discharging fireworks along the beach areas year-round.
- Include a requirement that all those involved in discharging high-hazard fireworks have completed the National Fireworks Certification Program (NFCP) on discharge.
- The document should include when fireworks should not be discharged, such as during wind gusts exceeding a pre-determined speed.
- A guide on how to set off "Family Fireworks" be written, i.e., use a pail of sand to place the firework in, have a charged garden hose close by or a fire extinguisher, keep children away from the discharge area, etc.
- For discharging high-hazard ordinances, the LFD should conduct a pre-event inspection of the site to ensure it complies with the application by a member of LFD that has completed the NFCP course.
- Include in the by-law that a fire apparatus with four firefighters stands by at the site of high-hazard firework displays.
- There should be at least two post-event inspections of the area adjacent to the discharge zone to look for unexploded ordinances. One takes place the night of the display, and the second the morning of the following day during daylight hours.
- The Fees and Services By-law to include pre-and post-discharge inspections and the stand-by fire crew.

1.4.3 Registry for Accessory Apartments

The Province of Ontario's Housing Supply Action Plan supports second dwelling units to relieve some affordable housing shortages. Second Dwelling Units are an essential part of Ontario's rental housing landscape. They offer affordable housing solutions throughout the province. Second Dwelling Units are self-contained residential units generally allowed in single detached, semi-detached, and row houses. The Plan also states that second dwelling units may also be in ancillary structures (i.e., garage, laneway house, or garden suite).

All second dwelling units built in Ontario must also meet health, safety, housing, and maintenance standards. These standards include but are not limited to the Ontario Building Code (OBC), the OFC, and municipal property standards by-laws. These changes, however, do not automatically legalize existing second dwelling units, and they do not allow new units without a building permit.

A by-law is required to establish a registry and license the identified living quarters, allowing the Municipality to inspect renovations or new constructions involving a second dwelling unit.

The Municipality of Lakeshore should also review opportunities to implement a means of reporting unregistered or illegally built second dwelling units, such as an anonymous tip line.

1.4.4 Second Dwelling Units, Garden Suites, and Short-Term Accommodations By-law

Lakeshore does not have a stand-alone by-law on the registration of accessory apartments, also known as second dwelling units and garden suites. There also lacks a by-law governing short-term accommodations. Both dwellings are approved by way of Lakeshore's Official Plan and Zoning By-law.

A few points to be considered about second dwelling units, garden suites and short-term accommodations:

- An unknown number of second dwelling units and short-term accommodations operate in Lakeshore.
- Students or tenants on restrictive budgets may reside in residences that may not meet the requirements of the OBC and OFC. Violations include not having proper exits, inadequately sized basement windows, in sufficient smoke and CO alarms, a lack of fire extinguishers and fire escape plans, etc.).
- Property owners may not understand their responsibilities regarding fire safety and the fire code.
    - LFD should review its fire prevention and enforcement resources regarding adequate staffing to inspect all the municipality's accessory, second units, and short-term accommodations for OFC violations.
        - Due to the number of second units and short-term accommodations, LFD may not have the resources in place to be able to correctly complete these inspections along with the other inspection requirements of the municipality.

    - LFD and the Building Department should establish and advertise a method (reporting line) to identify possible illegal locations in cooperation with by-law enforcement.
    - Inground-related dwellings (basements) must meet Ontario Building Code and Ontario Fire Code requirements.
    - While new residential developments are in progress, some may contain second-dwelling units or become designated as short-term accommodations.
- Many short-term accommodations may have wood-burning appliances installed. Consideration should be given to requiring a Wood Energy Technology Transfer (WETT) inspection. These could be completed by municipal staff or through a third party.
    - Lakeshore does not require a building permit to install wood-burning appliances; consideration should be given to making this a requirement.

The Planning and Building Departments should bring forth a by-law that regulates these units, including licensing. The document should identify the responsibilities of the fire department.

1.4.5 Development Charges By-law 46-2015

A Development Charges By-law follows the Province of Ontario's *Development Charges Act, S.O. 1997, c27*. The *Act's* purpose is to allow municipalities to collect a fee for new construction to offset the costs incurred in enhancing service provision levels. The payments are allocated to fire protection, roads, recreation facilities, water and sewer systems upgrades, paramedic services, Public Works, etc.

Council approved the current By-law in 2015.

1.4.6 Fees and Charges By-law 97-2020

Fire services can generate revenue to offset the operating costs of the fire department through a Fees and Charges By-law for services provided. The Municipality of Lakeshore is permitted to charge for services provided, as outlined in the *Municipal Act (2001), Part XII*.

The Municipality does have a by-law for charging fees for services provided.

1.5 Policies, Guidelines, & Procedures

Fire department policies and guidelines have immense value for a department. They are the foundation of a fire 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. It permits very little to no flexibility.
- A **guideline** is a standard with an acceptable level of quality or attainment. It provides direction on how to act in each situation with non-mandatory controls.
- A **procedure** is a requirement with an acceptable level of quality or accomplishment in a series of detailed steps to accomplish an end. There are step-by-step instructions for execution and completion.

The LFD has many SOGs in place. To ensure all the SOGs are current, they need to be reviewed and revised on an ongoing basis as circumstances change. Many of the LFD's SOGs are due to be reviewed and updated, as this has not occurred for several years.

Reviewing the SOGs can be an incredibly detailed and very involved process. Writing new SOGs and maintaining existing ones is a daunting task to be the sole responsibility of the chief officers. Establishing a committee that meets regularly to develop new SOGs and review older ones would relieve some of the pressures placed on the chief officers. The development of a structured SOG Committee that creates its Terms of Reference would be a great benefit to the LFD in several ways:

- Updated and current SOGs
- Staff would be more involved in the fire department operations.
- Safer environment for members to work.

Some fire departments review a third of their SOGs annually. Adopting this procedure provides the entire set of documents to receive a full review every three years.

The Section 21 Committee is part of the *OHSA* initiative for firefighter safety. A good source of information is Section 21 Guidance notes which are kept current by a provincial team of fire service personnel. The many NFPA Standards are also a good resource for developing SOGs.

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 be held accountable.

Section 1 - Recommendations

Recommendation #1

The Fire Chief brings forth a revised version of the Establishing & Regulating By-Law for Council's approval and, with annual review and updates as necessary.

All other by-laws noted in this document should be reviewed and updated as required. All by-laws should be reviewed annually to ensure currency of the document.

Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Short-term (1-3 years) ongoing

Rationale: Having an up-to-date E&R By-Law will guide the operations of the LFD and identifies response guidelines, fire prevention and public education programs and levels of training.

Recommendation #2

Fire Administration to review by-laws that affect the daily operations of the fire department.

Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Short-term (1-3 years)

Rationale: Having current by-laws will reflect changing the circumstances of the Municipality and meet federal or provincial Acts and Regulations.

Recommendation #3

Establish an SOG Committee representing all divisions of the LFD that develops new SOGs and reviews current ones regularly.

Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Short-term (1-3 years)

Rationale: Establishing an SOG committee will aid in maintaining the information in the database while allowing the participation of LFD members to determine the fire department's operations.

SECTION 2: RISK ASSESSMENT

2.1 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.

2.1.1 Strengths

- Lakeshore benefits from having five fire stations that are arranged into five response zones, which has worked well for the department regarding response to service calls within the community.
- The LFD has strong relationships with its partner emergency services (police and EMS), along with automatic aid agreements in place with other fire services to assist with general response needs.

2.1.2 Weaknesses

- LFD, as with many volunteer fire services, depends on its team of dedicated volunteer firefighters. 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 results in low numbers of on-scene staffing levels.
    - A review of the recruitment statistics presented by the LFD identified that LFD is experiencing an ongoing turnover of members. Some years this equates to a higher number than others. Most that leave do so not because of departmental operations, but due to employment and family commitments.
- Some of the fire stations need 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.
- LFD lacks the administrative support to ensure that the department operates efficiently.
- With the OFM implementation of the training standards and certification requirements for all positions within the fire service, even more training will be required (by all fire departments in Ontario).

- With the recruitment and retention challenges, this will present a struggle to ensure that training needs and expectations outlined in such documents as the NFPA and the *OHSA* are being delivered and documented consistently.

2.1.3 Opportunities

- LFD should continue engaging in partnerships with bordering departments for such things as joint training, cross-border responses, and 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.

2.1.4 Threats/ Challenges

- The increasing call volumes is 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.
    - This has necessitated the need for a full-time component of the department for daytime response needs.
- The threat of climate change and its impact on weather patterns is an increasing challenge for communities to mitigate inclement weather incidents, such as freezing rain/ice storms, extreme temperatures, and localized flooding. 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. Including the need of fulltime firefighters.

All the noted weaknesses and challenges will be addressed within this document (within the related section(s).

2.2 Community Risk Assessment Data

Risk assessment is the process used to identify the level of fire department services required within the boundary of the municipality. It measures the probability and consequence of an adverse effect on health, property, organization, environment, or community due to an event, activity, or operation.

Council has the authority to establish fire protection within their municipality. The fire chief is responsible for informing the council of all risks existing within the community. Therefore,

this risk assessment aims to provide an overview of identified risks within the community, along with suggested options for mitigation. Based on this information, council can make an informed decision on the service level to be provided.

O. Reg. 378/18 Community Risk Assessment (CRA) states that *"...every municipality shall complete a CRA by July 2024, with renewal to occur every five years."* A review and update of the CRA is to be conducted annually.

The accumulation and analysis of the following factors will assist in applying this information in identifying potential risk scenarios. 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?
- To whom could it happen?
- Why could it happen?
- How likely could it happen?
- How bad would it be if it happened?
- What programs can be developed to mitigate or prevent any or all the above?

Once answered, these questions will frame the basis for formulating and prioritizing risk management decisions to reduce the likelihood of these incidents and mitigate their impact. The completed CRA may identify gaps and areas where conditions vary from the desired outcomes.

Data to be reviewed for each mandatory profile include:

Demographics Profile – Includes age, gender, educational attainment, socioeconomic makeup, vulnerable individuals or occupancies, transient population, and ethnic and cultural considerations.

Critical Infrastructure Profile – The facilities and services that contribute to the interconnected networks, services and systems that meet vital human needs, sustain the economy, and protect public safety and security.

Geographic Profile – Considers the waterways, highways, and other landforms, railroads, wildland-urban interface, bridges, and other specific community features.

Building Stock Profile – Potential high-risk occupancies, whether residential, commercial, or industrial, building density, building code classifications, structure(s) age, occupancies that could be a high life safety risk, historic buildings.

Public Safety Response Profile – How are resources other than fire department related services distributed within the community, their deployment and usage, types of incidents responded to and the frequency of such incidents, including the seasonal variations and time of day.

Community Service Profile – Existing planning and zoning committees, schools, seniors' organizations, ratepayers' associations, mental health organizations, faith-based groups, and cultural/ethnic groups.

Hazard Profile – Human, technological, or natural hazards.

Economic Profile – Review the infrastructure, local employers and industries, institutions, community's tax base, and local attractions.

Past Loss/ Event Profile – Consideration of the impact and frequency of an event; identify significant acute events with a low frequency but a high impact or small chronic events with a high frequency and a low impact.

The CRA is a separate document from the FMP. Once the fire chief has completed their review of the documents, they should discuss their findings with council, senior management, and the Chief Administrative Officer (CAO). Recommendations and options for mitigation within the CRA and FMP can then be compiled to develop a CRRP.

2.2.1 Provincial Community Risk Statistics

The first set of statistics noted is the most recent provincial data provided by the OFM compared with the most recent LFD statistics.

Provincial - Loss fires by Property Class

From 2018 to 2022, 53,337 fires with a dollar loss were reported to the OFM.

- 74% of these fires occurred in residential occupancies.
- 28% occurred in vehicles.
- 7% of loss fires occurred in industrial occupancies.

- 5% occurred on structures/ properties not classified by the OBC – this includes many non-structure property types – land, outdoor storage, and some structures ranging from barns to weather stations.
- 3% in assembly occupancies.
- 3% in mercantile occupancies
- 3% in business and personal services occupancies.
- 3% in occupancies classified under the National Farm Building Code
- 2% in care and detention occupancies.

The distribution of fire occurrence across property types has been relatively unchanged.

Provincial - Loss Fires Property class: Structures only

From 2018 to 2022, 35,132 structure fires with losses were reported to the OFM.

- 74% Fires in residential occupancies
- 6% Properties not classified by the OBC
- 7% Industrial occupancies
- 3% Assembly occupancies
- 3% Mercantile
- 3% Business and Personal Services
- 3% Occupancies classified under the National Farm Building Code
- 2% Care and Detention Occupancies

This distribution of fire incidents across structure property types has been consistent over many years.

Provincial - Structure Loss Fires: Ignition sources

Notably, 8% of the structure loss fires were suspected of arson or vandalism (intentionally set).

Between 2018 and 2022, the ignition sources in other (not intentionally set) structure loss fires were:

- 26% undetermined

- 16% cooking
- 14% open flame tools, smoker's articles
- 10% miscellaneous
- 8% electrical distribution equipment – wiring
- 7% heating equipment, chimney, etc.
- 5% other electrical, mechanical
- 4% appliances
- 5% exposure fires
- 3% lighting - excluding candles
- 1% processing equipment
- 0% unknown, not reported

2.2.2 The Municipality of Lakeshore Fire Loss Statistics

The OFM provided the following information and documents received and taken from the past reports supplied to EMG. The following data is an overview of concerns within the community and from the highest to the lowest level for ease of review. This information will assist in formulating and implementing fire prevention and public safety awareness initiatives.

The Municipality of Lakeshore Fire Loss by Property Classification

Based on the information received, the following building classifications for property loss are listed based on the number of fires in each occupancy from 2018 to 2022:

- Group C – 65% of all structure fires of which 66 of the fires were in residential occupancies
- Structures/ Properties not classified by Ontario Building Code accounted for 17% of this type of fires, totaling 18
- Classified under National Farm Building Code accounted for 7% for a total of 7 fires Group F – Industrial accounted for 3% for a total of 3 fires
- Group A – Assembly accounted for 5%, for a total of 5 fires

- Group B – Care and Detention accounted for 2%, for a total of 2 fires
- Group E – Mercantile accounted for 1% of a total of 1 fire.

The Municipality of Lakeshore Reported Fire Cause

Assessing the possible cause of the fires is essential when identifying potential trends or areas to be considered for introducing additional public education on fire prevention initiatives as part of the community fire protection plan.

The leading causes of fires were:

- Misuse of ignition source/ materials first ignited accounted for 28% of a total of 28 fires
- Design/ construction/ maintenance deficiency accounted for 20% of a total of 20 fires
- Unintentional undetermined accounted for 24% of a total of 24 fires
- Mechanical/electrical failure accounted for 13% of a total of 13 fires
- Other accounted for 6% of a total of 6 fires
- Undetermined accounted for 3% of a total of 3 fires
- Other unintentional accounted for 4% of a total of 4 fires
- Children playing accounted for 1% of a total of 1 fire.

The Municipality of Lakeshore Ignition Source Class

The leading causes of ignition sources were:

- Undetermined accounted for 30% of a total of 31 fires
- Cooking equipment accounted for 17% of a total of 17 fires
- Miscellaneous accounted for 15% of a total of 15 fires
- Open flame tools, smokers' articles accounted for 12% of a total of 12 fires
- Electrical distribution equipment accounted for 8% of a total of 8 fires
- Heating equipment, chimney, etc. accounted for 6% of a total of 6 fires
- Appliances accounted for 4% of a total of 4 fires
- Other electrical, mechanical accounted for 4% of a total of 4 fires
- Exposure accounted for 4% of a total of 4 fires

- Lighting equipment accounted for 2% of a total of 2 fires

From the compiled data, most fires occur in residential occupancies, with the leading cause being the misuse of ignition source/ materials first ignited, and the ignition source, in many cases, remains undetermined.

2.3 Community Risk Assessment – Identified Risks

The following information outlines some of the identified risks to life safety and property. Now that the CRA is completed, the Fire Chief will be able to put forward strategies to address the risks, including public education and Fire Code enforcement.

A thorough review coupled with sound strategic planning will garner successes in the form of fewer fires, reduced fire-related injuries, and lower dollar property loss through ongoing fire prevention initiatives. These fire prevention initiatives would include early warning detection systems (i.e., smoke alarms), proactive inspections, and public education.

Note: *The following risks will be discussed at length in the CRA, and not presented in the order of their level of risk.*

Bodies of Water/ Flooding – Lake St. Clair and its tributaries present a unique set of challenges year-round. There is always the risk of incidents involving marine vessels, such as collisions, vessels taking on water, and catching fire. Standard Operating Guidelines (SOGs) must comply with industry standards, regulations, and legislation when responding to ice and water emergencies.

A history of minor flooding has not impeded emergency vehicle access to the areas involved. The department should have a mitigation strategy in place to prepare for a significant flooding event.

Fire Stations – There are five fire stations; some require upgrades or replacement. More information on this is included in Section 4, along with information relating to the community's growth and future staffing requirements to meet this growth.

Municipality of Lakeshore - New residential occupancies will increase the permanent and seasonal populous**.** As a result, there may be an increased demand for fire inspections and public education events. The LFD should review the time spent and the workload placed on fire prevention needs which may require additional resources to meet the demand, keeping in mind related industry standards and legislated requirements.

Technical Rescues – **Trench, Confined Space, High and Low Angle, Ice Water** - No formal agreement exists with other fire services to mitigate technical rescues not covered by LFD. LFD should enter a response agreement with another fire department or third party to mitigate confined space rescues. Firefighters should train to the Awareness Level for all technical rescues, including elevators. The closest fire department that conducts trench and swift water rescues is the London Fire Department.

Domestic Terrorism – This can occur in any community and includes anything from an active shooter to sabotaging municipal infrastructure, such as water treatment plants and cyber attacks; practice in handling such incidents is critical. Use NFPA 3000 Standard for an Active Shooter/ Hostile Event Response (ASHER) Program as a reference in conducting public education on the subject and provide training in cooperation with the OPP Detachment. LFD needs to have an SOG in place per Section 21 Guidance Note 6-37. The Municipality should enquire whether the OPP could conduct public education on domestic terrorism to high-risk occupancies such as schools and banks.

Industries – Primary industries are related to the auto industry in support of assembly plants in Windsor and Detroit. Manufacturing processes may include using hazardous materials. Based on the information received, the staff of LFD are aware of the local concerns relating to the industries within the municipality.

Demographics – The municipality has an increasing senior demographic that may eventually reside in a senior's living facility. Currently, there are several buildings specifically for seniors. There could further be additional buildings as the senior population increases. These occupancies require annual inspections and fire drills. To correctly complete a fire drill, a witness of the exercise must be posted at each exit. This demographic will remain a key focus for the Fire Prevention Division.

Firefighters – Recruitment and Retention – Most municipalities with paid-on-call (volunteer) firefighters are experiencing personnel shortages due to the volunteers leaving for family, work, or other personal reasons. Lakeshore and the LFD should develop a comprehensive recruitment and retention program that may require assistance from someone specializing in people optimization (human resources).

It costs between $9,000 and $15,000 to train and outfit a new firefighter, and, in some cases, they remain with the department for a very short period. The fire department members are the organization's most important asset; new ideas and initiatives are required to maintain this asset as an active member.

The availability of firefighters during the daytime is limited. LFD will need to review the need to hire full-time firefighters who work Monday to Friday during the daytime to ensure coverage when the availability of volunteer personnel is at its lowest. When it is determined that full-time firefighters are required, a prerequisite should be stipulated that they are trained in NFPA 1031, Level II and 1035, Level I, so they may assist with fire inspections and public fire safety education during slower periods.

Building Stock - There could be illegal second units and/or garden suites existing within the Municipality. Lakeshore's Official Plan authorizes additional housing units in a detached dwelling design and allows other (accessory) residency units in the detached home. Secondary units and garden suites must meet OBC and OFC requirements. Lakeshore requires every second unit and garden suite to be registered and licensed with the Municipality. As such, these units need to be inspected by LFD Fire Prevention personnel.

There is also an unknown number of short-term accommodations in the municipality. No by-law regulates these accommodations, and plans must be in place to develop and implement one in 2023. Owners of these businesses must be aware that they are to comply with municipal by-laws such as Property Standards and Open-Air Burning.

A Short-Term Accommodations By-law should regulate this industry which calls for their registry and the need for fire inspections. Where a solid fuel appliance is used, a permit must be obtained for installation along with a WETT inspection. Lakeshore may need to involve a third party to complete these inspections.

Building Stock – The OFM has identified the risks associated with occupancies using lightweight construction (LWC) practices. Municipalities are to inventory all building stock, including LWC practices. LFD and the Building Department must collaborate and develop an ongoing list of all building stock based on the OBC Occupancy Classifications.

Failure to comply with this requirement is illegal and exposes the municipality to significant fines.

2.4 Survey Results

As part of completing an overall risk assessment and to get a complete understanding of how well the LFD is meeting the needs of the community, its volunteer firefighters and full-time staff, both community and staff input were requested in the form of a blind survey. This input was helpful in developing recommendations to assist the Municipality of Lakeshore

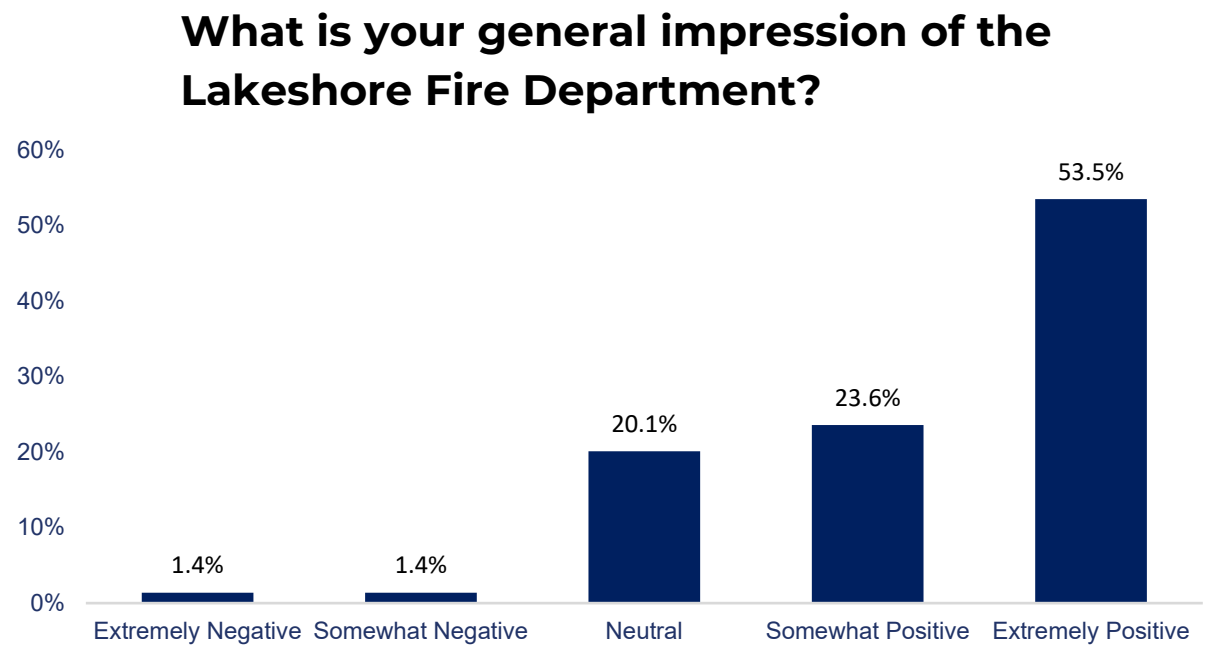
with future strategic decision making as it relates to the fire service. These surveys also help to identify what is working well, along with possible areas for improvement.

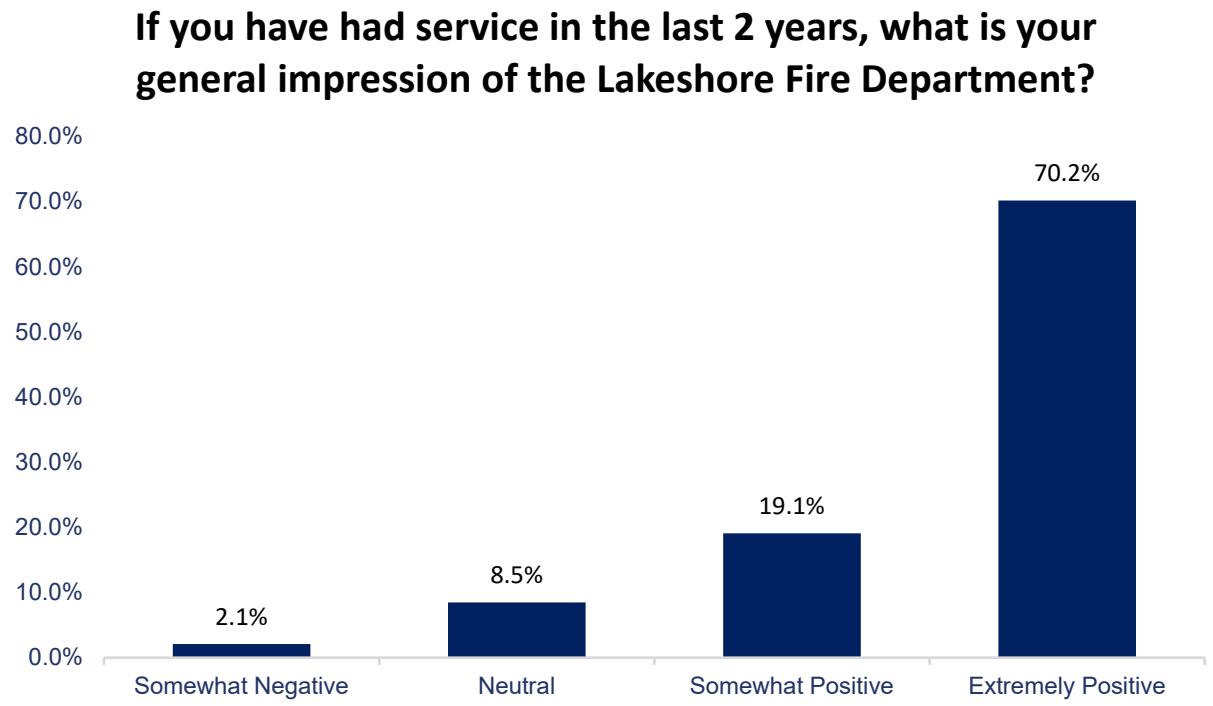
2.4.1 External Surveys

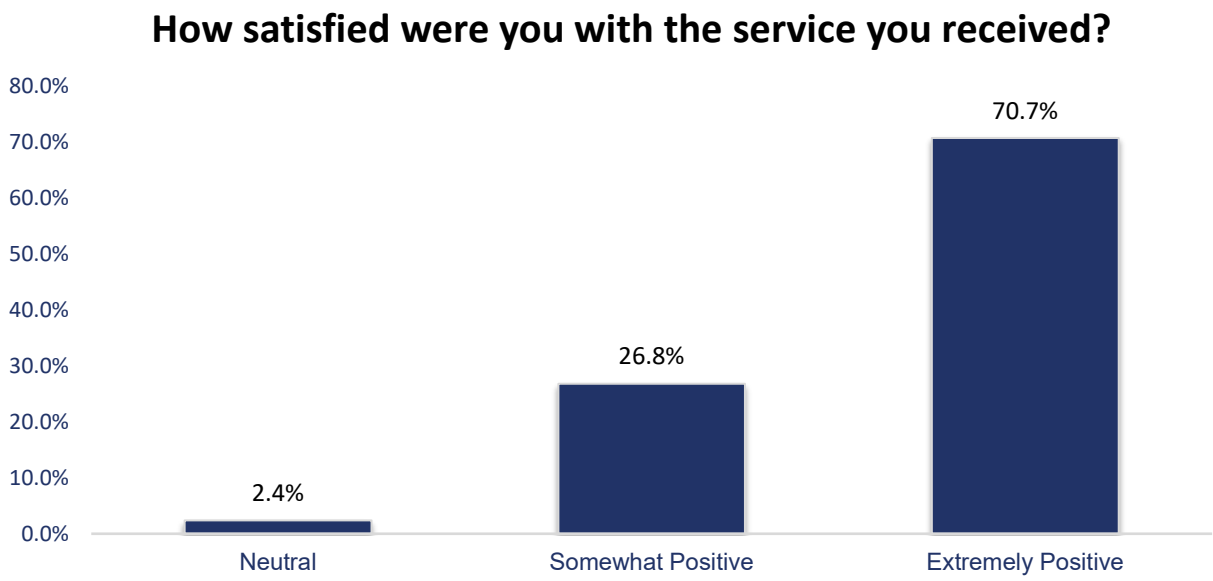
There was a total of 144 external surveys completed. Based on the information received, the following areas were important to the respondents:

- Response to calls
- Response for service
- Fire prevention and public safety education
- Medical assistance and response

Other information received included that the fire department is viewed as professional, 70% of the respondents ranked LFD “extremely positive”, and a good community partner as noted in the following chart.







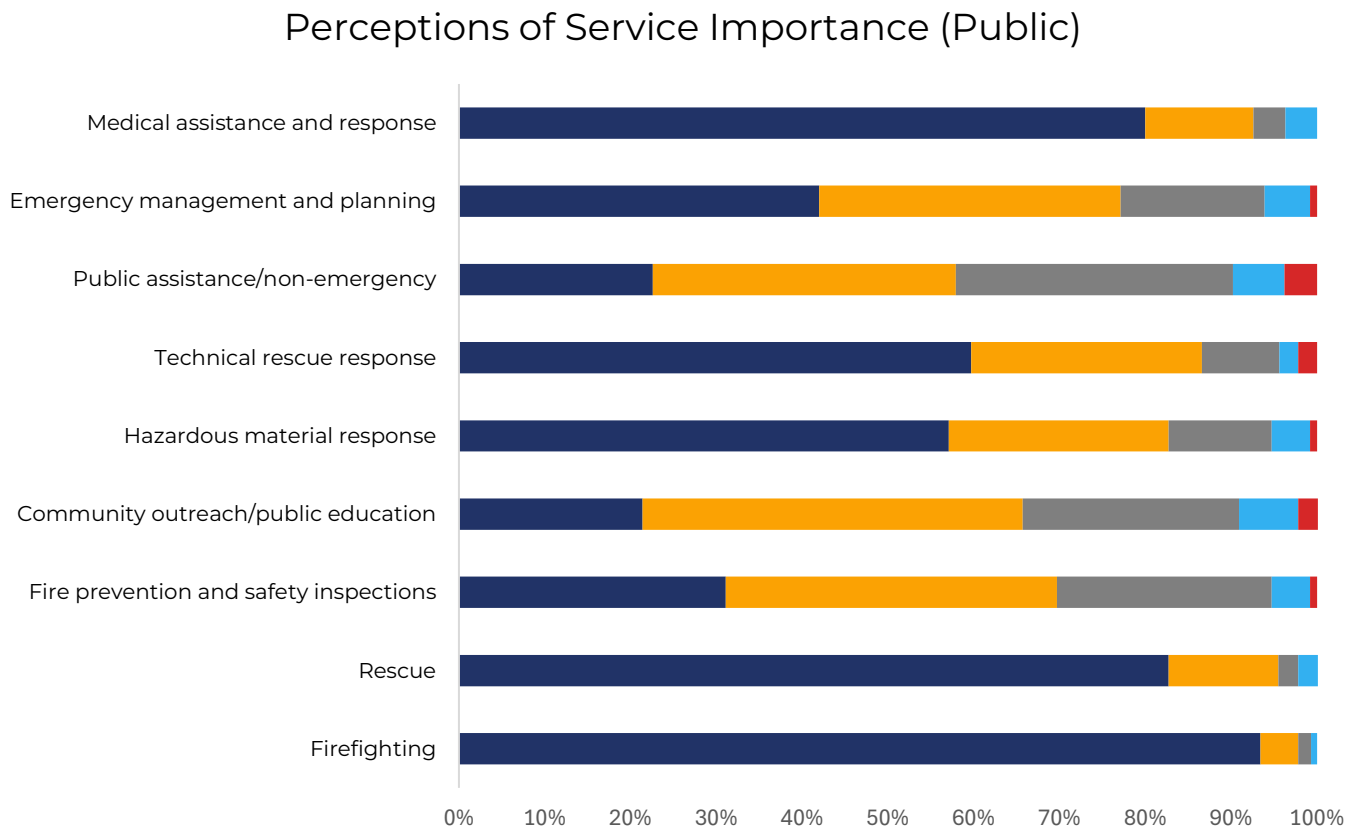
External stakeholders made suggestions regarding increased involvement:

- 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
- Hiring of volunteers and keeping their skills current.
- Continue to meet the needs of a growing population.

When asked about what services are important to the external group, the following response was supplied.



	Firefighting	Rescue	Fire prevention and safety inspections	Community outreach/public education	Hazardous material response	Technical rescue response	Public assistance/non-emergency	Emergency management and planning	Medical assistance and response
Extremely	93%	83%	31%	21%	57%	60%	23%	42%	80%
Very	4%	13%	39%	44%	26%	27%	35%	35%	13%
Moderately	2%	2%	25%	25%	12%	9%	32%	17%	4%
Slightly	1%	2%	5%	7%	5%	2%	6%	5%	4%
Not at all	0%	0%	1%	2%	1%	2%	4%	1%	0%

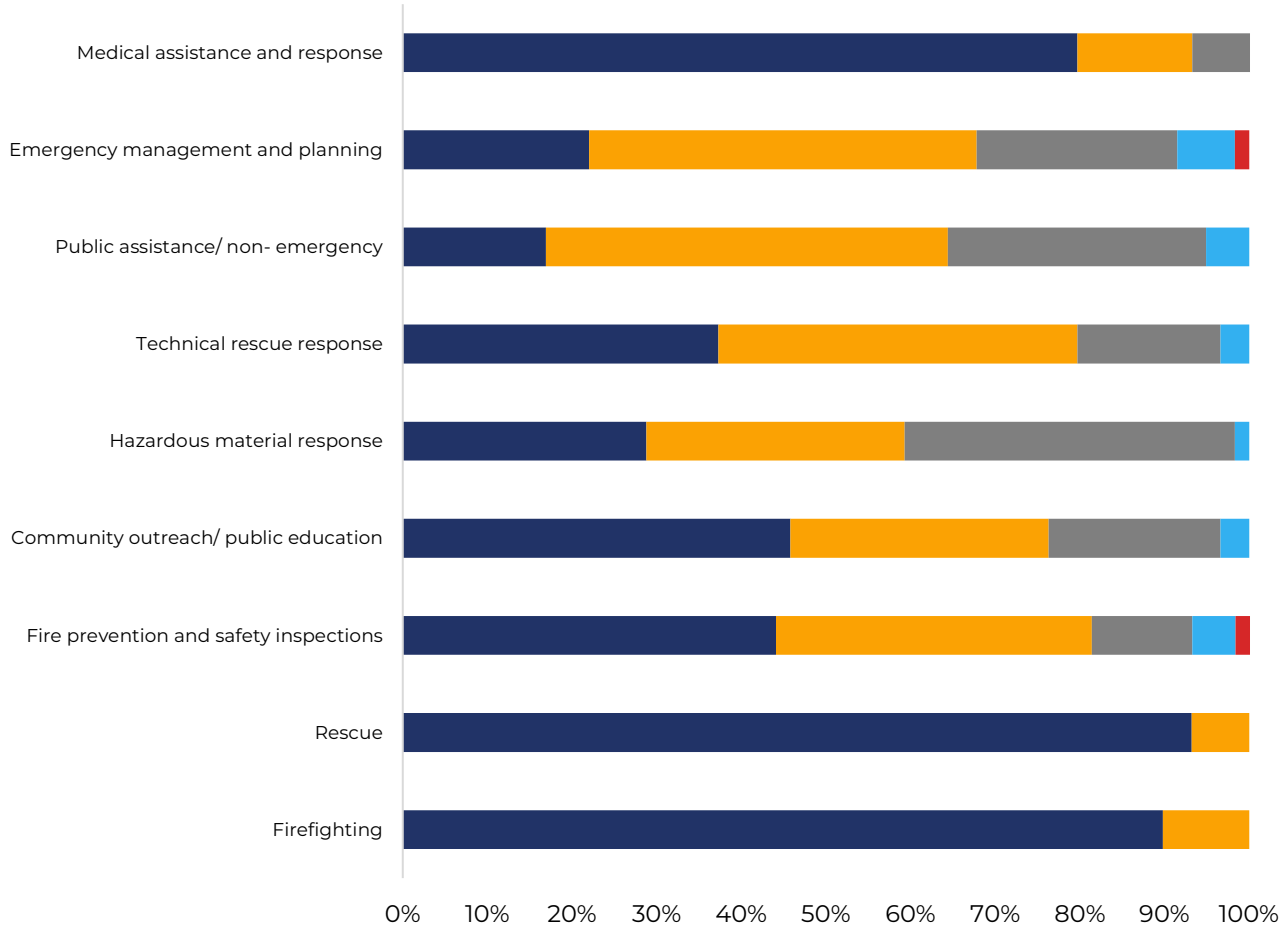
2.4.2 Internal Surveys

There was a total of 57 internal surveys completed (by the firefighters). Much of the information received from the internal surveys identified the following:

- Most 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 needs at some of the stations.
- 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 LFD.
- The were quite a few comments relating to the future need for a composite fire department that will have a full-time component of firefighters to enhance service delivery to the community.

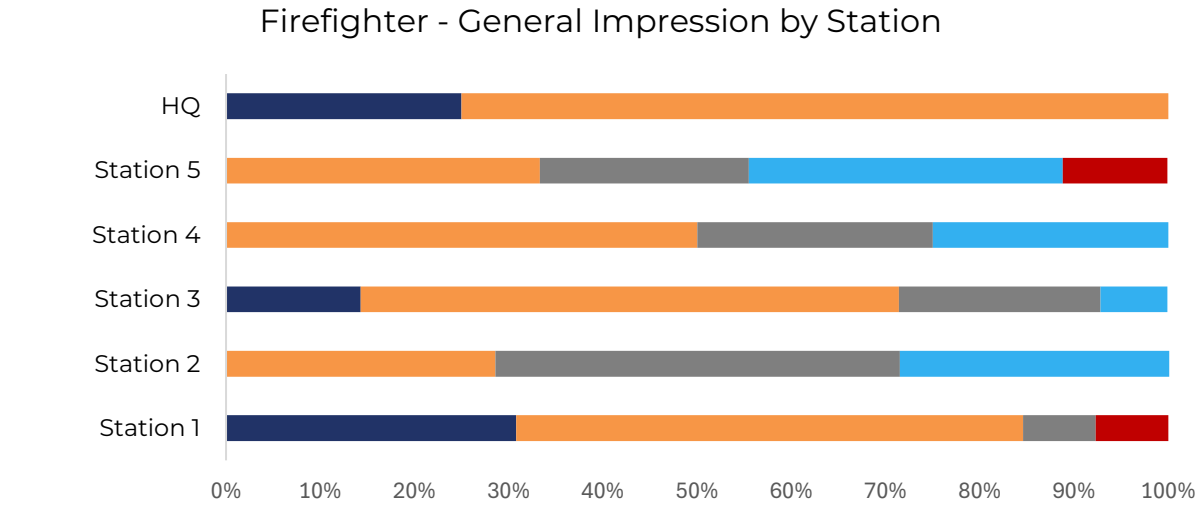
When asked about the perception of service importants, the following chart highlights the internal responses.

Firefighter - Perceptions of Service Importance (Internal)



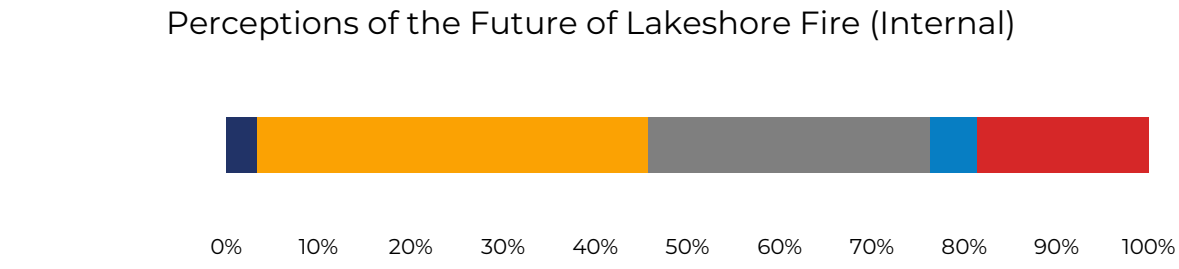
	Firefighting	Rescue	Fire prevention and safety inspections	Community outreach/ public education	Hazardous material response	Technical rescue response	Public assistance/ non-emergency	Emergency management and planning	Medical assistance and response
Extremely	89.8%	93.2%	44.1%	45.8%	28.8%	37.3%	16.9%	22.0%	79.7%
Very	10.2%	6.8%	37.3%	30.5%	30.5%	42.4%	47.5%	45.8%	13.6%
Moderately	0.0%	0.0%	11.9%	20.3%	39.0%	16.9%	30.5%	23.7%	6.8%
Slightly	0.0%	0.0%	5.1%	3.4%	1.7%	3.4%	5.1%	6.8%	0.0%
Not at all	0.0%	0.0%	1.7%	0.0%	0.0%	0.0%	0.0%	1.7%	0.0%

When asked about their impression of the fire deparment “By Station”, the following chart highlights the internal responses.



	Station 1	Station 2	Station 3	Station 4	Station 5	HQ
Extremely positive	30.8%	0.0%	14.3%	0.0%	0.0%	25.0%
Somewhat positive	53.8%	28.6%	57.1%	50.0%	33.3%	75.0%
Neutral	7.7%	42.9%	21.4%	25.0%	22.2%	0.0%
Somewhat negative	0.0%	28.6%	7.1%	25.0%	33.3%	0.0%
Extremely negative	7.7%	0.0%	0.0%	0.0%	11.1%	0.0%

The following chart highlights the internal responses when asked if the fire department was heading in the right direction.



	Percentage
Definitely yes	3.4%
Probably yes	42.4%
Unsure/neutral	30.5%
Probably not	5.1%
Definitely not	18.6%

Based on the input received, the following points can be derived:

- The firefighters are proud of their department and the services they offer.
- There is a need for some station improvements.
- There may be a need for a full-time component of firefighters to meet the future needs of the community.

45% of respondents agree that the department is headed in the right directiion. Atthough this may not be the majority, it should be noted that another 31% are neutral at this time, which can be interpreted as “waiting to see what the future will bring.” It can also mean that some of the respondents have not been with the department long enough to provide a clear decision.

2.4.3 Senior Staff Interviews

Input from municipal senior staff and members of council supported a good working relationship between the fire department and other staff. There is a real sense of teamwork amongst the group.

- LFD is seen as a valued member of the team.
- All the departments are focused on meeting the needs of the community, as identified with the goals and expectations of council.
- The key question/ concern is the ability of the fire department to meet the future growth of the community.

2.4.4 Council Interviews

All members of council are proud of the fire department. They fully support this FMP review and are interested in the recommendations that will result from it.

The key points noted were:

- Continue to support the fire department in its endeavours to meet the needs of the community.
- A great deal of growth will occur within the municipality over the next ten years, and they want the fire department to have the tools, staff, and facilities to meet this growth.
    - This could also come in the form of introducing a full-time contingent to the fire department in a financially feasible manner for the community.
- Ensure the firefighters have the training and equipment they need to do their jobs effectively.

Regarding concerns for the quantity of fire stations, opinions varied. Some recipients are against reducing the number of stations, while others believe in finding the best balance to benefit the Municipality.

The surveys helped to paint a picture of the fire department from all angles, confirming that the community, Council, and staff are all seeing the need to support the fire department regarding meeting the growing needs of the community. EMG has taken this input into consideration while developing this FMP and its recommendations.

2.5 Next Steps

As the community grows, the frequency of calls and the need for service will grow. Based on this growth, there will be a future need for additional staff in the Fire Prevention Office, the Fire Suppression Division, and Training. Supporting information relating to the staffing needs of each division can be found in the associated sections within this FMP document.

The provincial government has recently introduced updates to the *FPPA*, which outlines the responsibilities of a community and its fire department concerning service level expectations. The updates to the *Act* are:

- Mandatory certification for firefighters, fire service instructors (training officers), and fire service inspectors (fire prevention inspectors).

- Mandatory Reporting requirements
- Mandatory annual review of CRAs, and a new one to be completed every five years.
- Mandatory inventory of all building stock, including identifying those with LWC components.

These four additions have put an even more significant strain on fire departments to ensure proper training, reporting, and completion of CRAs.

2.6 Residential Fire Sprinklers and Monitoring Fire Alarm Systems

The NFPA, along with the Canadian Association of Fire Chiefs (CAFC) and the Ontario Association of Fire Chiefs (OAFC), strongly support residential sprinkler systems to reduce the risk to life and property from fire. 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.

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

2.6.1 Facts About Home Fire Sprinklers

Our research has shown a lack of Canadian statistics, therefore requiring the utilization of American statistics for our report. Since there are so many similarities in building construction, however, the statistics are an accurate reflection of the Canadian experience. Automatic sprinklers are a highly effective and reliable element of total system designs for fire protection in buildings. According to a report by the NFPA, "Some type of sprinkler was present in an estimated average of 51,000 (10%) of the reported structure fires during 2015 – 2019."[5]

Source: *U.S. Experience with Sprinklers*

- 85% of all U.S. fire deaths occur in the home.

[5] "NFPA Research - U.S. Experience with Sprinklers, Marty Aherns, October 2021", accessed on December 15, 2022, https://www.nfpa.org/News-and-Research/Data-research-and-tools/Suppression/US-Experience-with-Sprinklers.

- 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 injuries occurred in fires 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 89% 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% without sprinklers.

In 2021, some fire safety statistics[6] were released, including:

- 40% of fire deaths happen in homes with no smoke alarm.
- 17% of home fire deaths occur due to a non-functional smoke alarm.
- 25% of smoke alarm failures with a deadly outcome occur due to a dead battery.
- $235 million per year in property damage is caused by children starting fires.
- Smoke alarms decrease the risk of dying in a home fire by 50%
- Electric space heaters are the cause of 80% of house fires with a deadly outcome.
- Fire sprinklers can reduce the chance of death in homes by 80%
- According to the NFPA, firefighters in the US respond to a fire every 24 seconds.
- Fire sprinklers use less water than fire hoses.
- Sprinklers activate on an individual basis.
- The risk of property loss is reduced by 70% in homes with sprinklers.

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 to promote the installation of home sprinkler systems, the LFD would be demonstrating a proactive approach to educating the public on

[6] Safeatlast - The Latest Fire Safety Statistics - Stay Safe in 2021, Published January 30, 2021, Accessed December 14, 2022, https://safeatlast.co/blog/fire-safety/

another viable option for homeowners to help reduce the fire risk. As such, it is recommended that LFD investigate this safety initiative as part of its fire prevention and fire and life safety education initiatives.

Section 2 – Recommendations

The Community Risk Assessment document contains its own set of recommendations.

As such, no recommendations are noted in this section of the master plan.

Section 3: Fire Department Divisions

According to the RFP issued by the Municipality, identification of staffing needs was determined a priority. EMG was to review the capabilities of existing staffing and identify future needs for each of the divisions and/or services provided, including Suppression, Communications, Mechanical, Training, Prevention and Administration.

3.1 Community Safety – Four Lines of Defence

The OFM community safety model identifies three 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. Reference to these lines of defence, help to set the goal of this divisional review.

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.

ii. **Safety Standards and Enforcement** – ensuring that the inspection and enforcement of fire codes occur so buildings meet the required safety standards.

iii. **Emergency Response** – the availability of well trained and well-equipped firefighters to respond and effectively mitigate the incident is the last defence, identified by the OFM. The staff, equipment, and fire station locations impact how the emergency is mitigated.

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 5.

Along with these four lines of defence, the following industry best practices help to inform a fire department of industry expectations. Neither the NFPA nor the FUS are legislated requirements but utilizing them to improve a community's fire service is strongly encouraged by EMG.

3.2 National Fire Protection Association1201

The NFPA 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 expectations for volunteer emergency services that have been incorporated into the evaluation of the emergency services' response and staffing needs.

3.3 Administration Division

Goal of Administration Review - review the effectiveness of the current staffing model for both administrative and emergency response capabilities and identify any current and anticipated

future opportunities for improved efficiency in meeting or maintaining standards for best practice for each of the following divisions: Administration, Emergency Response, Training and Professional Development, Fire Prevention, Public Education, Emergency Management and Information Technology

As previously noted, the LFD consists of five fire stations staffed by volunteer firefighters under the direction of a full-time fire chief who is assisted by one deputy chief, two assistant deputy fire chiefs, one administrative assistant, and two FPOs.

With the recently introduced OFM training and certification requirements to meet NFPA standards for many of the positions within the department, the training demands on these affected positions within the LFD have increased based on the services the department will be supplying. The additional training requirements and subsequent workload will most likely require a review of the position responsibilities, with consideration for the following:

- The future need for a full-time training officer position to handle the new legislated training requirements, or at the very least ensuring that the chief who oversees training has the resources and time to implement the required training.
    - This resource allocation could be in the form of a full-time training officer with the assignment of a training assistant at each station.
- There already is a need for more administrative support to look after the documentation of training and certification initiatives of the Department. The Department lacks redundancies to cover (provide support) when the present Administrative Assistant is off duty for vacation/time off.

The LFD is challenged in meeting the training and certification legislation requirements with the current staffing. Through monitoring and documentation of the hours dedicated to assigned duties, along with documentation of consistent accomplishment of those duties, a more defined rationalisation can be put forth for an increase in training and office staff.

3.4 Fire Prevention and Public Education

The review conducted by EMG included fire department input on new development and interaction with Building Officials and the municipal Planning Department. An assessment of the effectiveness of the Fire Inspection and Code Enforcement Program in relation to current building stock and anticipated municipal growth was conducted. This helped EMG identify whether that anticipated growth will impact the current service delivery model regarding Lakeshore's needs and circumstances, relating to fire prevention and public education.

Many fire departments in Ontario subscribe to the provision of fire protection services through three specific overarching strategies as ascribed by the OFM - a) the delivery of public education

programs intended to educate the community about fire risks; b) the enforcement of applicable legislation (the *FPPA*) through applied inspection practices; and c) the delivery of effective fire suppression capabilities in accordance with the unique needs and circumstances of each particular community. The Municipality of Lakeshore and its fire department has embraced these strategies in a general sense as demonstrated by its ongoing, daily activities.

This section of the report focuses on the fire prevention activities which centre on public education activities and fire code inspection and enforcement – the first two "lines of defence" – and the sub-component, fire cause determination efforts. An understanding of a community's own fire experience is necessary to construct proactive measures intended to reverse developing trends in respect of fires. While many communities share common themes in this respect (i.e., careless smoking caused fires), the local reaction to these trends can be driven by influences specific to each community.

This analysis included a review of the LFD fire prevention practices as described by the leadership team and fire prevention practitioners from the community.

3.4.1 Public Education Activity Opportunities

An informed and well-educated public is the cornerstone of a fire-safe community. When departmental resources are focused on activities that support ongoing educational initiatives, the reliance on fire suppression and its inherent costs can be mitigated to a degree. By legislation, and as a minimum, every municipality *must* establish a program of public education with respect to fire safety[7] and include certain components such as a smoke alarm program. Other content of the public education program is largely left up to the local fire department to determine based on its unique needs and circumstances.

The LFD currently has a robust residential Smoke and Carbon Monoxide (CO) Alarm initiative which includes the provision of smoke alarms to the public on a "loaner" basis when volunteer crews encounter a residence without the required devices (during emergency response activities). An active follow-up to each of these circumstances is conducted by one of the career fire prevention officers/inspectors to ensure permanent replacements for these alarms are provided by the property owners. They also utilize this opportunity to provide one-on-one education about fire safety issues in the home and address any related issues. Departmental SOG 1800-40 addresses this program specifically; however, it is somewhat dated, and EMG recommends that this document be refreshed. (This also applies to the related SOGs 1800-30, 1800-35, 1800-45).

[7] Ontario, "*Fire Protection and Prevention Act*, 1997, S.O. 1997, c/4, Subsection 2(1)," accessed June 29, 2023, https://www.ontario.ca/laws/statute/97f04

Enforcement of provincial legislation requiring smoke alarms is occasionally utilized when landlords or tenants are negligent with their duties as prescribed by the fire code. Proactive community messaging when such opportunities arise can be an important component of smoke alarm awareness programming. To compliment smoke alarm programs, many fire departments also provide targeted messaging to their communities through social media, advertising, and media campaigns as well as Fire Prevention Week open houses, community fairs, or similar events (i.e. - Music in the Field).

Many communities develop additional comprehensive public education programs with a variety of elements designed to target specific segments of the community. EMG points to the following programs that can be offered as part of a comprehensive public education program:

- Older and Wiser – designed with seniors and some of the unique hazards they face.
- Farm Safety – for communities with significant agricultural risks.
- Fire Prevention Week programming – many communities utilize this annual North American wide event to target schools.
- CO awareness – National awareness campaigns usually occur in November every year as heating season approaches.
- Babysitter Program – often offered in conjunction with local Young Men's and Women's Christian Association programming.
- Apartment safety – utilized when multi-unit apartment buildings present specific hazards to residents.
- Fire Extinguisher Training – often provided on a cost-recovery basis for businesses and their employees.
- Heating Safety/ Burning with Wood Safety – Usually provided in the fall and winter months to emphasize the importance of maintaining heating equipment, cleaning chimneys, etc.
- Electrical Safety – Often utilized in communities with a large inventory of older buildings that may not have contemporary electrical installations.
- Home Escape Planning – almost always used to supplement smoke alarm messaging, though some departments utilize EDITH (Exit Drills in the Home) specific programming.
- Home and Building Renovation Safety – frequently offered in conjunction with local building officials and utility providers to promote safe renovation practices and permit promotion.

- Basement Apartment Program – to promote a municipal inter-departmental approach to basement apartment conversions (zoning, property standards, by-law, health, and fire department specific issues).
- Juvenile Fire Setters Program (formerly known as TAPP-C, The Arson Prevention Program for Children) – can be co-facilitated by police, local health services, and child and family services agencies.
- Learn Not to Burn – promotes the use of a comprehensive fire safety-based curriculum for use by teachers in an elementary school setting.



These types of public education activities are an area where there is great opportunity for LFD to enhance its services to the public.

Several organizations exist to support local fire departments with their public education initiatives. These include the NFPA, the Ontario Municipal Fire Prevention Officers Association (OMFPOA), the Fire Marshal's Public Fire Safety Council (FMPFSC) and the Ontario Association of Fire Educators (OAFE) amongst others. Departmental memberships in organizations such as these ensure that local service providers are kept abreast of current and emerging trends in fire safety.

As discussed in other areas of this report, the professional competencies of those practicing public education activities have become vital. The NFPA 1035 standard sets out the minimum qualifications for those engaged in public education activities.

The importance of a properly designed and supported media relations program cannot be overstated. Without the active support of local print and electronic media outlets, the full potential of public education efforts cannot be fully realized. Inherent in this is the use of social media channels by the department to reach as broad a consumer base as possible. The use of Facebook, Instagram, and Twitter (amongst others) is a critical element in the development of an effective media strategy, and public education program, for the department.

Ultimately, it should be the goal of any public education initiative to change or alter behaviours such that community members - regardless of their age – are better informed about the fire safety risks they face personally, and how to make changes in their lives to better manage, control, and react to those risks.

Based on the information obtained, it is recommended that the LFD expand and formalize its public education activities by establishing and funding a public education program and plan. This is difficult to achieve with the current resources, which at some point in the future would be accomplished through the acquisition of a fulltime PFLSE. The FPPA states a fire department must provide fire prevention and public education and LFD is not meeting current needs with present staffing.

The public educators should work collaboratively and with a dedicated budget to establish monthly targets and expectations to develop and deliver locally focussed programming, notably around alarm installation and maintenance, home escape planning, and common seasonal fire prevention messaging. A full-time, career public education professional would be a great asset, however it is recognized that funding such a position is likely beyond the horizon envisioned with this report.

An important element of this program development should include the freedom and ability to make broad use of traditional and social media venues. As the community grows, transitioning the public education role to a full-time position should be considered – likely beyond the mid-term horizon.

EMG noted that, apart from the SOG previously noted, there are no SOGs affecting public education. It is anticipated that these will be developed as part of any effort to establish a more expansive public education program.

3.4.2 Fire Cause Determination Activity Opportunities

The *FPPA* requires the Fire Chief to report all fires to the Fire Marshal and provides specific powers for the Fire Chief and certain other members of the department who have been appointed as "Assistants to the Fire Marshal" to enter on land or premises where a fire has occurred or is likely to occur. These are generally described in Subsection 14.(2) of the *FPPA* as follows:

14. (2) – Upon entering on land or premises, the fire chief may:

> *(a) close, and prevent entry to, the land or premises for the length of time necessary to complete the examination of the land or premises;*
>
> *(b) in the case of an entry under clause (1)(a), remove from the land or premises, retain and examine any article or material, and take such samples or photographs, make videotapes and other images electronic or otherwise that in his or her opinion may be of assistance in determining the cause of the fire under investigation;*

(c) make such excavations on the land or premises as he or she considers necessary;

(d) require that any machinery, equipment or devices be operated, used or set in motion under specific conditions; and

(e) make any reasonable inquiry of any person, orally or in writing.

Beyond this mandate, it is in the interest of the community and department to initiate an investigation as to the origin and cause of each fire that occurs for a variety of reasons – a) to inform fire prevention and public awareness campaigns; b) to identify faulty consumer goods that may give rise to other fires; and c) to determine whether a fire was accidental in nature or human-caused and therefore potentially a criminal act.

In the case of the latter, stopping a serial arsonist may be of crucial importance to the community in terms of safety and property conservation, and otherwise, it is proper to seek out persons who would commit crimes so that they may be prosecuted following the legal principles of general and specific deterrence.

For Lakeshore, the fire chief, as the Chief Fire Official (CFO) has the responsibility to undertake fire cause determination efforts, and he has been conducting these for quite some time. Under the recently adopted Ontario firefighters training requirements, those conducting fire investigations are mandated to complete the NFPA 1033 training course. It would seem prudent to have other individuals properly trained to supplement the fire chief's efforts in this regard and provide alternate in-house capabilities in the event he is unavailable.

In many departments, this function falls to fire prevention officers or similarly qualified staff. The notion of having a second and third investigator assigned to a fire investigation is an industry best practice, as it affords a second set of eyes and allows the appropriate development of potential alternate fire cause hypotheses which is critical to the fire cause determination effort.

The OFM is responsible for the investigation of serious fire incidents in the province. These incidents include fatal fires, fires that cause serious injuries, intentionally set fires, explosions, large loss fires, fires in multi-unit dwellings that spread beyond the unit of origin, and fires that may give rise to public attention or concerns.

In these situations, a multi-agency team approach is often employed involving representatives from police agencies, the Coroner's Office, Provincial Ministries such as Labour, and entities such as the Technical Standards and Safety Authority (TSSA), the Electrical Safety Authority (ESA), and utility providers. Representatives of the insurance industry are most often involved in these investigations and therefore it is important, from a risk management perspective, for the

Department to be a full and active participant in these complex investigations as well. Often these investigations take several days to complete, while others can take weeks and months.

Several organizations exist to further the science and practice of fire cause determination. These include the Canadian Association of Fire Investigators (CAFI) and the International Association of Arson Investigators (IAAI). Again, departmental memberships in each will assist local investigators with keeping abreast of current trends and scientific developments in the field.

There are currently no departmental SOGs regarding fire investigations. The creation of a series of fire cause determination SOGs that dictate the scope and limitations of fire cause determination activities is prudent. These could include subjects such as:

- the engagement of the OFM Fire Investigation Services staff
- the protocols to be followed when fatal fires or criminal actions result in fires
- when clandestine drug labs or illegal grow operations are encountered
- follow-up notifications that should be undertaken in a post-fire environment including:
    - local health unit
    - local building and property standards officials
    - agencies charged with enforcing “child in need of protection” issues
    - local utilities
    - regulatory agencies - the TSSA/ESA Conservation Authorities, the Ministry of Labour, the Ministry of the Environment and Climate Change and other agencies that potentially may have interest in any response undertaken by the fire department.

It is recommended that the LFD continue to invest in its fire cause and determination program by developing a continuing education program for selected staff members that includes certification based on the NFPA 1033 standard and that funding for the program be established to include attendance at subject-focused seminars for continuing development. Membership in the CAFI and the IAAI should be considered as elements of this program.

It is also recommended that the LFD develop SOGs, as it determines necessary, based on the suggestions included within this section.

3.4.3 Fire Code Inspection and Enforcement Activity Opportunities

An effective and proactive inspection and code enforcement strategy is necessary for every community in Ontario. This stands as the "second line of defence" against unwanted fires.

In Ontario, the OFM has mandated that all fire departments conduct building inspections on a "request or complaint" basis as an absolute minimum. Best practices, however, suggest that an effective inspection program be much more encompassing.

The safety of the residents of Lakeshore and its firefighters can be greatly impacted by a program that focuses on code-compliant buildings that perform well under fire conditions. Often this can only be accomplished by building owners who are knowledgeable about the fire safety features of their buildings, and who are properly motivated to maintain them in good condition. Many lives have been lost in Ontario fires due to non-functioning alarm systems, defective fire separations, blocked exits, and poorly designed or maintained building systems.

The inspection of existing buildings by properly qualified inspectors can greatly reduce the risk of exposure of a municipality. Conversely, a poorly or inadequately conducted inspection that fails to identify a hazard can greatly increase the risk of liability for a municipality when a fire occurs under the "joint and severable" liability environment that exists here in Ontario.

Note: *'Joint and severable liability' is a legal term defining shared responsibility of two or more parties in a lawsuit. If two or more parties are jointly and severally liable for a harmful act, each one of them can be sued independently, and will be independently liable for the injuries from the act as per common law.*

Generally, when a building is inspected and a violation of the Fire Code is noted, fire departments will work with an owner to move the building toward a state of compliance based on the severity of the deficiency found. It follows that simple corrections can be done quickly; however, more complex deficiencies may take a longer period to correct. Fire departments have some latitude when addressing deficiencies in terms of the time frame allotted to make the correction and process. These time frames and processes should be policy-driven and approved by the chief fire official (the fire chief).

Lakeshore currently employs an "educate first" approach to fire code enforcement. Rather than issuing orders, fire inspectors will issue a fire inspection report, with definitive correction deadlines. Follow-up is always conducted, and cost recovery efforts are initiated following a prescribed Council endorsed fee structure (see By-Law 113-2021 – currently under review).

Many departments follow a slightly different approach and issue an "Order to Comply" upon completion of an inspection. The same educational component is involved; however, the order brings a legally binding procedure into play which can make a successful prosecution easier to

achieve when this becomes necessary due to non-compliance. While This practice is advocated by the OFM, it is difficult for LFD to rely on this course of action due to the lack of staffing in fire prevention.

This process affords property owners who do not agree with the content of the orders issued by an inspector, or the particulars of an order, the opportunity to appeal to the Ontario Fire Safety Commission for a review. The Commission will decide whether to uphold the order of the Inspector based on the law, or may direct that the order be revised, or that it be nullified altogether.

Where a property owner fails or refuses to comply with an order, enforcement action can then be initiated by the municipality. Some municipalities employ their own legal representatives to undertake these actions in support of the local inspector, but many small municipalities employ third-party legal representatives to do this on their behalf. Interestingly, fines generated by this process are returned to the municipality and become a revenue source, though this is not the primary intended purpose. Many departments utilize these funds to offset the costs associated with prosecutions or to support other fire prevention related activities.

EMG recommends that the LFD review its fire inspection and related enforcement practices with a view to more broadly utilising the enforcement options available for Fire Code infractions.

EMG has reviewed the fire inspection program currently in place in Lakeshore and can state with certainty that the department is being proactive in terms of the number of inspections being conducted. The following table reflects the level of annual activity (number of first inspections being conducted), noting that prior to 2021, there was only one inspector assigned to conduct these - a second inspector was added in 2021.

Table #2: Inspections conducted annually

Year	First Inspections Conducted
2018	242
2019	250
2020	247
2021	278
2022	349

The numbers noted do not include re-inspections that were necessary when items were identified for rectification by property owners.

The addition of a second career inspector in 2021 has made the workload being shouldered by the single inspector much more manageable.

3.4.4 Fire Underwriters Inspection Benchmark

FUS is an organization which assists the insurance industry. It examines the effectiveness of fire departments (and other impacting factors) as they serve their communities in Canada and the

impact that their programs and preparedness/ effectiveness have on fire losses (building values destroyed or damaged by fire). FUS provides advice and guidance to many insurance companies who in turn use this advice to set insurance rates paid by consumers in each community.

In terms of inspection programs that have an impact on fire rates, FUS recommends inspection intervals for various community elements based on the following table (provided for illustrative purposes only).

Table #3: FUS Recommended Inspection Frequency

Occupancy Type	Inspection Frequency Benchmark
Assembly (Class A)	3 to 6 months
Institutional (Class B)	12 months
Single Family Dwellings (Class C)	12 months
Multi-Family Dwellings (Class C)	6 months
Hotel/Motel (Class C)	6 months
Commercial (Class E)	12 months
Industrial (Class F)	3 to 6 months

Each classification of building has its own inherent risks and degree of complexity. In many large departments, fire inspectors specialize in one classification of building. For example, multi-unit dwellings can take the form of a legacy home converted to a four-unit apartment, while another might encompass a six-storey, mid-rise building of non-combustible construction. Each building has its own unique characteristics and differing Fire Code requirements based on size, occupant load, construction, etc.

The LFD has an aggressive inspection timetable which sets out targets for inspection frequency in the community. It has been developed and refined over many years based on allocated resources and risk. This timetable is illustrated in Table #4.

Table #4: Lakeshore Fire Department Inspection Frequency

Occupancy Type	Inspection Frequency Benchmark
Assembly (Class A) **High Risk Industrial (Class F1)** **Institutional – Vulnerable Occupancies (Class B / C)**	**Every 12 months**
Apartments - 3 units or more (Class C) **Medium Risk Industrial (Class F2)**	**Every 24 months**
Office (Class D) **Mercantile (Class E)** **Light Risk Industrial (Class F3)**	**Every 36 months**

Inspections are also conducted on a request or complaint basis as required in Ontario, directed by the OFM.

EMG's review of the fire inspection practices revealed that very few inspections result in Part I or Part III charges under the *Provincial Offences Act* for Fire Code violations. Inspectors have access to ticket books, though reliance on code enforcement through voluntary compliance has become the accepted practice in Lakeshore. While this appears to be meeting the needs of the community, EMG recommends that the Department review its processes and opportunities for initiating formal charges where voluntary compliance with Fire Code violations does not occur within a reasonable timeframe.

On-site inspections are currently conducted via in-person visits and documented via FirePro software once the inspector returns to their office. Paper-based inspection reports are still being generated. Often, documentation is received in paper format from property owners, and so the digitising of fire prevention records should be considered. Inspectors equipped with hand-held devices (i.e., tablets with inspection related software) and portable printers could prepare their reports in the field and present the results to property owners prior to leaving the site. Records being received from property owners could also be requested in digital format, moving to more efficient and contemporary record keeping practices in keeping with the municipality's records retention policies.

A sub-set of the inspection role in many communities includes the review of plans submitted for approval. These include site plans for new subdivisions or commercial/industrial developments (fire department access, hydrant locations, roadway configurations, etc.) and individual building plan submissions (for compliance or input regarding sprinkler systems, fire alarm systems, water supply for firefighting, exiting requirements, location of fire suppression system components, fire

separations, closures, etc.). In large communities, these duties typically fall to a municipally staffed fire protection engineer, however, few small communities have the luxury of such a person on staff. It is our understanding that in Lakeshore, these duties fall upon senior staff. Typically, municipal building officials' welcome input from fire department staff as a way to ensure that complex building codes are being properly interpreted and applied in a practical, pragmatic manner.

The fire department has several policies that reference inspection and related practices (1800-05, 1800-10, 1800-25 etc.) but all are outdated, as such EMG recommends that these be reviewed and refreshed to reflect current best practices in Ontario.

3.5 Training and Career Development

This section assessed the current volunteer firefighter training and service delivery model against the CRA and municipal needs and circumstances. An assessment of professional qualifications and standards was also conducted to identify current and future training needs and associated costs for all positions within the fire department.

The third line of defence utilized to deliver fire protection services in any community in Ontario is the ability to effectively suppress unwanted fires and respond to other emergencies that occur with some predictability. A fire department can only provide effective community safety through the delivery of council-approved service levels if firefighters are properly trained and equipped to deliver those services. As fire departments work to keep pace with the changing needs of the community they serve, their training must also keep pace.

In Ontario, industry standards and legislation are in place to safeguard the health and safety of firefighters while they work to develop and maintain the critical skill sets that are necessary to deliver effective fire, rescue, and emergency response services, and to ensure that firefighters are trained to an acceptable standard. Beyond the firefighter safety and community well-being components of this equation, lies the important risk management considerations that are a reality for every organized community. It is important to note that volunteer (paid-on-call) firefighters must be provided with the same minimum training certifications as their career-based, full-time firefighter counterparts.

Within the last couple of years, Ontario has moved to mandate minimum standards for the training and certification of various fire service disciplines based on several NFPA standards. Ontario Regulation 343/22 came into effect on July 1, 2022, and provides for mandatory minimum certification standards and corresponding job performance requirements of firefighters delivering specific fire protection services, together with a compliance deadline (a four or six-year timeline depending on the level of fire protection services provided to a community). Certain firefighters are exempt from these certification standards based on their prior knowledge, training, and skills.

These standards include the following:

- NFPA 1001 Standard for Fire Fighter Professional Standard Qualifications, Levels I & II.
- 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, Levels I, II, III and IV.
- NFPA 1031 Standard for Professional Qualifications for Fire Inspector and Plan Examiner, Levels I, II and III.
- 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, Levels I and II.
- NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents.

Additional Ontario-specific Fire Code courses designed for Fire Prevention Officers and Inspectors are available through the Ontario Fire College. These include:

- Legislation
- Courtroom Procedures
- Fire Code Division B Part 2 and 6 – Fire Safety and Fire Protection Equipment
- Fire Code Division B Part 3 and 5 – Industrial, Commercial, Hazardous Materials: Process and Operations
- Fire Code Division B Part 4 – Flammable and Combustible Liquids
- Fire Code Division B Part 9 – Retrofit

Beyond the fire prevention stream noted above, the Ontario Fire College also provides specialized courses including:

- Chainsaw Operations
- Community and Environmental Impact of Fire
- Commercial Cooking
- Fire Dynamics

- Alternate Energy Source Firefighting (Solar and Wind)
- Railroad Emergency Response Management (partnership with CN Rail)
- Flammable Liquids Firefighting (partnership with CP Rail)
- Fire Service Driver Training Certification
- Industrial Firefighting

It should be noted that while the OFM no longer maintains a physical campus, it does continue to offer programming at strategically located Regional Training Centres owned by local municipalities throughout the province. The Ontario Fire College retains a core group of fire service instructors and delivers training programs with the assistance of their associate instructors who remain employees of their local fire department while delivering this training..

With the closure of the Ontario Fire College physical campus and training grounds, the OFM also introduced mobile live fire training to smaller fire departments using two dedicated trailers. Live fire training is an essential part of the NFPA 1001-II training syllabus, and so these trailers are available to any fire department on a pre-booked, first come, first served basis. The LFD benefited from live fire training with one of these units during the summer of 2022.

3.5.1 Training Activities

While many Ontario fire departments resisted the certification process, the LFD has addressed the change as resourcing has allowed.

EMG conducted a review of the training program currently being conducted by the fire department and notes:

- All recruit firefighters have been and are being trained to the NFPA 1001-II standard during their first two years of employment.
- Many of the more senior firefighters and line officers (district chiefs and captains) are trained to the NFPA 1001 standard, many being grandfathered by virtue of their previous training and experience (the grandfathering process was undertaken in 2008). Efforts are underway to ensure that all firefighters meet this standard as a minimum, but these efforts are not complete.
- Some of the line officers are trained and certified to the NFPA 1021 (fire officer) standard and while several were previously grandfathered, the department has some way to go before all are certified accordingly.
- A yearly training matrix is developed and approved by the chief officers, and monthly training meetings are held with the station officers to fine tune the month's upcoming training delivery for all stations.

Regular in-service training is conducted on a bi-weekly basis at each station to maintain and hone the various skill sets firefighters need to fulfil their mandated activities. EMG found that the department provides quality training opportunities for its volunteer firefighters through its training program and that the department maintains adequate training records employing a flexible syllabus framework based on identified individual station needs.

The frequency of training opportunities provided suggests that there is an opportunity to enhance training for firefighters. The growing demands in Ontario communities for proper training in subjects such as electric vehicles; modern construction techniques; large building rescue and fire suppression considerations; and illicit drug labs (to name but a few) suggests that more training focus is required for these emerging hazards.

EMG would like to recommend adding a third training night per month to the training schedules for each station to assist in filling training gaps. While adding a third night is viable, LFD is unable to

implement this due to the additional workload placed on current staffing, and the additional time required of the firefighters to attend. This will need further analysis prior to implementing.

Our review of the training program also included a cursory examination of the training attendance records for the department. There are notable gaps in training attendance for some individuals and the department currently does not have a minimum attendance standard. EMG recommends that the Department develop a specific attendance support document (SOG or SOP) in concert with human resources staff that sets out minimum attendance requirements for both training and incident response, and that this document clearly set out expectations for attendance by members of the department along with consequences that are appropriate for the department.

In Ontario, several organisations exist to support training activities within fire departments. Examples of external organizations that can support Lakeshore in its training efforts include:

- The Ontario Association of Fire Training Officers (OAFTO)
- The Firefighters Association of Ontario (FFAO)
- Fire Department Instructors Conference (FDIC)
- Southwestern Fire Academy, and other private sector accredited trainers

During the review of the existing training program, EMG noted that LFD makes good use of third-party training providers for specialised subjects where their staff may not possess the requisite knowledge, skills, and abilities (or time) to deliver this training. This is a good practice provided that these providers have been properly and thoroughly vetted.

With the implementation of the new training and certification standards, it would be beneficial to have a full-time training position to ensure that the department keeps abreast of the current and future demands that will come in the form of new training requirements.

Community growth, increase in call volumes, increase in training requirements and oversite, and training records management will also add to the workload of the present part-time/volunteer officers. Therefore, the career staffing complement of the department should be supplemented by a full-time position of 35 to 40 hours per week within a suggested timeline of the next three to six years. This recommendation does not suggest anything other than a capacity issue because of increasing responsibilities.

The usage of the volunteer officers for training delivery should continue to be actively supported as they bring unique insights to the needs of each station based on their first-hand involvement with fireground and rescue operations. They are often in the best position to identify opportunities for focused training needs.

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

- Expectations for involvement in emergency response both during normal work hours and outside of scheduled hours
- Evening training programs and practical evaluations, attendance at outside courses off-site

Options for the introduction of this staff person include:

a) Hiring a dedicated training officer
    - This could start as a 20-hour per week position that evolves into a full-time (35 to 40 hour a week) position based on available funding.

b) Collaborating with other area fire departments to hire a shared but dedicated Training Officer.

It is recommended that the LFD further develop its capacity and capabilities respecting firefighter training and certification by identifying and appointing a training officer who is fully qualified and certified (or obtains certification within a reasonable time frame) to the NFPA 1041 Level II standard as made available by the Ontario Fire College.

The training officer should develop a work plan that includes the ability to coordinate the delivery of recruit and regular in-service training for all firefighters and to ensure certification to the relevant NFPA standards as detailed in this report. It is further recommended that the department continue to train all its members to the required standards and that all firefighters be certified to the NFPA 1001 Level 2, and NFPA 1006 Standard (as are appropriate) as soon as possible. In addition, all officers should be trained and certified to the appropriate level of the NFPA 1021 Standard, and if involved in training delivery, to the NFPA 1041 Standard. Those engaged in fire inspections should be certified to the NFPA 1031 Level 2 Standard.

Emergency response personnel who drive and operate fire apparatus shall obtain the general knowledge, skills, and job performance requirements addressed for each level or position of qualification. It is an industry best practice for emergency response personnel who drive and operate fire apparatus to remain current with practices and applicable standards and shall demonstrate competency regularly. All firefighters who drive and operate Fire Department apparatus should complete certification to the NFPA 1002 – Fire Apparatus Driver/Operator Standard.

Additional specialized services such as confined space rescue, rope rescue, and trench rescue are not provided by the department. These services – if required – may be available to the community through the Provincial Operations Centre. Lakeshore firefighters are trained to the operations level for hazardous materials responses, and response capability beyond this level is available though an agreement with Windsor Fire & Rescue Services.

Firefighters in Lakeshore do provide specialized vehicle rescue services and water and ice rescue services. EMG recommends that the department more thoroughly evaluate these undertakings against the requirements of the NFPA 1006 Technical Rescues Standard.

The positions of captain and district chief for the department are ones that represent the first and second levels of supervision within the organization. A superior level of knowledge and experience in fire ground operations, delivery of training programs, and ability to supervise a group of firefighters is a must for these supervisory positions. There may be times when a captain may need to assume command of an incident in the absence of a more senior officer; therefore, training to a more senior level is not only a good idea but is required.

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.

For the position of captain or above, emergency management training should also form part of the training regime. IMS-100 “Introduction to the Incident Management System (IMS)” for Ontario and IMS-200 “Basic Incident Management System for Ontario” are both readily available through Emergency Management Ontario.

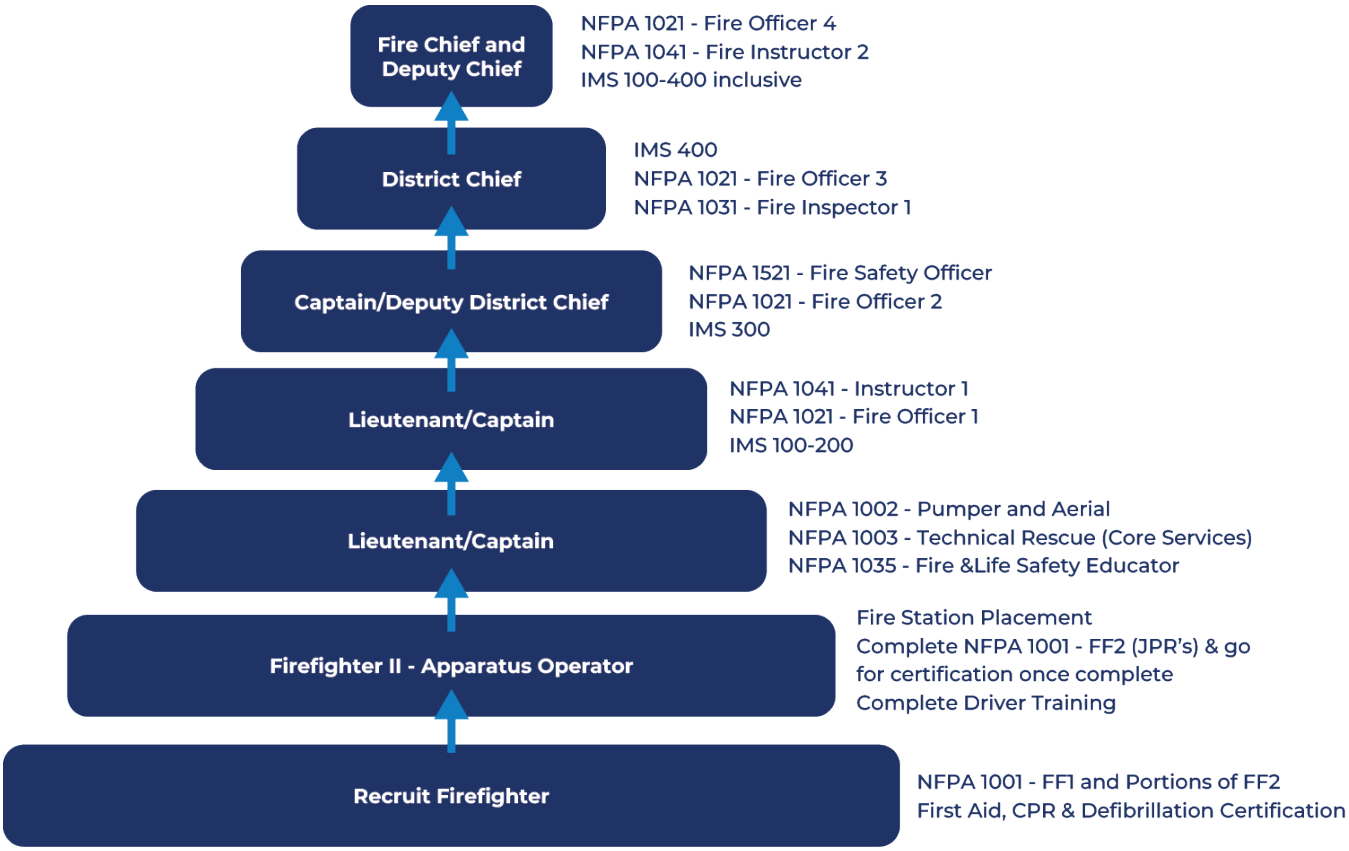
The positions of assistant chief for the department are ones that represent the third levels of supervision within the organization. Working with the fire chief (and the deputy chief) with strategic leadership in mind, they provide oversight, status updates, repair needs, and recommendations to improve operations, training, apparatus and equipment and station needs.

EMG believes that there are great opportunities for synergies with a fire leadership team composed of all the line officers. Currently, there is no opportunity for all officers to come together on a regular basis. We recommend that as a minimum, all Chief officers should meet at least twice annually.

3.5.2 Staff Development and Succession Planning

For staff to obtain the necessary knowledge, skills, and abilities it is helpful to have a clear understanding of how the progression through the rank structure normally occurs. With the adoption of the NFPA standards, the training program and succession path should be clearly outlined by the Municipality for current and proposed positions.

Figure #1 – Example of Progression through the rank structure with associated training minimums



The image above illustrates a typical rank structure and the associated educational levels based on the NFPA standards. Note that training officer and FPO/ inspector ranks are not illustrated, though these are typically positioned at the captain level with the added NFPA certifications associated with each position.

Within today's fire service, the development of staff through dedicated firefighter training programs and career pathing, is essential not only to the individual, but for the administration team as well. Staff programs are often based on the needs of the department, levels of service, and expectations of the community, while it is empowering for staff members to take ownership in the direction of their career. Training programs and career pathing serve as a tool for administration when planning departmental budgets and individual learning plans. Identifying training costs in advance, allows for budgets to be adjusted to ensure the availability of adequate funding.

In the most basic of terms, a firefighter's career will lead them into one of two streams: Fire Leadership (Administration) or Fire Department Operations. Working to the same common goal,

the delivery of emergency services to the residents of the community, each pathway provides separate options.

Fire Leadership (Administration)

The leadership team of a fire service traditionally consists of non-unionized staff who are employed to lead, administer, and oversee, specific portfolio's, Divisions and Branches of a service. Operations, Administration, Logistics and in some cases, Fire Prevention, are examples of such areas.

Members of Fire Leadership teams often find themselves challenged with having to balance departmental needs with those of the community. For instance, direction provided by elected officials may be to seek out efficiencies and reduce budgets, while the needs of the department demand growth to address the rising costs of fire safety equipment. Training provided through the NFPA 1021 Fire Officer program, addresses such challenges.

Positions within Fire Leadership also hold a high level of rank, which serves as an indication to their authority. These positions primarily include:

- Fire Chief
- Deputy Chief
- Assistant Chief

Each fire leadership position requires specific skillsets and operational experience.

Fire Department Operations

Often referred to as boots on the ground, operations staff are typically assigned to a division or branch within a service. As a member progresses through their career, they may move between a variety of positions while rising in rank. Operational levels traditionally found throughout the Province include:

- Platoon Chief
- District/Battalion Chief
- Chief Training Officer
- Chief Fire Prevention Officer/Fire Prevention Officer
- Lieutenant/Captain
- Firefighter

The position of a Platoon, District or Battalion Chief are ones that represent elevated levels of supervision within the organization. Working with the Fire Chief with strategic leadership in mind, they provide oversight, status updates, repair needs and recommendations to improve operations, training, apparatus and equipment and station needs.

The Chief Training Officer (CTO) is responsible for supervising the Training Division or Branch, while maintaining responsibility over instructors and the programs being delivered. The CTO works along side fire leadership developing annual training plans and strategizing on the delivery of training for staff. It is a requirement of a fire service instructor to possess both the skills and certification of the training for which they are providing. Dependant on the size of the department, positions reporting to a CTO may include other Training Officers.

Chief Fire Prevention Officers (CFPO) are often responsible for providing oversite to the Fire Prevention Division. Fire Prevention encompasses three primary functions: Fire Investigation, Fire Inspection services and Fire and Life Safety Education. Dependant on the size of the department, positions reporting to the CFPO include Fire Prevention Officers and Public Educators.

The position of Lieutenant/Captain are ones that represents the first level as a supervisory position within the organization. With these positions comes great responsibility, tactical leadership, and a proven ability to meet and exceed expectations. A superior level of knowledge and experience in fire ground operations, delivery of training programs and ability to supervise a platoon of firefighters is all-encompassing. There may be times when a Captain may need to assume command of an incident in the absence of a senior officer.

Firefighters are front line staff members that are tasked with the delivery of fire and emergency medical services. Firefighters commit a large amount of time to training as it is imperative to obtain new skills and maintain those that are already possessed. Firefighters are responsible to a Lieutenant or Captain, and often participate in routine maintenance activities, company level inspections, and other assigned duties.

When considering the development of staff, rank levels provide the foundation for the training requirement of each position. As an example, when a new firefighter is hired, they are required to complete both a theoretical and practical program covering all elements of the NFPA 1001–I and II Standard; however, when a firefighter is promoted to on officer's rank, additional training including Fire Officer and Fire Service Instructor, is required.

To aid in the creation of a Staff Development Plan, EMG has provided a sample template of suggested NFPA and ICS training levels, for positions found fire service. When considering department service levels, position descriptions, and organizational structure, the LFD may expand or contract the plan to meet departmental needs; this sample is not exhaustive. It is suggested that

training levels for staff should not be limited to those identified as wildland, medical, and administrative related training, may be added.

Position	Suggested Training Levels
Fire Leadership	
Fire Chief	NFPA 1001-2, 1002, 1021-4, 1072 Command, 1521, ICS 400
Deputy Chief	NFPA 1001-2, 1002, 1021-3, 1041-2, 1051, 1072 Command, 1521, ICS 300
Assistant Chief	NFPA 1001-2, 1002, 1021-2, 1041-2, 1051, 1072 Command, 1521, ICS 300
Operations	
Platoon/ District/Battalion Chief	NFPA 1001-2, 1002, 1006, 1021-2, 1041-2, 1051, 1072 Command, 1521, ICS 200
Chief Training Officer	NFPA 1001-2, 1002, 1006, 1021-2, 1041-2, 1051, 1072 Operations, 1521, ICS 200
Fire Prevention	NFPA 1001-2, 1021-2, 1031, 1033, 1035, 1051, ICS 200
Lieutenant/Captain	NFPA 1001-2, 1002, 1006, 1021-1, 1041-1, 1051, 1072 Operations, ICS 200
Firefighter	NFPA 1001-2, 1002, 1006, 1051, 1072 Operations, ICS 100

To provide the fire chief and staff with an overview of the possible timelines to achieve training and certification in the noted positions, a chart containing all of the main programs offered through the Ontario Fire College and its regional training centres has been provided in Appendix B. Being that the OFC only charges $65 for course registration and the actual training costs are left to the discretion of each regional training provider (which includes the OFC regional centres and the community and private colleges), the actual costs can vary by hundreds of dollars.

As such, it is strongly suggested that the fire chief, reach out to the local regional training centre and college to obtain the actual price per course; keeping in mind that the personnel attending the programs will also need to be paid their hourly rate to attend and complete the training.

There is also the possibility for Lakeshore Fire to bring the courses in house through the utilization of a contract instructor that is certified to teach the OFC related programs.

As noted elsewhere in this report, it is the sole responsibility of council as the authority having jurisdiction (AHJ) to determine the level of service provided to the community by the LFD based on information and advice provided by the fire chief.

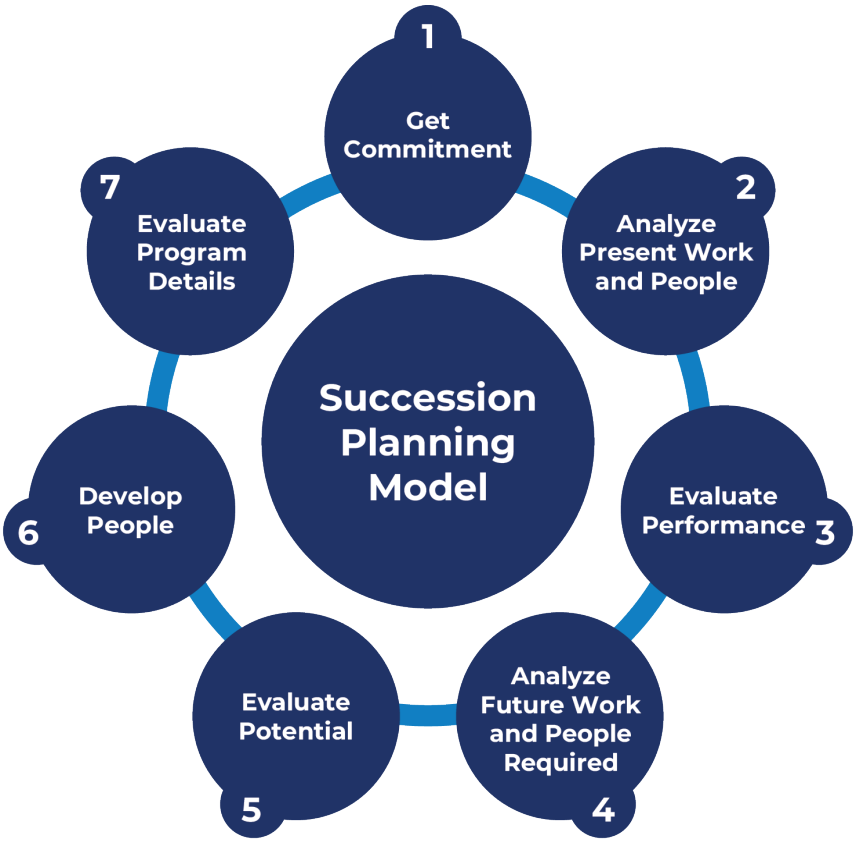
Succession planning creates employee involvement as training, mentoring, education, and coaching are utilized to prepare the employee. A succession plan takes time and resources and creates the foundation for members to possess the knowledge, skills, and abilities to be promoted and take on formal management 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 the fire department, if not already in place.

The following steps outline Rothwell's roadmap[8] to successful succession planning.

[8] "The Nuts and Bolts of Succession Planning: A Dale Carnegie White Paper," William J. Rothwell, accessed July 6, 2023, chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.dalecarnegie.id/uploads/2014/03/The_Nuts___Bolts_of_Succession_Planning.pdf

Figure #2 – succession planning model



Step 1: Get Commitment

Fire management and the Human Resources 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 by individuals willing to put in the time and energy into their education and training.

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. Successful succession planning results in formation of the 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, Assistant Chief, District Chief, Captain, Training Officer, and Firefighter and be formally implemented.

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."[9]

- The International Municipality/ County Management Association (ICMA) notes that the work experience is often combined 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.[10]
- The International Association of Fire Chiefs (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.[11] The IAFC identifies what works well in getting the right experience to individuals that could learn from experience and identified a new way to look at officer development.

The dynamics of today's fire service require a high level of education and experience to meet the demands placed upon the position. A career development program should consider the importance of both education and experience as both go hand in hand.

Based upon the review of the training program and the departmental SOGs, the absence of a formal document for a promotional process suggests that technical skills have been a focus for the department and an opportunity exists to design an LFD specific officer development process. EMG recommends the development of a promotional policy or SOG defining the promotional process for operational (line-officer) promotions, as well as succession planning options for other promotional opportunities that may arise.

3.6 Fire Suppression/ Emergency Response

This section is a detailed analysis of the capabilities and limitations (e.g., response times, staffing, time of day) of the current volunteer firefighter response model while evaluating its anticipated effectiveness with continued municipal growth.

As previously noted, the LFD is a composite fire department in that it has both career and volunteer personnel. For LFD, the NFPA standard that relates to the emergency response of

[9] IFSTA (2014) Chief Officer, Third Edition, p. 29

[10] ICMA (2012) Managing Fire and Emergency Services, p. 266

[11] International Association of Fire Chiefs (2010) Officer Development Handbook

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.*
- *Table 4.3.2* 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 m^2), 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. 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.

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.[12] Having crews of four firefighters lessens the risk of injury as more personnel are available to complete assignments.

3.6.1 National Fire Protection Association (1720)

Chapter 4 of the NFPA 1720 (2020) 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 the number of members that are available to operate are able to meet the needs of the department.*
    - *In Urban areas with a population greater than 1,000 per square mile or 2.6 km^2, there should be a minimum response of **15 staff within 9 minutes**, 90 percent of the time.*
    - *In Suburban areas with a population of 500 – 1,000 per square mile or 2.6 km^2, there should be a minimum response of **10 staff within 10 minutes,** 80 percent of the time.*
    - *In Rural areas with a population of less than 500 per square mile or 2.6 km^2, there should be a minimum response of **6 staff within 14 minutes,** 80 percent of the time.*
    - *In Remote areas with a travel distance of greater than or equal to 8 miles or 12.87 km, there should be a minimum response of **4 staff directly dependent on travel distance,** 90 percent of the time.*

The Municipality of Lakeshore is approximately of 525 km^2 in size with approximately 40,000 residents; this would put LFD response goals in the "Rural" criteria of ***6 staff within 14 minutes***, 80% of the time. However, it should be noted that some of the communities within Lakeshore fall into the "Suburban" criteria of***10 staff within 10 minutes***, 80% of the time, due to the condensed level of population. During the review of the LFD response data, it was noted that the Department does not meet either of the two response criteria.

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

***Note**: To accomplish the NFPA 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 exposures (buildings close enough to each other to create a greater possibility for fire spread). Most homes have basements, 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.*

***Note**: EMG conducted a comparison of LFD response capabilities listed by day of week, time of day and by station for the years of 2019, 2020, 2021 and 2022.*

The following table provides an overview of the average number of firefighters responding.

More information relating to firefighters responding, along with the 90th percentile response times. The charts can be found in the appendices.

TABLE #5: Overall Average Number of Firefighters Responding

Station	Year							
	2019		2020		2021		2022	
	Average Number FF Responding	Number of Calls*	Average Number FF Responding	Number of Calls*	Average Number FF Responding	Number of Calls*	Average Number FF Responding	Number of Calls*
Station 1	6	206	6	174	5	207	7	212
Station 2	5	61	6	49	5	50	6	52
Station 3	5	113	6	129	5	126	8	136
Station 4	4	50	5	37	6	48	9	39
Station 5	5	90	5	88	5	86	8	70
Average Number of FFs Each Year vs Total Calls	**5**	**553**	**6**	**481**	**5**	**526**	**8**	**604**

***NOTE:** Totals for each year are verified data provided by the OFM, and station totals may not correspond with the total number of calls.*

Fire Response Curve

When considering the response times and needs of a community, the fire response curve (Figure #3) 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 occurs when entire contents of a room ignite due to the extreme high heat conditions. This is not survivable by unprotected occupants that may be caught within. Even protected firefighters are at great risk of severe injury and/or death due to the extreme fire and heat conditions.*

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. LFD 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 #3 - FIRE RESPONSE/ PROPAGATION CURVE

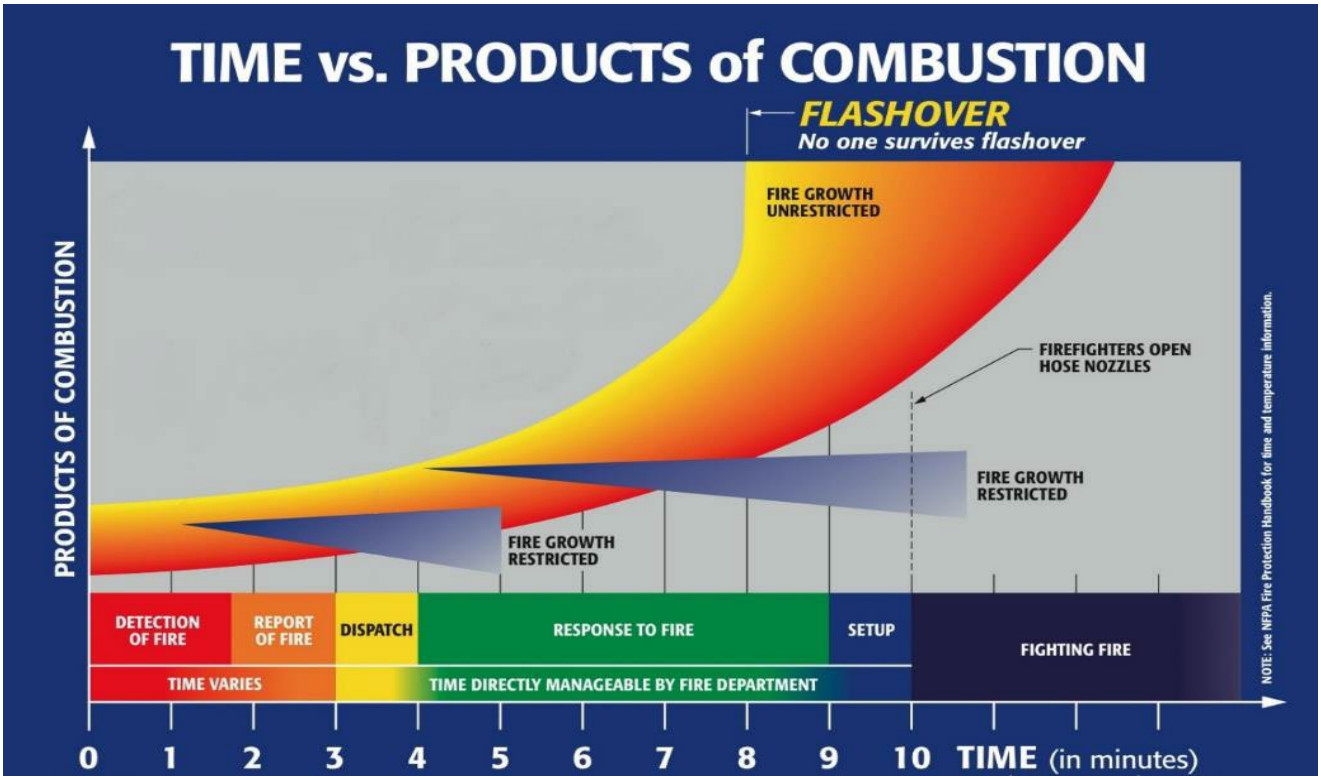


FIGURE #3 notes the following time variables:

- **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 one-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 LFD 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 fire chief endeavours to 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.

3.6.2 Response Data

Based on a review of the response data supplied, along with discussions with the fire chief, LFD 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 on response times by emergency responders.

LFD response times should be monitored based on the NFPA 1720 standards which is from "dispatch time to time of arrival at the incident".

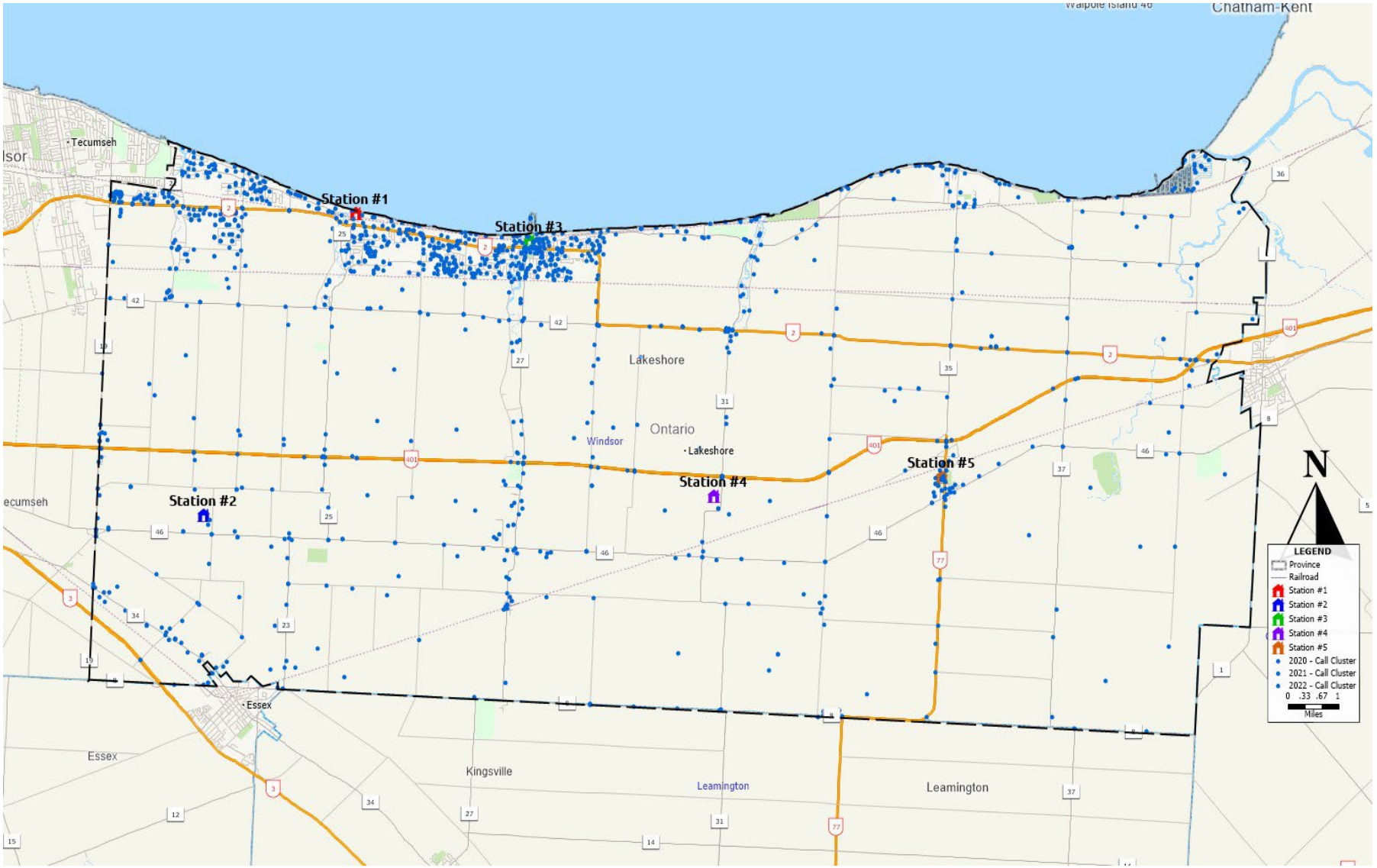
Note: *In monitoring time measurements, the 80th percentile criterion is the recommended practice that is endorsed by the NFPA. This data is more accurate since it is evaluating the times based on 80% of the calls as opposed to averaging the times at the 50th percentile. For example:*

- *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 take longer than 10 minutes.*
- *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 take longer than 10 minutes.*

A key concern relating to response times is linked to day-time responses in which many of the volunteer firefighters are not available to respond due to work or other commitments. With LFD responding to over 500 calls per year, and with more growth anticipated in the community, it can be reasonably assumed that call volumes will increase. As such, the department is at a junction in which the transition to implementing more full-time staff (specifically in the Suppression Division) is a reality.

A review of where most of the calls occur can assist in identifying where more coverage may be required (in the form of full-time staffing). As noted in Figure #4, it can be seen that the bulk of the responses (from 2020 – 2022) are occurring in the Station 1 and 3 areas. This type of information can assist the fire chief in assessing present and future fire station locations with a goal to improving response capabilities.

FIGURE #4 - CALL CLUSTER MAP (RESPONSE DATA FOR 2020 TO 2022)


Chatham-Kent
Tecumseh
Station #1
Station #3
Lakeshore
Ontario
Windsor
Lakeshore
Station #5
Station #4
Station #2
ecumseh
Essex
Essex
Kingsville
Leamington
Leamington
N
LEGEND
Province
Railroad
Station #1
Station #2
Station #3
Station #4
Station #5
2020 - Call Cluster
2021 - Call Cluster
2022 - Call Cluster
0 .33 .67 1
Miles

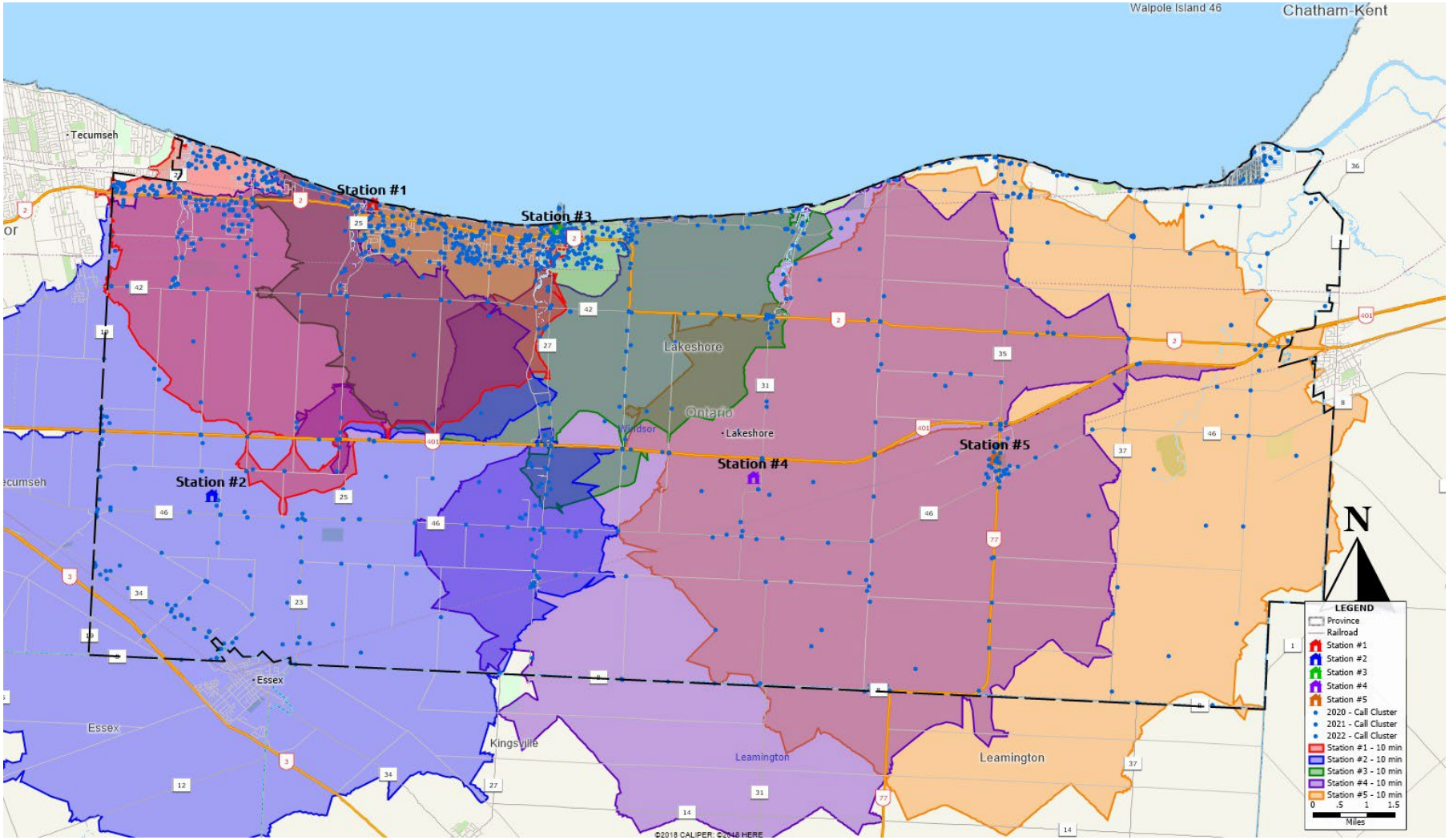
Another tool in identifying the level of coverage for a community is the use of time travel grids. These are based on the NFPA recommended response coverage, which for LFD would be a 14-minute response, minus approximately 4 minutes to arrive at the fire station, allowing for a 10-minute drive time.

The travel time grids highlighted in Figure #5 are calculated using the GIS software Caliper Maptitude, which uses the road network with the posted speed limits, factoring in the direction of travel, traffic lights, and stop signs. 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, due to weather conditions, construction, traffic congestion, etc., there will be times the fire apparatus will be travelling at speeds lower than the posted speed limit (even using emergency lights and sirens). Therefore, the posted limit is a reasonable calculation in determining travel distance.

***Note**: Figure #5A utilizes a 10-minute drive time to demonstrate the coverage of each station, taking into account a possible 4-mnute response to the fire station to obtain equipment and depart on the fire truck (which equates to the recommended NFPA 14-minute response time). This equation of response and drive time is the generally accepted timeline for most volunteer fire departments.*

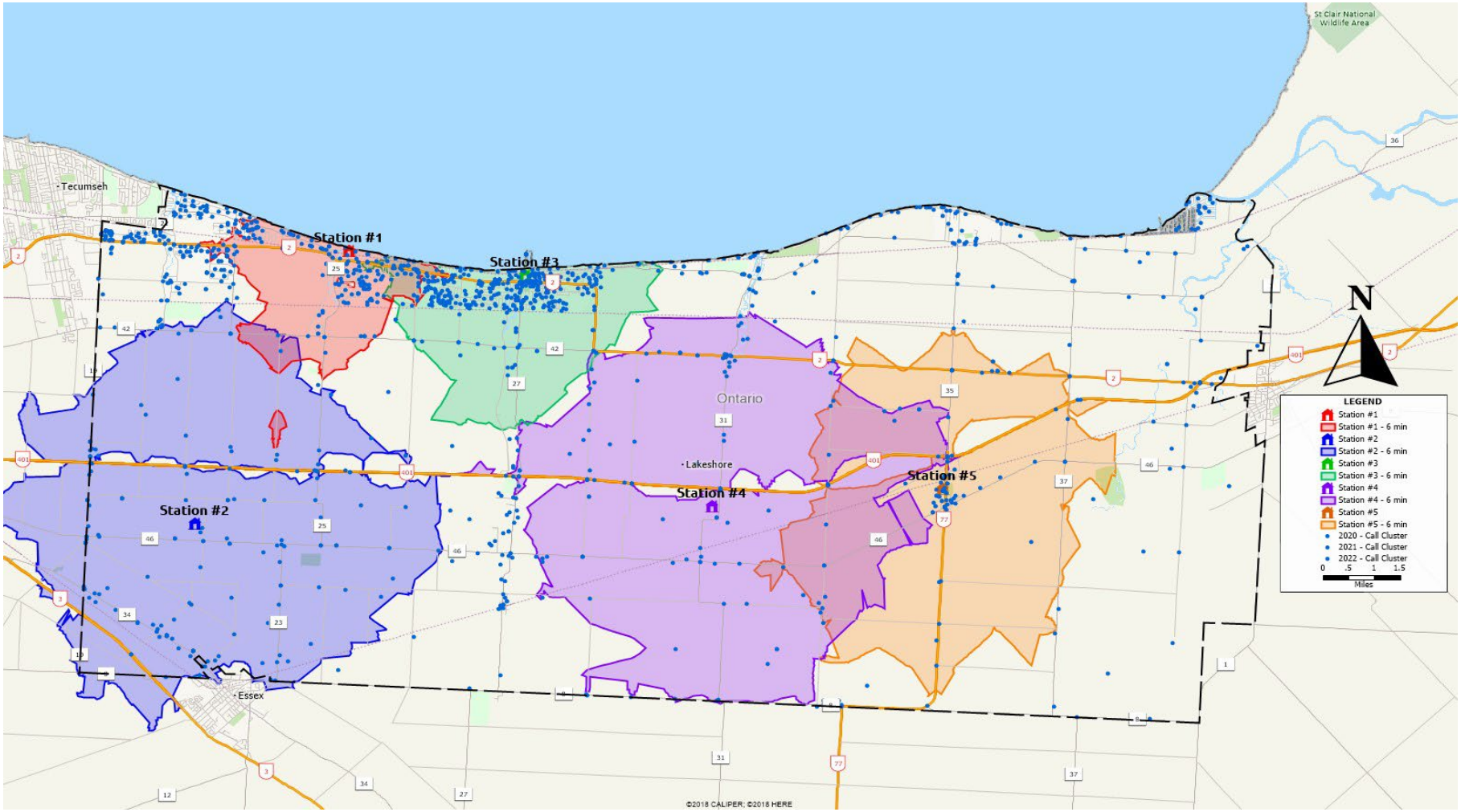
However, in discussions with the Fire Chief and after a review of the response data, the 4-minute response time is not achieved on a regular basis. This does skew the response mapping. As such, EMG has also created a second map, #5B, to identify the reduced coverage that is actually obtained when the volunteer firefighters take as much as 8-minutes to respond to the station, which gives a 6-minute drive time zone/coverage.

FIGURE #5A - CURRENT FIRE STATIONS –10-MINUTE DRIVE TIME (MINUS 4-MINUTES TO THE FIRE STATION)



Note: *If LFD were able to meet the response time of 4-minutes to the fire station, with a drive time of 10-minutes, then the municipality would have ample coverage, but this is not the norm for the fire department. Maps 5B and 5C are more reflective of the present situation.*

FIGURE #5B - CURRENT FIRE STATIONS –6-MINUTE DRIVE TIME (MINUS 8-MINUTES TO THE FIRE STATION)



Note: *with a documented drive time of just 6-minutes from the fire stations, LFD is not able to provide full coverage of the municipality.*

The two drive time maps confirm that in reality, LFD is not able to meet the NFPA response recommendation/expectations for a volunteer fire department. This again, supports the need to move towards the implementation of a "composite" style fire department that utilizes a combination of full-time and volunteer response components.

3.6.3 Future Fire Stations Locations

Deciding on where a fire station is located varies on 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.
    - Even though some mapping can be created to identify the locations of where the volunteers live, this will not confirm or verify that this is where they will be responding from (to the fire station), or even if they are available.

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 the community in a timely manner according to the 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, 80% of the time as a start.

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

FIGURE #6A - CALL TYPES FOR 2022

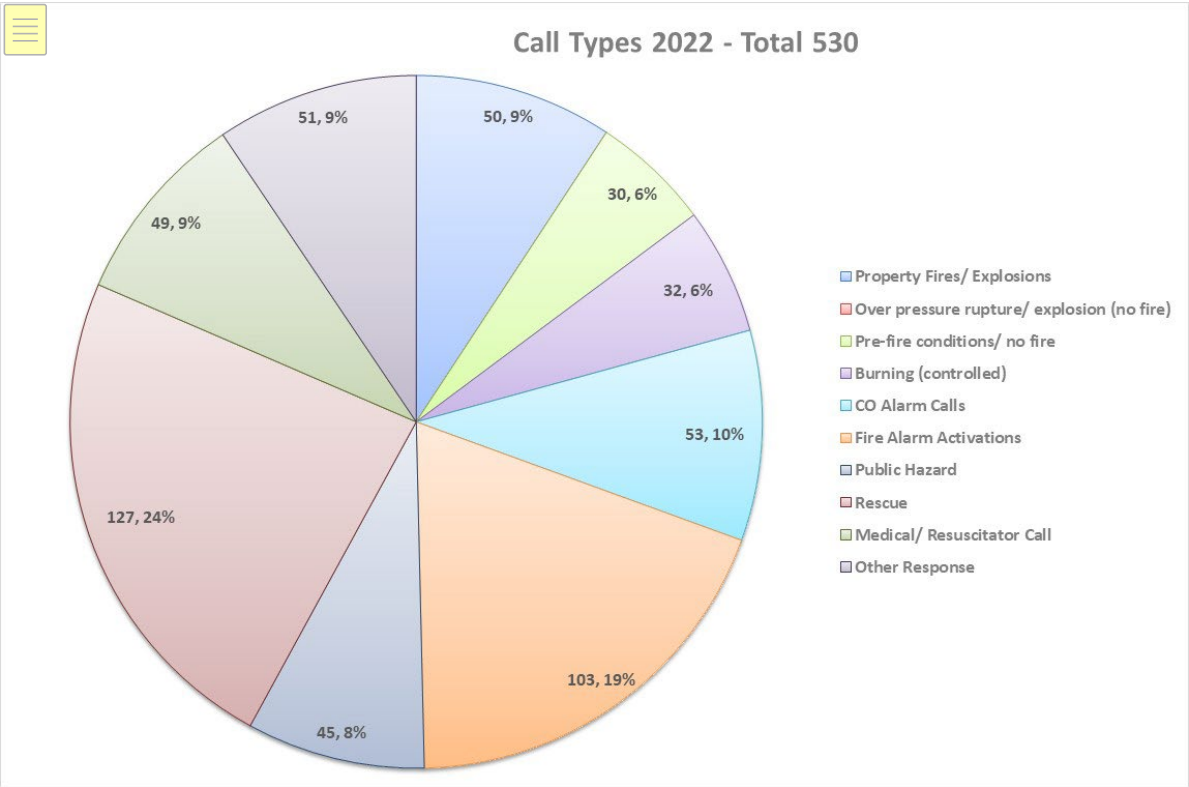


FIGURE #6B - TOTAL CALLS PER STATION FOR 2022

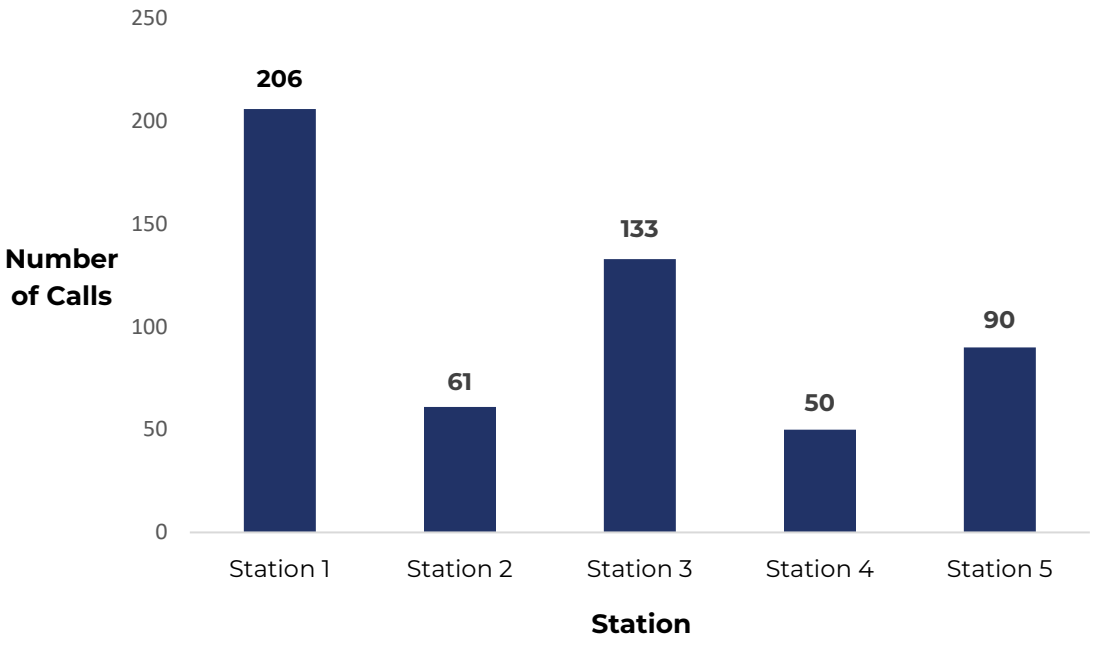


FIGURE #7AC - CALL TYPES FOR 2021

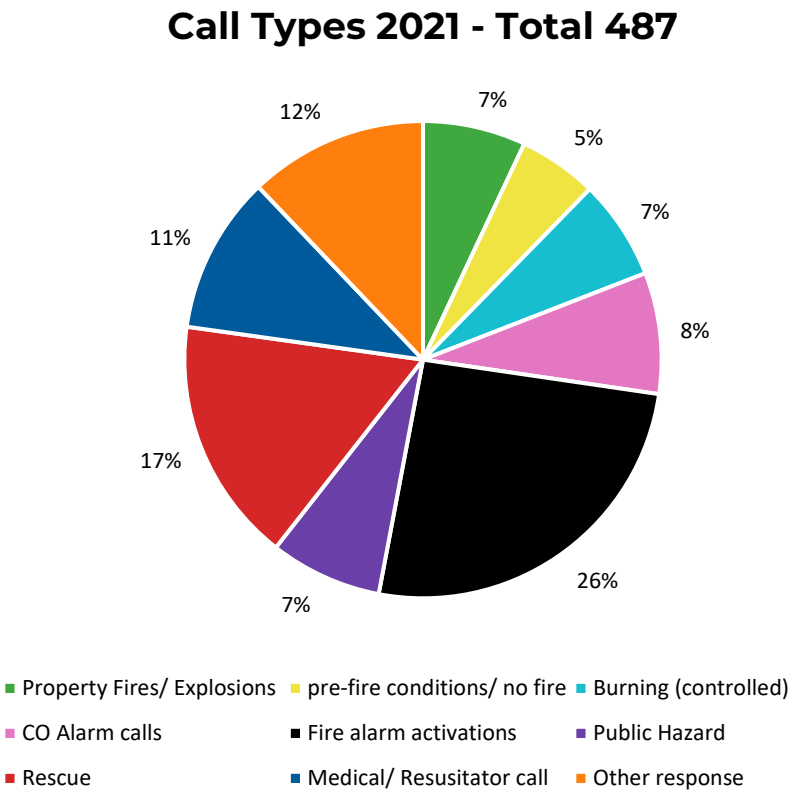


FIGURE #7B - TOTAL CALLS PER STATION FOR 2021

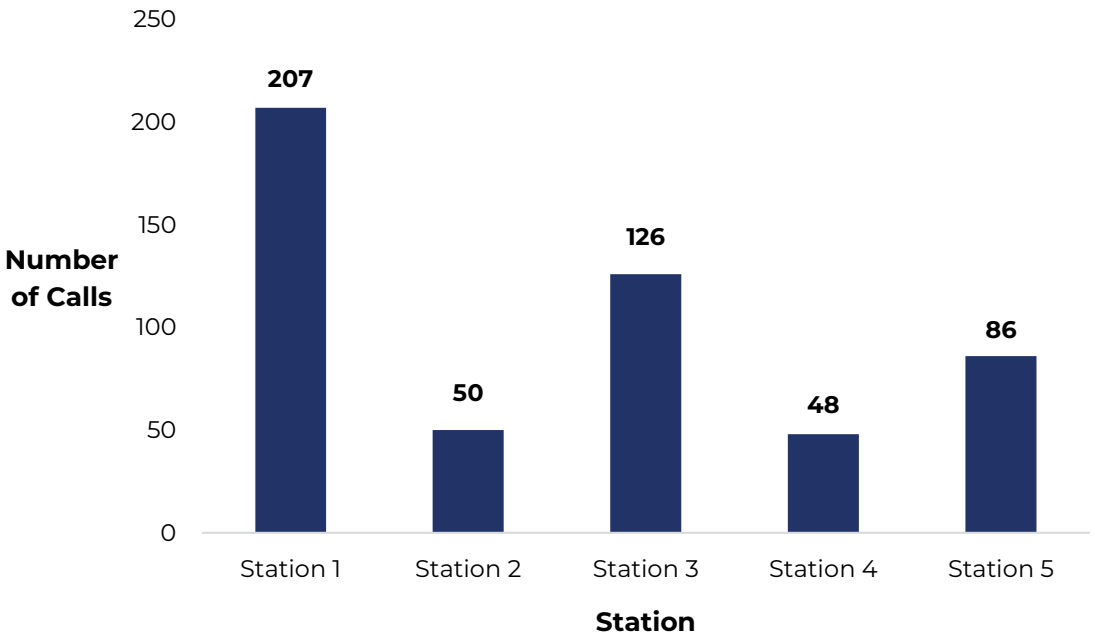


FIGURE #8A - CALL TYPES FOR 2020

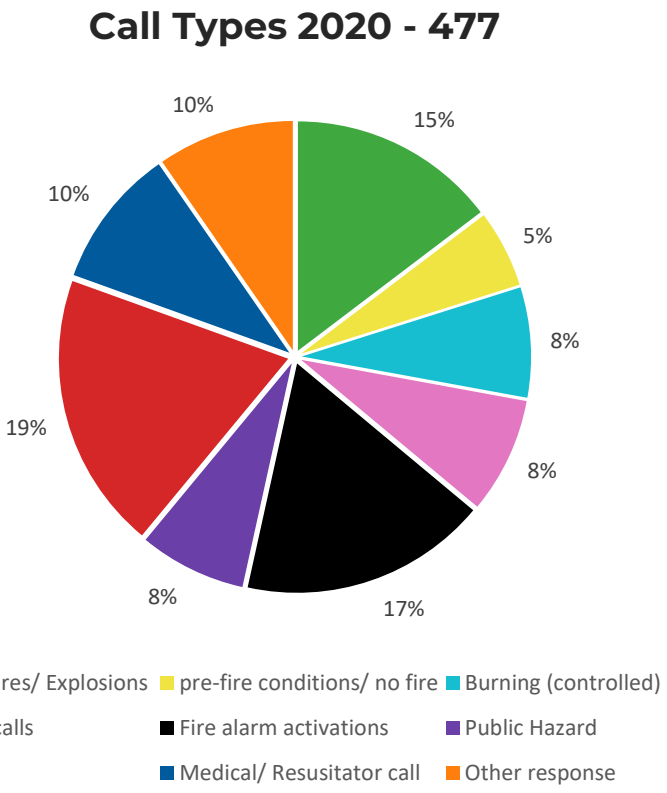
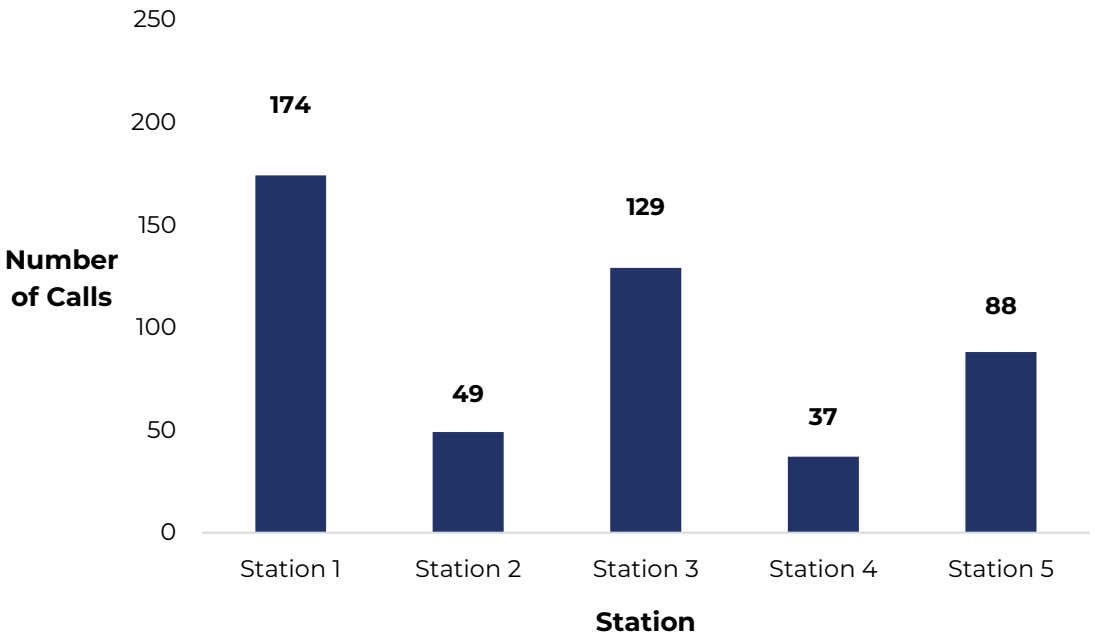


FIGURE #8B - TOTAL CALLS PER STATION FOR 2020



Based on the response data and call cluster mapping, it is evident that stations 1 and 3 are the busiest of the five stations.

Note: *Even though three years of data was collected, it should be noted that the response data for 2020 and 2021 was affected by the Covid-19 Pandemic*

Along with the type of calls and totals per fire station, a review of volunteer firefighter response numbers during day of week and time of day was also conducted. This information is supplied in Appendix "C". The response information provided to the Fire Chief identifies if any day of the week or time of the day are of concern in relation to response by the volunteer firefighters.

Two previous reports, namely, the 2011 Fire Master Plan by Dillon Consulting and the 2018 Fire Station Location Study, recommended an increase in the number of fire stations and the implementation of a full-time firefighter complement at up to two of the stations – stations #1 and #3. As such, EMG recommends that the municipality review the Fire Station Location study conducted by FUS in conjunction with this EMG document, and that a plan be developed to implement the hiring of full-time fire suppression staff. This should be presented to the Council for further discussion and financing.

With respect to the 2011 Fire Master Plan, many of the recommendations noted in the report have also been included within this report.

3.7 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 each year 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.

As noted in the training section of this report, the OFM has announced the implementation of mandatory training and certification for firefighters. As of July 2026, 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, fire departments will need to evaluate their present training programs and implement whatever improvements are necessary to meet the new training and certification requirements. This increase expectation in training (by the OFM) will also add to the training of new recruits.

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

- Lack of 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

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

3.7.1 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, and the challenges of balancing work and family commitments.

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 they join the department.
- Conduct 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 five 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 primary 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 an RRSP/pension savings plan with contributions from the municipality 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 Ontario Fire College 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 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 municipality 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. Exit interviews offer the opportunity to assess the perception of workplace culture, day-to-day processes, management challenges/ solutions, and employee morale.
- Foster the history of each fire station by creating displays of photographs of past members, events, and apparatus, to instill a sense of pride on department growth.

The LFD is already implementing some of these suggestions. This list is intended for review by the fire chief to assist in brainstorming retention efforts. It costs the municipality a large sum of money to train and equip new firefighters. It is therefore important that a means to retain their investment is developed and supported by council.

The CAFC have published a program – "Answer the Call" – that is available on their website (https://cafc.ca/page/answerthecallpublic). 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.

A final indicator that there may be challenges with having to depend on a full volunteer system is tracking the number of volunteer firefighters arriving at the fire station to respond to calls. 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. The Fire Chief has been collecting these statistics and has noted that this is one of their response challenges – having to wait for enough personnel to respond to the fire station before they can leave with a full complement. This delay in mustering creates longer response times for the Department.

3.7.2 Transition from Volunteer to Full-Time

There is a tipping point for departments that rely solely on volunteers for fire suppression services – a point where family and work demands supersede their individual ability to respond to emergencies. Typically, as a symptom of this weakening of service provision, fire departments start to experience decreasing attendance at both training and incidents where firefighters must make a “value decision” based on the type of response being called for. That is, they must make a conscious decision whether to respond or not based on a variety of pressures.

Response times (for volunteer fire departments) are almost always slower than ideal since volunteer firefighters must respond to their assigned stations first and assemble a crew to staff responding vehicles. This is essentially lost time, and in a significant fire situation, this lost time can be critical in terms of outcomes.

The fire chief provided an excellent detailed overview of the department’s retention issue, in his report to Council dated April 20, 2021. In the fire chief’s report, interviews and discussions with both fire department staff, and members of council, it was noted on several occasions that due to the increase in call volumes, increase in training and certification requirements, and other personal demands placed on the volunteers, recruitment and retention have become a legitimate concern for LFD. In fact, over a two-year period, more than a dozen volunteer firefighters resigned, stating and confirming that call volume demands, training demands or the stresses of being a volunteer firefighter were no longer conducive to the person’s lifestyle. This type of turnover creates a large cost to the Municipality, not only because of the expense of conducting a recruitment and interview process. There are also the hard costs of equipping the new volunteers with their

protective gear ensuring that the new volunteers complete all mandatory training. Not all new hires complete the training program.

Note: *Equipping and training new volunteers costs the municipality anywhere from $12,000 to $15,000 per volunteer firefighter.*

EMG submits that any increased investment in the fire service is an investment in residents' well-being and community safety. Based on response data and retention assessments, along with the continued growth of the community, EMG is recommending that a full-time contingent of firefighters be recruited, with three options in mind:

1. A total of two full-time day crews be hired to cover the times that volunteer responses are at their lowest (e.g., 8 am to 5 pm, Monday to Friday). The volunteers can still support this full-time contingent: and the hours outside of the Monday to Friday times are covered solely by the volunteer firefighters. And that the full-time firefighters be assigned to either Station #1 or Station #3 or,
2. A full-time, 24/7 crew can be implemented at either Station #1 or Station #3 to ensure full-time, 24-hour community coverage.
    a. And that a second 24/7 crew be hired incrementally (starting with daytime Monday to Friday) and expanded to a 24/7 crew as call volumes and response times support the transition) to be assigned to whichever station is available for the next set of full-time staff, whether that is station #1 or #3.
3. A mix of both. One station to have a day crew, with the other station being a full-time 24/7 crew.

Each recommendation is to be assessed financially as the cost for a full-time, 24/7 crew is approximately $2 million per year – the average salary of a first-class, full-time firefighter is as high as $110,000, plus benefits. It takes five years to achieve the rank of 1st Class firefighter. Each year, 1.5% is added to the base salary to cover the cost-of-living allowance (COLA).

Class of Firefighter	% of a 1st Class Firefighters Salary	Wage at Each Class (Based on $110,000)	Cost of Benefits* (30%)	Total Cost / Full-Time Firefighter
5th Class	70%	$77,000	$23,100	$100,100
4th Class	80%	$89,320	$27,796	$116,116
3rd Class	90%	$101,991	$30,598	$132,589
2nd Class	95%	$109,272	$32,782	$142,054
1st Class	100%	$116,749	$35,025	$151,774

*Depending on the type and coverage, benefits range from 25 to 30% above an individual's base salary.

3.8 Communications and Technology

This section will discuss dispatch and radio/pager systems, along with assessing current and future computer and information technology needs of the department. .

The LFD receives its dispatching services from the Windsor Fire and Rescue Emergency Communications Services. Windsor Fire and Rescue Emergency Communications Services is responsible for activating the pagers that alert the firefighters to respond to an incident.

Many departments have successfully used the "Who's Responding"[13] or "IamResponding"[14] apps. These apps identify members available to respond, call information, and who is responding when there is a call. If volunteer firefighter responses are low, a call can then be sent out for additional resources. These systems provide various other benefits that will aid the fire department in managing responses. The challenge with these systems is that it relies on the firefighters using their own devices.

It should be noted that LFD has in fact tried this type of response technology but encountered some challenges in use of it on a consistent basis by the VFFs. Some refused to put the app on their phones unless the municipality paid for the cost of a cell phone. Some volunteers did not like using it altogether, so the program was not used to its full potential.

The dispatch agreement with Windsor Fire & Rescue Services was not available during this review, but it would appear that LFD is charged $77,600 annually (2022 rate, and subject to change each year after). EMG did not receive any complaints about the level of service provided by Windsor Fire & Rescue Services.

Dispatch at Windsor Fire & Rescue Services is supported by the CAD (computer-aided dispatch) software program CriSys, which assists with dispatching fire services. Reports of each incident's dispatch log are forwarded, when requested, to the LFD for review, and records are maintained for future reference. Currently, CriSys is being used by LFD, and reports are transferred directly into the local system from Windsor Fire and Rescue Emergency Communications Services. It has been reported that there may be a change in technology related to dispatch systems. This will leave LFD at a starting point for a Records Management System (RMS). When researching for an RMS implementation, LFD should consider the ability of the systems to provide dispatch information

[13] "Who's Responding," accessed June 26, 2023, https://www.whosresponding.com/

[14] "IamResponding," accessed June 26, 2023, https://www.iamresponding.com/about-us/

and call management directly into the RMS from the dispatch service provider. This will minimize the administrative burden and ensure reliable data.

The Windsor Fire and Rescue Emergency Communications Services is working towards meeting the requirements of NFPA 1225, *Standards for Emergency Services Communications*, as well as NFPA 1061, *Standard for Public Safety Telecommunications Personnel Professional Qualifications* to be in conformance with O.Reg 343/22 *Firefighter Certification.* It is recommended that future agreements include clauses identifying this NFPA Standard.

The Dispatch Agreement was not reviewed as it was not available. It was reported to EMG that a By-Law for this service will be developed.

The County of Essex, under By-Law 2020-49, has an agreement for the provision of 911 Primary Public Safety Answering Point (P-PSAP) service through Bell with Ontario Provincial Police (OPP). on behalf of the municipalities of Essex County. When a 911 call is made from within the Municipality of Lakeshore, the P-PSAP in North Bay answers the call. When the caller indicates the need for the fire department the call-taker links the call to Windsor Fire and Rescue Emergency Communications Services who then determines the location and the type of call and dispatches LFD.

3.8.1 Next-generation Communications (NG 9-1-1)

The Next-generation 911 program is a mandated change to the 911 infrastructure that requires upgrades to new technologies to be in place by March 2025. Further information will be provided later in this report. While it is still not clear what changes will be required downstream in the 911 system at local fire departments that purchase dispatch services from a Public Safety Answering Point or Secondary-Public Safety Answering Point, there should be consideration for potential financial impacts.

In June of 2017, the Canadian Radio-television and Telecommunications Commission (CRTC) created regulations regarding the next-generation communications for 9-1-1 centres. This modern technology will:

> *"...enable Canadians to access new, enhanced, and innovative 9-1-1 services with Internet Protocol (IP)-based capabilities, referred to as next-generation 9-1-1 (NG9-1-1) services. For example, Canadians could stream video from an emergency incident, send photos of accident damage or a fleeing suspect, or send personal medical*

information, including accessibility needs, which could greatly aid emergency responders."[15]

The following is an excerpt from the CRTC website regarding the program and its benefits for enhancement to public safety communications.

Establishment of new deadlines for Canada's transition to next-generation 9-1-1

The Commission sets out determinations in relation to new deadlines and other matters for the implementation and provision of next-generation 9-1-1 (NG9-1-1) networks and services in Canada, so that Canadians can access new, improved, and innovative emergency services with Internet Protocol-based capabilities. The Commission aims to maintain the NG9-1-1 framework roadmap for the establishment of NG9-1-1 networks and the introduction of NG9-1-1 Voice, albeit with new, extended deadlines.

Specifically, the Commission directs NG9-1-1 network providers, by March 2022, to, among other things, establish their NG9-1-1 networks, complete all NG9-1-1 production onboarding activities, and be ready to provide NG9-1-1 Voice, wherever public safety answering points (PSAPs) have been established in a particular region.

The Commission also directs telecommunications service providers (TSPs) to (i) make the necessary changes to support NG9-1-1 Voice in their originating networks that are technically capable of supporting NG9-1-1 Voice, including completing all NG9-1-1 production onboarding activities and testing activities, by 1 March 2022; and (ii) begin providing, by 1 March 2022, NG9-1-1 Voice to their customers served by networks that are technically capable of supporting NG9-1-1 Voice, wherever PSAPs have been established in a particular region.

With respect to the implementation and provision of real-time text (RTT)-based NG9-1-1 Text Messaging (NG9-1-1 Text Messaging), the Commission is not establishing new deadlines as part of this decision. Instead, the Commission requests that, once standards are sufficiently advanced with respect to RTT callback and bridging, the CRTC Interconnection Steering Committee (CISC) file a report with the Commission with recommendations related to the provision of NG9-1-1 Text Messaging for all stakeholders.

[15] Government of Canada, Canadian Radio-television and Telecommunications Commission, "Telecom Regulatory Policy CRTC 2017-182, Next-generation 9-1-1 – Modernizing 9-1-1 networks to meet the public safety needs of Canadians", last modified June 1, 2017, https://crtc.gc.ca/eng/archive/2017/2017-182.htm

Further, the Commission directs, among other things, incumbent local exchange carriers (ILECs) to decommission their current 9-1-1 network components that will not form part of their NG 9-1-1 networks by 4 March 2025 or earlier if all the TSPs and PSAPs in an ILEC's operating territory have completed their transition to NG9-1-1.[16]

[16] Government of Canada, Canadian Radio-television and Telecommunications Commission, "Telecom Decision CRTC, Establishment of new deadlines for Canada's transition to next-generation 9-1-1", last modified June 4, 2021, https://crtc.gc.ca/eng/archive/2021/2021-199.htm

3.8.2 NG 9-1-1 Considerations

The Essex County municipalities must understand that there will be significant expenses for the fire dispatch to implement NG 9-1-1 and the Windsor Fire & Rescue Services will likely increase fees for all fire departments it dispatches to cover these additional costs.

Currently there is no firm estimate as to the expenses to be incurred with the implementation and annual upkeep of NG 9-1-1. The Municipality of Lakeshore will need to identify the potential funding needs for Next-generation 911.

3.8.3 Radio System

LFD is currently operating a 400 MHz radio system. There are currently eight transmission towers across Essex-Windsor. The current radio system is at its end of life and will not be serviceable beyond 2024. Currently the fire department is looking into an 800 MHz system that can integrate with Windsor Fire and Rescue Emergency Communications Services and other county fire departments. This radio system should be upgraded as soon as practical with formal agreements with system partners and maintenance contracts, keeping in mind the required implementation of the NG 911 program.

A radio system requires redundancies, such as backup radio transmitter tower sites. LFD does have the ability to page the firefighters from their command vehicles if radio towers go down. The range of this technology is around 2.5 to 3 kilometres.

In an upgraded system design, there may be a need to review the requirement for bi-directional antennas to be installed in new buildings with high amounts of concrete and steel to enhance radio coverage inside the structure. This would require the cooperation of both the Planning and Building Departments. Presently, there are no redundancies in the radio system in event of radio failure. Risk of a radio system failure or power loss due to a generator failure or dead backup batteries may result in system loss. It is recommended that a preventative maintenance program be developed as well as a backup plan in the event of failure of the infrastructure. Part of this redundancy in case of failure could be the implementation of an application like “Who’s Responding” or “IamResponding”, as previously noted.

The Municipality of Lakeshore needs to complete a radio audit of the municipality and budget funds for upgrading the radio system to the 800 MHz, which includes new mobile and portable radios, pagers, transmission towers and transmitters, generators at each transmission tower, and possibly mobile repeaters if the audit warrants their purchase.

3.8.4 IT Solutions

An integrated RMS is essential for today's fire department. These types of systems allow fire department personnel to do their job in the most efficient manner possible, providing valuable information for emergent and non-emergent responses.

Delivery of public education is mandated through the direction of the *FPPA*. Within an RMS, when a fire crew conducts a smoke alarm audit of a residence, coverage of smoke alarm audits can then easily be produced showing which areas still require review.

Fire inspections are done on a complaint or request basis, and in some cases are set on a schedule. All these inspections can be logged into the RMS and official orders can be produced. When fire crews respond to emergencies in these structures, they can quickly see what the deficiencies and issues are to assure firefighter safety.

When fire crews review the response areas assigned, they can produce pre-plans of the key structures in the area. These then provide quick guides if an emergency response is needed.

When fire crews are called to an address for an emergency, map guidance is essential. This mapping should be dynamic (like a vehicle GPS or phone) that indicates road closures, congestion, and other constrictions that would slow response times. This dynamic routing will provide the fastest response via road networks while indicating the locations of hydrants, water flow capacity, and many other benefits. Other technologies are available to allow the systems in the fire response vehicle to send information to others using map software to see approaching fire vehicles on their systems.

Fire administration utilizes the RMS to review times, resources, and consumable products used for billing purposes.

Connectivity, both at the station and remotely, is vital. An IT support that is adequately funded to provide in-station and remote connectivity, hardware and software management, and life-cycle updates, it essential.

3.9 Health, Fitness, & Wellness

The health and wellness of staff is a crucial focus for all municipalities, and Lakeshore is no exception. As volunteer firefighters maintain a separate primary vocation, a focus on fitness can be overlooked. The inherent nature of firefighting is both stressful and physically demanding. There is no fitness equipment at the fire stations to ensure that staff can keep fit, which helps to reduce work-related injuries.

As such, the fire department should work towards implementing and standardizing fitness equipment at all NEW stations, as the present stations lack the space for this type of setup. Further, the department should have a fitness instructor work with the suppression staff to set up a proper workout program and demonstrate the proper and safe way to use the exercise equipment. The department should develop SOGs regarding the proper use of fitness equipment.

Many fire departments routinely test their firefighters to meet occupational fitness capabilities, delivered internally or by a third party.

NFPA 1582 *Standard on Comprehensive Occupational Medical Program for Fire Departments* identifies 14 essential job tasks detailing the physical and physiological stresses on firefighters. The standard outlines the requirements for a department's medical program, including specific conditions that may pose a risk to firefighting.

As the core determination for the physical demands of firefighting, LFD needs to understand the expectations they are placing on their personnel. It is recommended that LFD review the physical expectations of a firefighter for use in training and recruiting.

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 departments 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 an 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 health and fitness level 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 recognition and support to ensure the promotion and success of this process. Health and fitness must become a priority within the organization, just as safety is a priority.

Data suggests a correlation between the following:

- A proactive approach to health and fitness and a decrease in debilitating occupational injuries.

- A reduction in workers compensation claims and a decrease in acute and chronic health problems of firefighters.

Combining the HRFP 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 LFD 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.

Post-Traumatic Stress Disorder

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

LFD has included all its fire department staff in the Employee Assistance Program (EAP) offered through the municipality. This is part of their PTSD program. Ensuring firefighters have full EAP coverage for all related needs is essential to employee wellness. The Fire Chief should meet with municipal staff who oversee the 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 the retention of volunteer firefighters, this EAP could be offered as a family package.

3.9.1 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 and 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 has some decontamination equipment to assist with cleaning at the fire scene. Also, LFD has implemented a cancer prevention program and should be commended for this proactive initiative. The program includes items such as:

- Post-fire decontamination of personal protective equipment (PPE)
- Firefighter hygiene at fire scenes
- PPE during handling of contaminated gear/equipment

- Documenting potential exposures
- Reducing exposure to diesel exhaust

Diesel exhaust has contributed to health issues when people are exposed to it over a long duration. By having these systems in the station, the health concern is significantly reduced. Installing an at-source diesel exhaust extraction system would be a positive step toward cancer prevention.

In reviewing the PPE program (also known as structural firefighting ensemble), it was noted that a plan has been established to review PPE inventories. Further, 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 appendix 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"*. LFD has a program that ensures PPE is inspected and cleaned in-house and that a cache of used gear can accommodate a portion of the Department.

The hygiene and decontamination program should also address the firefighters' personal clothing or uniforms worn in the fire, as this can also contain cancerous contaminants. This would imply the necessity of suppression personnel keeping spare clothes for them to change into after they have a shower at the station. Contaminated clothing should also be washed at the fire station (with the extractor) and not taken to the personal residence to be cleaned, as they are then introducing the contaminants to members of their family. The challenge here is that the stations lack the room to install personal lockers for all of the volunteers. This is something to incorporate into any new fire station.

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

3.9.2 Mental Well-Being

Like law enforcement, paramedics, and military personnel, firefighters are regularly exposed to critical incidents. A critical incident may be described as an event that is out of the range of a

normal experience that is sudden and unexpected, involves the perception of a threat to life, and can include elements of physical and emotional loss.[17]

Being regularly exposed to horrific events can lead to critical incident stress. Critical incident stress is a normal reaction to an abnormal traumatic incident.

Examples that can cause critical incident stress are:

- 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.

Exposures to critical incidents can impact firefighters later in life and it is therefore essential to have a formal record of critical incidents to assist a firefighter for a workplace injury if they are struggling due to PTSD.

Mental health takes on 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. A mental health well-being 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 *Ontario Health and Safety Act* Regulations.
- Organizational PTSD practices (promoting good mental health)
- Organizational anti-stigma practices

[17] Work Positive, "What are Critical Incidents?", accessed June 27, 2023, https://www.workpositive.ie/information/whatarecriticalincidents

- 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, post-exposure education and awareness.
- Develop a handbook that identifies what PTSD is, and its signs and symptoms for family members to reference which includes agencies, EAP program, or peer support groups that may be of assistance.
- Consider 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 3 – Recommendations

Recommendation #4

Increase administrative support for each of the divisions (training, suppression, and fire prevention) in line with departmental growth.

Estimated Cost: Hiring of one or more Admin Assistants; $60,000 - $75,000 per position.

Suggested Timeline: Immediate (0 to 1 year)

Rationale: The present Administrative Assistant is tasked with all general administrative (day to day) duties that includes records management, filing of reports and dealing with public enquiries.

With the inclusion of the OFM training and certification requirements, more support of the Training Division will be required, which will necessitate the need for another Administrative Assistant.

A possible challenge here is the lack of space at the fire station to house another Administrative Assistant.

Recommendation #5

Refresh and revise all fire prevention SOGs to reflect current LFD practices.

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate to short-term (0 to 3 years)

Rationale: Contemporary SOGs that are reflective of industry informed practices guide staff and decrease liability risk to the community.

Recommendation #6

LFD expand and formalize its Public Education activities by establishing and funding a Public Education Program and Plan with supporting SOGs.

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Short-term (1 to 3 years)

Rationale: Active and engaging Public Education Programming can reduce the incidence of unwanted fires and change unwanted and unhealthy behaviours.

Recommendation #7

LFD continue to invest in its fire cause and determination program through certification and continuing educational opportunities for designated members with supporting SOGs.

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Short-term (1 to 3 years)

Rationale: Comprehensive fire cause determination efforts help to direct fire prevention and public education efforts to community specific needs.

Recommendation #8

LFD review its current inspection practices with a view to changing from a report-based practice to that of an order-based practice.

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Short-term (1 to 3 years)

Rationale: This will facilitate an easier prosecution process should this be necessary to move non-compliant buildings to a state of compliance.

Recommendation #9

LFD examine opportunities to digitise its fire inspection reporting and record keeping practices including the use of handheld computing devices for inspectors.

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Short-term (1 to 3 years)

Rationale: The use of handheld computing devices (i.e., tablets) can optimise administrative related inspection and reporting activities, saving time.

Recommendation #10

Consider expanding the designated training nights at all stations from two per month to three per month.

Estimated Cost: To be determined.

Suggested Timeline: Immediate to short-term (0 to 3 years)

Rationale: To allocate additional time for focus on maintaining existing skill sets and to allow for emerging issues to be identified and trained on.

Recommendation #11

Add the position of Full-time/Career Training Officer to its compliment of FTEs.

Estimated Cost: $90,000 to start.

Suggested Timeline: Short-term (1 to 3 years)

Rationale: To address immediate and future training needs; conduct on-going gap analysis and address deficits.

Recommendation #12

Train and certify all members to the appropriate NFPA standards (1001, 1002, 1006, 1021, 1031, 1041, etc.)

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate to short-term (0 to 3 years)

Rationale: Required by Ontario Regulations.

Recommendation #13

Train all firefighters who participate in vehicle, water, or ice rescue responses to the current NFPA 1006 Standard.

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate to short-term (0 to 3 years)

Rationale: Required by Ontario Regulations.

Recommendation #14

Convene regular (bi-annual) meetings for all chief officers.

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate to short-term (0 to 3 years)

Rationale: Enhances communications at all command levels within the organization.

Recommendation #15

Fire department staff, in consultation with Human Resources, staff develop and implement a policy or SOG specifically with the internal promotional process for all departmental line officers (training officers, captains, and district chiefs).

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate to short-term (0 to 3 years)

Rationale: To allow for a consistent approach to promotions and afford those desiring promotion with a clear understanding of how to prepare for and pursue promotional opportunities.

Recommendation #16

The fire chief to review the present recruitment and retention programs and make enhancements based on the information noted in the FMP body.

Estimated Cost: Staff time, but some costs may be incurred.

Suggested Timeline: Immediate to short-term (0 to 3 years) and ongoing

Rationale: Volunteer firefighters are the most valuable resource for the fire department. Ongoing recruitment and retention of the firefighters is critical to the success of the fire department.

Recommendation #17

Recruit a full-time contingent of firefighters, with two options in mind:

1. A total of two full-time day crews be hired, to cover times that volunteer responses are at their lowest (e.g., 8am to 5pm, Monday to Friday) and assign them to either station #1 or station #3.

Or

2. Implementation a full-time, 24/7 at either station #1 or station #3, to ensure full-time, 24-hour coverage of the community.

Hire a second 24/7 crew incrementally (as call volumes increase) to be assigned to whichever station is available (station #1 or #3).

Financial implications of both recommendations should be assessed.

Estimated Cost: Depending on the option implemented, costs could range from $1 to $2 million annually.

Suggested Timeline: Immediate to mid-term (0 to 6 years)

Rationale: Based on anticipated growth, expected call volumes (due to a larger population) could exceed the capabilities of the present volunteer firefighter response capabilities.

The incremental hiring of full-time firefighters can start with one station offering 24/7 coverage. With the second set of fulltime firefighters starting on a Monday to Friday 8am to 4pm coverage and building from there as needed.

Recommendation #18

LFD to review their Health, Fitness and Wellness programs to ensure that their firefighters are receiving proper coverage for PTSD, Cancer Prevention, and Mental Well-Being.

Estimated Cost: Costs will be incurred based on the programs provided to the firefighters.

Suggested Timeline: Immediate to short-term (0 to 3 years) and ongoing

Rationale: Firefighters are the greatest asset of any fire service, and it is imperative that their Health, Fitness and Wellness 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.

Recommendation #19

When researching for an RMS implementation, LFD should consider the ability of the systems to provide dispatch information and call management directly into the RMS from the dispatch service provider.

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate (0 to 1 year)

Rationale: The ability to receive call information from the dispatch service directly into the RMS will ensure accurate records and decrease the administrative burden.

Recommendation #20

While it is still not clear what changes will be required downstream in the 911 system at local fire departments that purchase dispatch services from Public Safety Answering Point or Secondary-Public Safety Answering Point, the municipality should contact the Canadian Radio and Telecommunications Commission (CRTC) for updates and potential financial impacts.

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Staff time; short-term (0 to 3 years)

Rationale: The Municipality of Lakeshore should identify the potential funding needs for Next-Generation 911 impacts. At this time, EMG is unable to estimate costs for this upgrade because the CRTC has not provided this information.

Recommendation #21

Develop a preventative maintenance program as well as a backup plan in the event of failure of the infrastructure.

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Staff time; short term (0 to 3 years)

Rationale: A consistent and dependable radio system is imperative for the health and safety of firefighters.

Recommendation #22

The Municipality to budget funds for upgrading the radio system to the 800 MHz, which includes new mobile and portable radios, pagers, transmission towers and transmitters, generators at each transmission tower, and possibly mobile repeaters if the audit warrants their purchase.

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Staff time; short term (0 to 3 years)

Rationale: Motorola will no longer support the radio system in place after 2024. Providing a budget for the replacement radio system will ensure a timely transition to an updated radio system.

Recommendation #23

Create an IT support person to provide in station and remote connectivity, hardware and software management, and life-cycle updates, be created.

Estimated Cost: IT review required to estimate cost.

Suggested Timeline: Short term (0 to 3 years)

Rationale: For fire services of today, it is essential for IT systems to be up to date and managed appropriately ensuring both in-station and remote connectivity.

SECTION 4: FACILITIES, VEHICLES, & EQUIPMENT

4.1 Fire Station Review

A review of the existing fire stations was conducted by EMG and will be addressed in this section. This review included:

- An assessment of the fire stations based on housing modern firefighting apparatus and firefighter safety, administrative space, washrooms, showers, staff lockers, bunker gear storage for a 20-person firefighter team, equipment decontamination space, training facility/ meeting room space for up to 25 firefighters, and equipment storage while considering related NFPA standards, best practices, and *OHSA* requirements.
    - Based on a potential for a full-time firefighter component in the northwest quadrant, determine whether Fire Stations 1 and 3 have adequate facilities. In consideration of future planned growth areas, will there be a need for an additional station?

It should be noted that the walkthrough of the fire stations was a limited to a visual inspection; no destructive testing or engineering assessment was conducted.

Fire stations should be located 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 locate some stations in proximity.

While distance and travel time is a primary consideration, response time should also be considered. If the community's decision makers set a baseline expectation of response time, then a more realistic level of service and fire station location criteria can be identified.

The following maps (Figures #8 and #9) depict where each station is throughout the Municipality, along with indicating response time zones based on NFPA 1720, which is the standard for volunteer fire departments. .

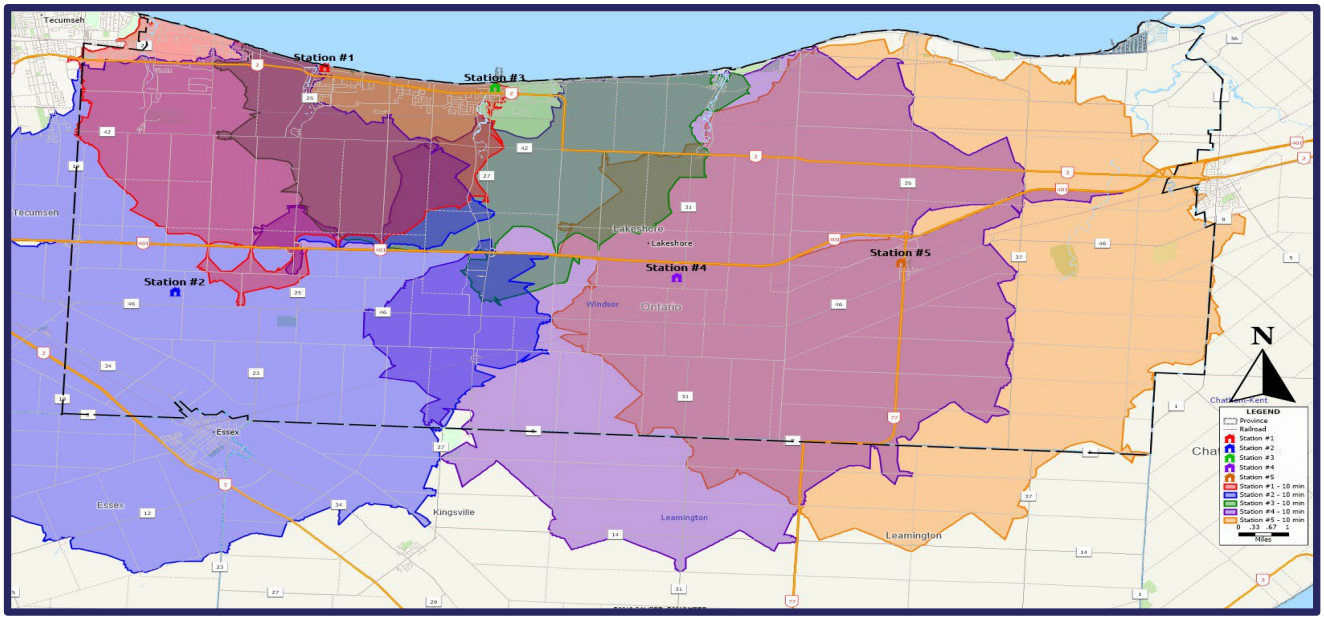
In Figure #9A, the zones around each station represent a 10-minute drive time, minus 4 minutes for volunteers to arrive at the station and respond in an emergency services vehicle. The 4-minute response to the fire station is used as a general average.

Note: *as identified in Figures 5A and 5B, response times of the volunteers can fluctuate greatly based on availability and distance responding from (to the fire station).*

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

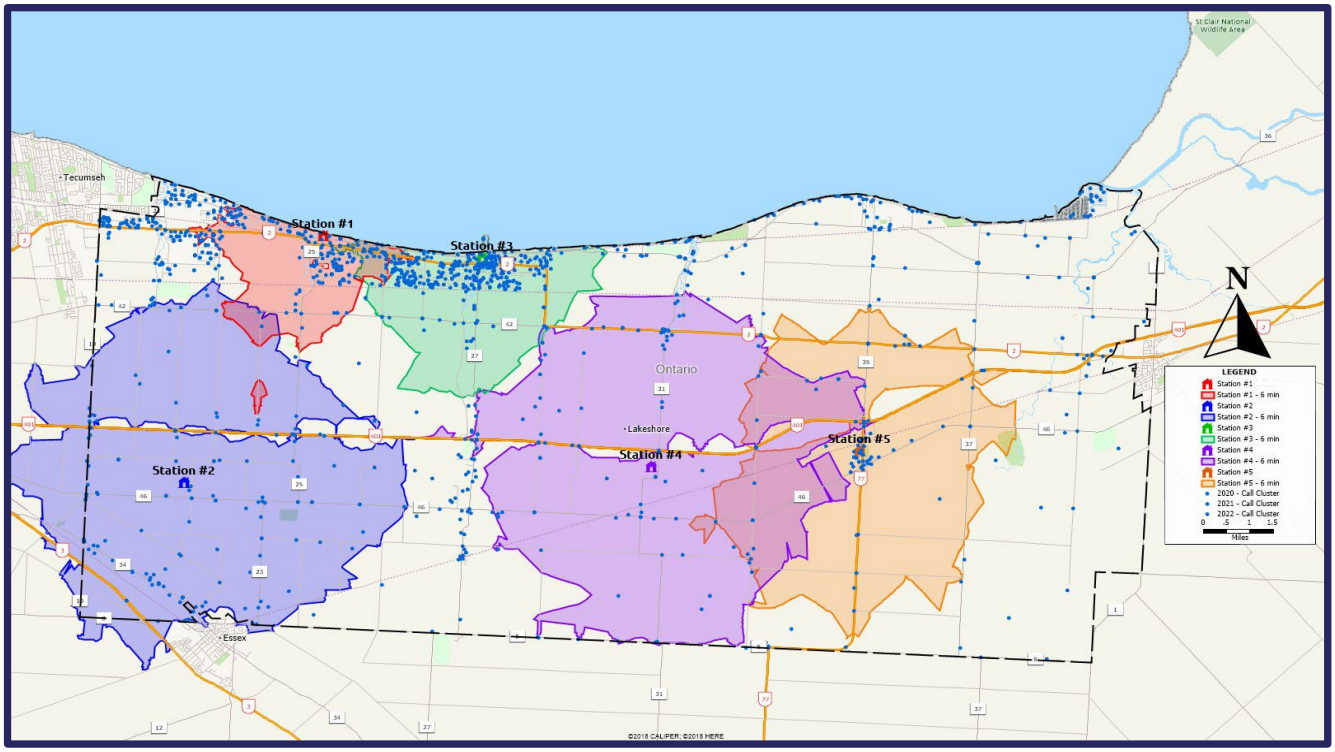
FIGURE #9 - LOCATION OF THE FIRE STATIONS

FIGURE #10A - 10-MINUTES DRIVE TIME FROM THE FIRE STATIONS



As can be seen in the response zone map, most of the Municipality is covered by the fire stations, if the firefighters are able to meet the 10-minute drive time. Some areas would have quite a bit of overlapping coverage. However, as noted in the previous section, if it takes longer for the volunteers to respond to the fire station, the drive time zones shrink in size. And the longer it takes for the firefighters to arrive at the fire (as noted in Figure #9B), the greater the opportunity for increased damage by fire.

FIGURE #10B - CURRENT FIRE STATIONS –6-MINUTE DRIVE TIME (MINUS 8-MINUTES TO THE FIRE STATION)



Note: *with a documented drive time of just 6-minutes from the fire stations, LFD is not able to provide full coverage of the municipality.*

This is where having a full-time contingent of staff as discussed in the previous section would ensure a more uniform coverage of the municipality. The full-time contingent could respond from the fire station in less than two minutes; thus offering a faster and more consistent response time.

4.1.1 Lakeshore Fire Stations

LFD responds from five fire stations. Through on-site evaluations, it was concluded that the buildings appear to need varying levels of repair and update. Each station will be addressed individually.

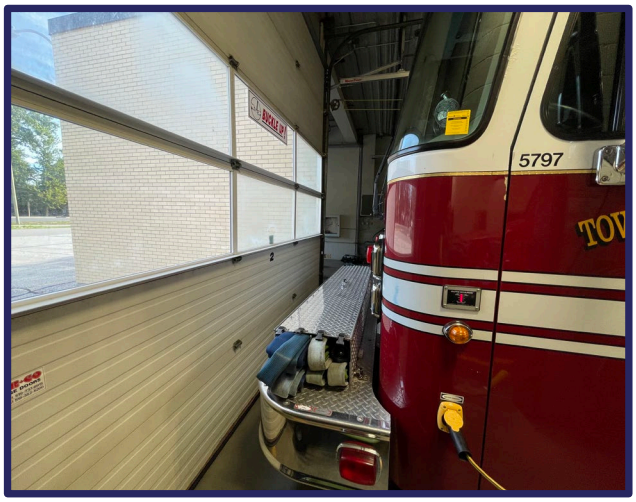
Notes:

- *The station reviews in this report are general in nature. Therefore, if a more in-depth structural analysis is desired by the Municipality, 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 issues is also included at the end of this station review section.*

Station #1

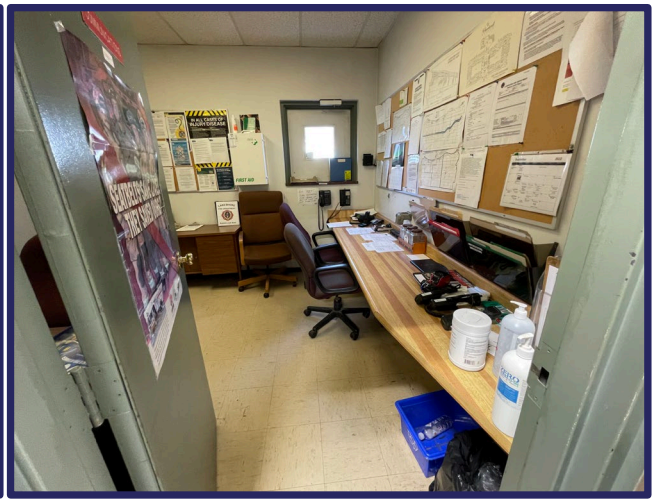
Station #1 has three bays for fire apparatus. This station is not drive-through.

Apparatus Bays



*100’ aerial is normally parked at this fire station

Training/ Office/ Kitchen areas



Washroom and Gear Washer (residential machine only at this station)

This station is equipped with a training room and kitchen facilities. It was not designed for the housing of a 24/7 full-time contingent. There is, however, an opportunity to take advantage of the training room to set up firefighter quarters and lockers. This would require this room to function in a dual capacity, necessitating fold-away beds.

There are male and female washrooms, along with two offices for use by officers and firefighters. The male washroom has a shower, but the female does not.

Station Concerns

- There is a general lack of storage for equipment, which would be a concern if this station was turned into a full-time station.
- Firefighting gear exposed to exhaust contamination. A separate room should have its own ventilation system to protect the gear from diesel exhaust, allowing proper venting off-gases.
- Lack of space to wash vehicles inside of the station. During winter weather conditions, no washing (or very little) can be accomplished.

A full engineering assessment would be required by a third party that designs and builds fire stations to conduct a detailed needs/cost analysis.

Based on the forecasted extent of construction/ renovation, this facility may not meet post-disaster requirements mandated for any new emergency response facilities.

Station #2

Station #2 has two front bays. This is not a drive-through station.

Apparatus Bays

Firefighter gear stored in bay / office area

Training Room / Kitchen / Mezzanie Storage and Laundry Facility (residential type only)


Washroom and Showers

This station is equipped with a training room and a small kitchen facility. As with all the fire stations, it was not originally designed for housing a 24/7, full-time contingent. While this report indicates a view to consideration of transitioning stations 1 and 3 to a full-time component, if this station was considered for full-time staffing, an extension to the building would be required to include proper facilities for up to 25 firefighters.

There are male and female washrooms, along with one office and a training room, for officers and firefighters.

Station Concerns

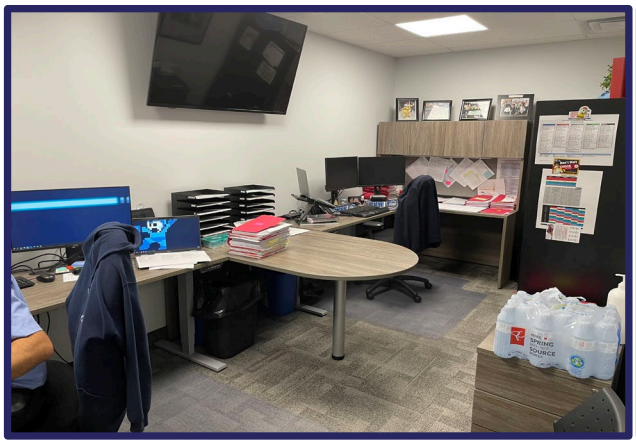
- There is a general lack of storage for equipment, which would be a concern if this station was turned into a full-time station.
- Firefighting gear exposed to exhaust contamination. There should be a separate room with its own ventilation system to protect the gear from diesel exhaust, allowing proper ventilation of off-gases.
- Lacks an automatic emergency standby generator.

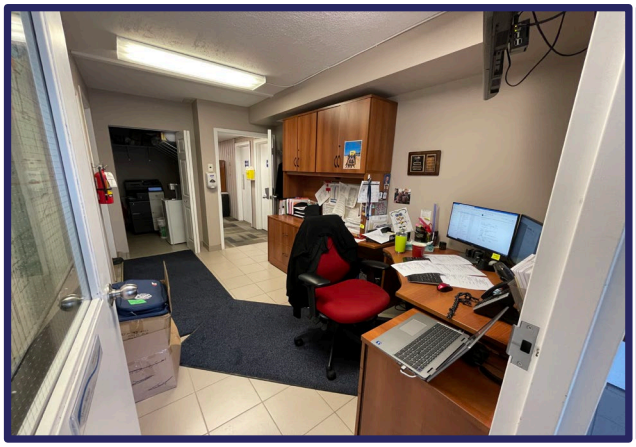
Station #3

Station #3 contains three bays for fire apparatus. This station is not a drive-through and it houses the headquarters for the Fire Department. Administration, Training and Fire Prevention work out of this facility.

Side of Fire Station – Staff Entrance/ Apparatus Bay

Offices






Training room and kitchen, washrooms, and shower facilities (both male and female)

As this station is also the headquarters for the fire department, it is especially challenged with space for current operations. If this building were to become a full-time station, consideration should be made to relocating the administrative and fire prevention staff to another facility.

The building is equipped with a training room and kitchen facilities. It was not designed for housing a 24/7, full-time contingent. If the administrative and fire prevention staff were relocated, however, then this building would have ample space to accommodate a full-time contingent (for beds and lockers).

It also contains male and female washrooms along with offices for use by officers and firefighters.

Station Concerns

- General lack of storage for equipment on the apparatus floor which would be a concern if this station was turned into a full-time station. However, there are options for utilizing other spaces for this purpose.
- Firefighting gear is exposed to exhaust contamination. There should be a separate room with its own ventilation system to protect the gear from diesel exhaust, allowing proper venting of gases from the gear itself.
- Lack of a negative pressure bunker gear room so bunker gear can be allowed to off-gas before washing and thereby reducing FF exposure to contaminatants.

A third party, that designs and builds fire stations, would be required to conduct an engineering assessment to provide a detailed needs/cost analysis.

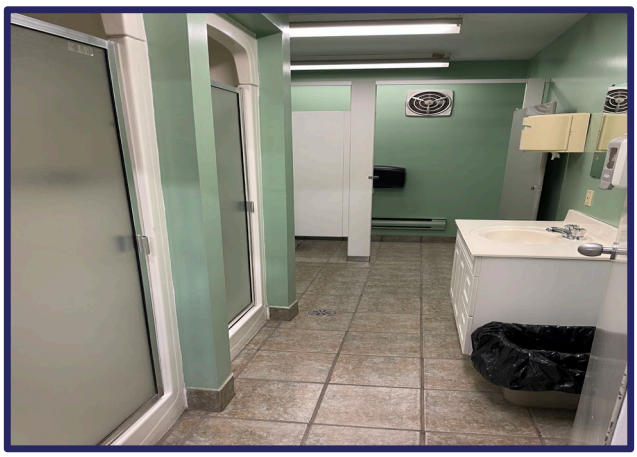
Based on the forecasted extent of construction/ renovation, this facility may not meet post-disaster requirements mandated for any new emergency response facilities.

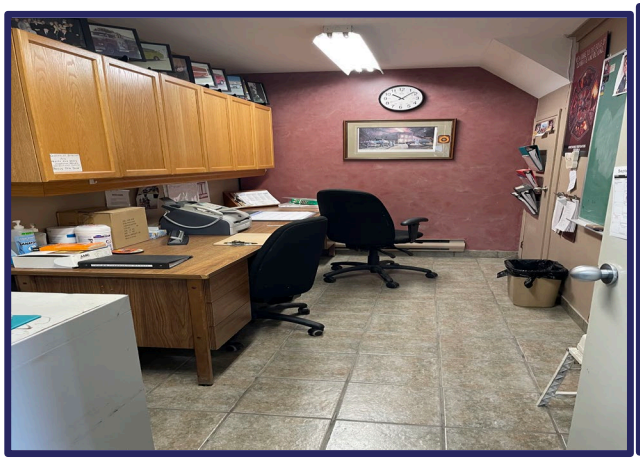
Station #4

Station #4 contains three bays for fire apparatus. This is not a drive-through station.

Apparatus Bays and Storage

Training Room / workspaces / officer area





Washroom with shower facility / SCBA filling station

This station is equipped with a training room and kitchen facilities and is not designed for housing a 24/7, full-time contingent. There is an opportunity to take advantage of the second-floor training room to set up firefighter quarters and lockers. This would require this room to function in a dual capacity, necessitating fold-away beds.

There are male and female washrooms, along with one office for use by officers and firefighters.

Station Concerns

- There is a general lack of storage for equipment, which would be a concern if this station were turned into a full-time station.
- Firefighting gear is exposed to exhaust contamination. There should be a separate room with its own ventilation system to protect the bunker gear from diesel exhaust, allowing for proper ventilation of off-gases.
- The training room is very small and does not present a conducive learning environment.

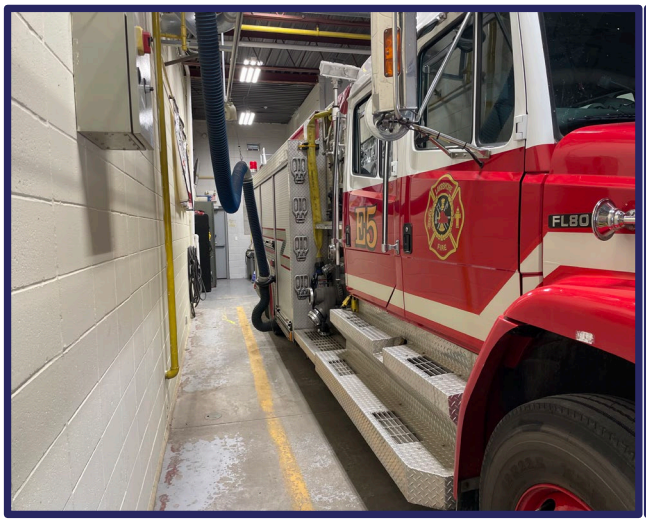
A third party that designs and builds fire stations would be required to complete an engineering assessment to provide a detailed needs/cost analysis.

Based on the forecasted extent of construction/ renovation, this facility may not meet post-disaster requirements mandated for any new emergency response facilities.

Station #5

Station #5 has three bays, with no drive-through capability.

Apparatus Bay



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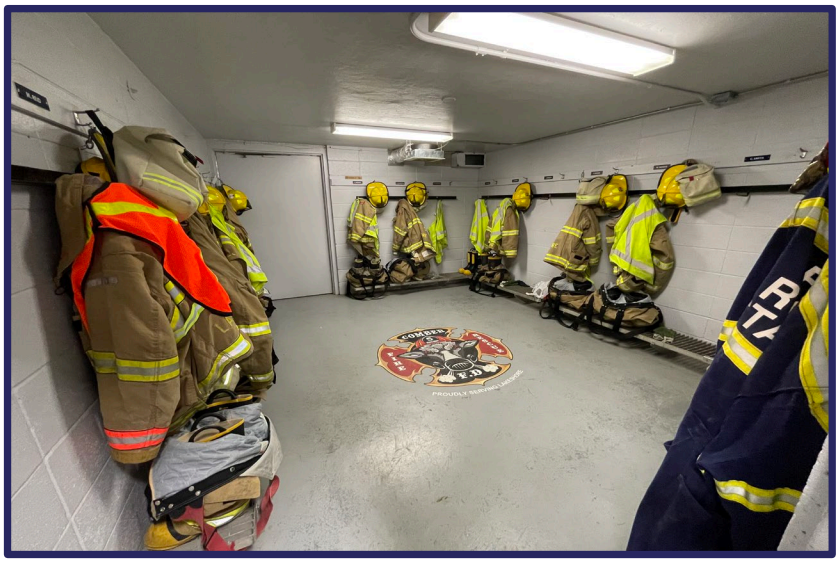
Office, Training Room, and Exercise Equipment

Bunker Gear Room



This station is equipped with a training room and kitchen facilities. It was not designed for housing a 24/7, full-time contingent. Even though a key consideration of this report is around stations 1 and 3 as being future full-time stations, if this station was considered for full-time staffing, an extension to the building may be required to include proper facilities for up to 25 firefighters.

There is an opportunity to take advantage of the training room and workout area to convert to firefighter quarters and lockers. This would require each area to function in a dual capacity, requiring fold-away beds.

There are male and female washrooms, along with one office for officers and firefighters.

Station Concerns

- Lack of storage for equipment.
- There are no shower facilities.
- No emergency back up power for the station.
- There is a general lack of storage for equipment, which would be a concern if this station were turned into a full-time station.

A third party that designs and builds fire stations would be required to complete an engineering assessment to provide a detailed needs/cost analysis.

Based on the forecasted extent of construction/ renovation, this facility may not meet post-disaster requirements mandated for any new emergency response facilities.

4.2 Fire Station Concerns

Many of the fire stations are nearing or at maximum capacity to store vehicles and equipment. Overall, the concerns noted during the station visits include:

- The proximity of the firefighter's bunker gear in relation to the vehicle exhaust. Even with the exhaust removal/containment systems in place, there is still an opportunity for exhaust contamination. As such, firefighters' gear should be stored in a separate room, away from exhaust contamination.
- All the stations appear to be at or close to maximum capacity for vehicles and equipment storage.
    - There was a notable lack of proper storage areas/ facilities for the equipment at some stations. This can create a tripping/safety hazard to the staff.
- Not all the stations are equipped with an automatic emergency backup power supply.
- Washroom facilities permitting the use of a shower are lacking at two of the stations. This is essential for proper decontamination after a fire. Based on the *OHSA*:
    - Workers who may encounter hazardous chemicals must 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 as they are being driven in and out of the fire station.
- Space is at capacity for many of the stations, and some type of storage facility should be incorporated. Future stations should be built with this space requirement in mind.

4.3 Future Station Options – Full-Time Staffing

The 2018 FUS report stated, *"Essex and Tilbury fire halls are directly adjacent to Lakeshore administrative boundaries, which makes each fire hall a viable option to provide coverage within the Town of Lakeshore; specifically in rural areas of the community where it would be challenging to maintain fire halls."*

Availability of these two stations is not guaranteed, as coverage to their own jurisdiction is primary. The ability to have an automatic aid agreement is a viable option, but it does not guarantee 24/7 coverage. As such, Lakeshore would still be expected to ensure coverage of its own community.

Option #1 – full-time day coverage

In Option #1, the goal is to take advantage of where stations 1 and 3 are located and transition them to full-time stations that can still accommodate a volunteer contingent. In option #1, the full-time component would be effective between Monday to Friday during the daytime.

This option entails stations 2, 4 and 5 remaining as fully volunteer stations.

The approximate cost of this option for staffing would be $600,000-$1 million, depending on the initial level of staffing (i.e., three-person or four-person crews). There would also be costs related to upgrading the fire stations to adequately accommodate full-time staff on site.

Option #2 – 24/7 full-time station, onboarding second station

The second option would be to create a 24/7, full-time station (16-20 firefighters), with a second full-time station to be implemented as funding by the Municipality would allow.

This option would also see stations 2, 4 and 5 remain as fully volunteer stations.

The approximate cost of this option for staffing could be as high as $2.4 million, depending on the initial level of staffing. There would also be costs related to upgrading the fire stations to properly accommodate full-time staff on site. NFPA 1710, regarding the career fire departments, states there are to be four firefighters responding on an engine.

4.4 Feasibility Study

There is a great deal of information to be considered. Before any decision is made, a full feasibility study is recommended by the municipality or a third party experienced in fire station operations. This study will be necessary to understand the requirements to transition the stations to accommodate a full-time staffing contingent.

Call Cluster Map – general location of responses by fire department

The call cluster map illustrates the locations of the calls, which helps inform decisions made regarding the appropriate location of fire stations.

As can illustrated in Figure #10, the bulk of fire department responses are occurring in the areas of stations 1 and 3. As such, any consideration for a full-time contingent should be focused in these two areas.

4.5 Type of Buildings and Options for Fire Stations

FIGURE #11 – CALL CLUSTER MAP WITH FOCUS ON STATION #1 & STATION #3 FROM

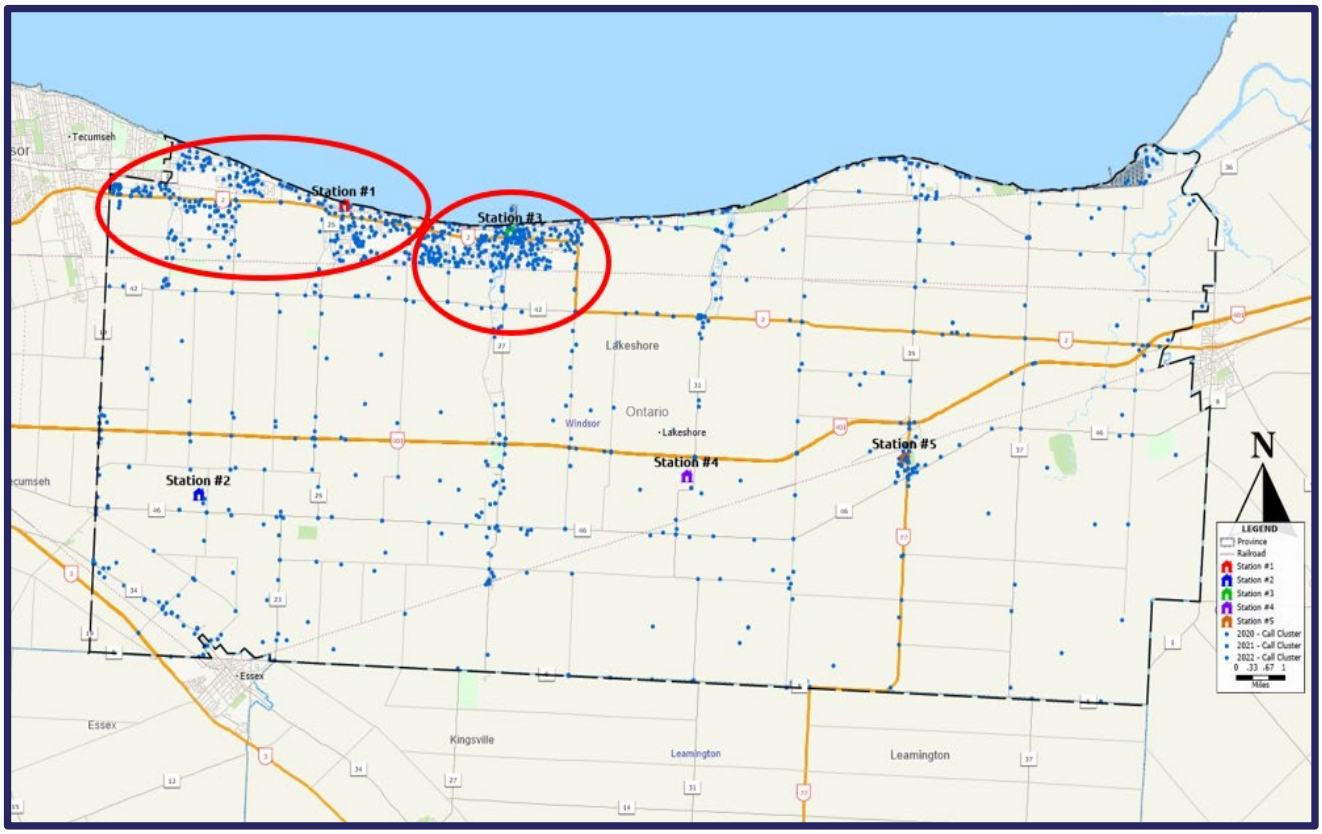


FIGURE #12 - CALLS FROM 2020 THROUGH 2022

Traditionally, fire stations have been stand-alone structures. Some municipalities 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. This partnership with other community buildings is a cost-effective measure in both the use of an existing structure 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 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 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.

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 can 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 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, a diesel extraction system, an exercise room and administration space were 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 the final price. This can increase the building of a station by as much as triple the original estimates or more, depending on the size and functionality of the facility.

4.6 Fire Apparatus - New and Replacement Schedules

This section includes a review of the department's fleet, age and condition, vehicle types, maintenance programs, and the current lifecycle plan and funding model. The department's processes are compared with the FUS and NFPA recommended processes, which are considered industry best practices and standards.

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 FUS rating.

The LFD is well-equipped with pumper trucks, tankers, and support vehicles required for primary response to calls within the Municipality. Based on the present inventory of response and support vehicles, LFD is doing an admirable job in meeting the general needs of the community in relation to emergency response. However, with the growth of the municipality, there will be a need for a second aerial device based on the FUS Technical Paper on Elevated Devices (see Appendix “B” for more information on FUS recommendations.

It should also be noted that the FUS recommends (and assess a fire service based on their stock of spare pumper trucks, tankers and aerial/elevated devices. The key point to note is that for every eight vehicle types in the departments inventory, there should be a spare unit that can be put into service as needed.

However, the replacement plan for a 22-year cycle exceeds the NFPA and FUS recommendations. As call volumes increase, the fire chief would be well advised to petition for a 20-year replacement cycle to meet NFPA and FUS recommendations.

4.6.1 Fire Underwriters Survey – Vehicle Replacement Recommendations

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

The Medium Sized Cities or Communities section (highlighted in blue) is the recommendation for vehicle replacement for a municipality the size of Lakeshore. 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 #6: FUS Vehicle Replacement Recommendations[18]

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

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.

[18] Fire Underwriters Survey, "TECHNICAL BULLETIN, FIRE UNDERWRITERS SURVEY™, A Service to Insurers and Municipalities, INSURANCE GRADING RECOGNITION OF USED OR REBUILT FIRE APPARATUS," accessed January 31, 2022, https://fireunderwriters.ca/assets/img/FUS-TechnicalBulletin-InsuranceGradingRecognitionofUsedorRebuilt.pdf

- [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 more than 1,000.

The FUS definition of 1st 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.
- 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 adhere 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, Lakeshore would be demonstrating due diligence towards ensuring a dependable response fleet for the emergency services and the community it serves through a vehicle replacement schedule.

4.6.2 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*. Although the FUS do take refurbishment of vehicles into consideration, no credit rating is assigned to vehicles over 30 years of age.

4.7 Vehicle Maintenance

LFD does not have its own mechanical division; all work is handled by the Windsor Fire & Rescue Service Maintenance Division. This is a very efficient location that is close to Lakeshore and ensures that the department's vehicle is being properly serviced by qualified Emergency Vehicle Technicians.

4.7.1 Vehicle Technology

The LFD should endeavour to advance the technological perspective on the fire apparatus through the acquisition of mobile data terminals. 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 mobile data terminals can open the overhead doors of the fire stations rather than using a small remote control that can be lost. The Municipality's Information Technology Division would be responsible for supporting the operating systems.

The mobile data terminals 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 commander will use this information to direct their crews to specific areas of a structure to perform an assigned task and improve the situational data.

LFD should initiate and develop a pre-incident plan program. LFD 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 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 completing additional plans if an individual were to be the program's co-ordinator and direct crews on which structures to complete. They would also draw the diagrams and upload information into the computer system. All pre-incident plans should be completed in compliance with NFPA 1620, *Standard for Pre-Incident Planning*.

4.7.2 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 LFD is equipped with 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 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*. LFD is following this replacement standard.

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 what they wore into a fire is cleaned and the contaminates are not taken home with them, where others could become exposed to the toxins. For LFD, this is a challenge as none of the fire stations have room to install personal lockers for all volunteer firefighters.

LFD should ensure that SOGs pertaining to the cleaning, inspection, of and maintenance of bunker gear is current and meets manufacturer's requirements.

4.8 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 drones 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, forest fires, 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 self-contained breathing apparatus (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 technology progresses it is important to monitor the benefits and opportunities to integrate these devices into the fire service.

4.9 Elevated Device

A fire occurring in a higher construction building could strain fire service resources. The OBC permits structures up to six floors to be built using ordinary wood construction materials. These construction changes limit firefighters' effectiveness in containing the fire to the apartment of origin. In designs made of wood construction, a fire could spread rapidly and be difficult to manage and control. With the inclusion of lightweight construction components, this will increase the risk level for firefighters who fail to contain and control the fire. LFD is fortunate in that it owns an aerial device.

With the increased residential developments, the municipality should also anticipate an increase in industrial, manufacturing, commercial and mercantile occupancies. These buildings are growing in both size and height to allow tenants to expand their operations without expanding the structure's footprint (wherever possible). More significant sized buildings may require additional resources from LFD and neighbouring fire services when a fire occurs. Requests like this become a challenge and a liability if the non-LFD firefighters have not received training to fight fires in more extensive and higher structures. NFPA 1710 has established a standard for the number of firefighters required to fight a fire in different-sized occupancies. These include:

Occupancy Description	Number of Firefighters Required
A two-storey single-family dwelling that is a minimum of 186 m^2 (2,000 sq ft), with no basement and no exposures present.	Require 16 firefighters, 17 if an aerial device is in use.
Open-air strip shopping center ranging from 1203 m^2 (13,000 sq ft) to 18,209 m^2 (196,000 sq ft)	Requires 27 firefighters, 28 if an aerial device is in use.
Apartment within a three-storey garden-style apartment building of 111 m^2 (1,200 sq ft)	Requires 27 firefighters on the scene, 28 if an aerial device is operating.

A high-rise in which the highest floor is greater than 23 m (75 ft) above the lowest level of fire department vehicle access.	It requires 38 firefighters on the scene and 39 if an aerial device is in use.

During the daytime, LFD has difficulty attaining the minimum number required for a residential structure, let alone fighting a fire in a high-rise. The officer in charge can call in mutual aid, but concerns become whether those responding have training in fighting a high-rise fire. Is the responding fire department already at a fire, and does it have resources it could send to assist LFD? Mutual aid is not to be used to support LFD's normal operations. Their neighbours may also be experiencing the same firefighter shortages and do not have extra to send.

A fire at a large industrial or commercial complex will also stretch LFD's daytime resources to the limit, resulting in the need to call in assistance from neighbouring fire departments. The same questions come into play as with a high-rise fire. This is another reason for LFD to determine the feasibility of employing full-time firefighters from Monday to Friday during the daytime.

Other points for LFD to consider for high-rise type construction:

- It may require additional staffing, equipment, and training.
- Ensure SOGs, policies, equipment, and high-rise training are in place to fight fires in higher structures.
- Follow FUS – Table of Effective Response – Re: Ladders and Aerials: When are they required or needed.
- Enter into a response agreement with a neighbouring fire department for the immediate response of an aerial when Lakeshore receives a confirmed fire in structures over three storeys.
- Give consideration to when the next pumper is due for replacement to acquire a Quintuple combination pumper (Quint), a more versatile apparatus to operate as the front-line apparatus out of the station to which it is assigned.
- LFD lacks the resources to develop and maintain an active pre-incident plan program. Pre-planning before an incident occurs, such as fires in high-rises, is essential for efficient operations and the safety of the firefighters at the incident.

Even though LFD has an aerial device and has the ability to call upon neighbouring fire departments for an elevated device; it is recommended by the FUS Technical Document that a community of this size with the number of high-rise buildings should have at least two elevated devices. This is where the purchase of a Quint type vehicle (to replace a present pumper truck) can provide the Department with a second elevated device while at the same time being able to use it as a first run response unit. In effect, the size of the fire department's fleet does not expand, just the

type of vehicles it has will change. By not expanding the size of the fleet presents a cost savings to the Municipality.

Note: *Appendix "B" has information on the FUS recommendations relating to the need for an elevated device. The Municipality does have some large homes and other structures that exceed the reach of the average ground ladder of 10 meters (approximately 30 feet), but it has not recorded a recent fire in one of the large structures.*

Note: *the NFPA and FUS identify three levels of hazard occupancies in relation to the need for one or more aerial devices. These are high-hazard occupancies, medium-hazard occupancies and low-hazard occupancies. Lakeshore is a community that has schools, nursing homes, high rise buildings and an industrial sector. This would equate to the need for at least four pumper trucks and two ladder trucks (or combination apparatus with equivalent capabilities). For the aerial/ladder truck this could also mean the incorporation of a tele-squirt with more than a 50" reach. This type of vehicle would offer extended water stream capabilities, along with possible rescue (depending on the type of elevated extension).*

4.9.1 Options

Even though EMG is suggesting that future consideration be given to the purchase of a second aerial/elevated device once the fire stations and staffing issues have been addressed. EMG believes that utilizing neighbouring departments facilities will suffice in the short-term until fleet adjustment can be made.

Section 4 – Recommendations

Recommendation #24

Address the list of station concerns noted in section 4.2 of the report.

Note: *an overview of concerns is also noted in the adjoining Rationale section.*

Estimated Cost: A full assessment will be required by the facilities department to obtain an estimate of costs.

Repairs could range from $40,000 to $100,000 or more.

Suggested Timeline: Short to Mid-term (1-6 years)

Rationale: The Lakeshore fire stations are nearing or at maximum capacity for storage of vehicles and equipment. Overall, the concerns noted during the station visits include:

- The proximity of the firefighter's gear 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.
- Washrooms including showers are required in all stations. Facilities for both male and female firefighters.
- Stations require generators

Recommendation #25

In consultation with the fire chief, Council to consider a feasibility study of the two future staffing options presented:

- **Option #1** – Full-time Day Crews
- **Option #2** – 24/7 coverage at two of the present stations.
- **Option #3** – a combination of a day time station with the other being 24/7 coverage.

Conduct a feasibility study by the Director of the Works Department or through a third party.
Estimated Cost: Option #1 - $600,000 $1 million; Option #2 - $1.9 – 2.4 million; and the Feasibility Study.

Suggested Timeline: Mid to Long-term (3-10 years). Possibly longer dependent on the option

Rationale: The intent of the options suggested are to provide the most efficient use of resources while improving coverage for the community.

Recommendation #26

The fire chief needs to identify the present fire vehicle stock to ensure that there is a spare pumper truck and elevated device available in the case that one of the front-line units is put out of service for any mechanical reason.

Estimated Cost: A new pumper truck or elevated device can range from $900,000 up to $2 million.

Suggested Timeline: Short-term assessment to be made and plans put into place for future spare units, as needed.

Rationale: The FUS recommends and assess a fire service based on their stock of spare pumper trucks, tankers, and aerial/elevated devices. The key point to note is that for every eight vehicle types in the departments inventory, there should be a spare unit that can be put into service as needed.

SECTION 5: EMERGENCY MANAGEMENT

5.1 Emergency Management Program Overview

The Emergency Management and Civil Protection Act (*EMCPA*) prescribes responsibilities to municipalities to develop and implement an emergency management program, which must be adopted by the council of the municipality as a by-law. Further, under *EMCPA* the municipality is required to formulate an emergency plan governing the provision of necessary services during an emergency and is required to establish the procedures detailing how employees of the municipality and other persons will respond to the emergency. The council of the municipality shall by by-law adopt the emergency plan.[19] .

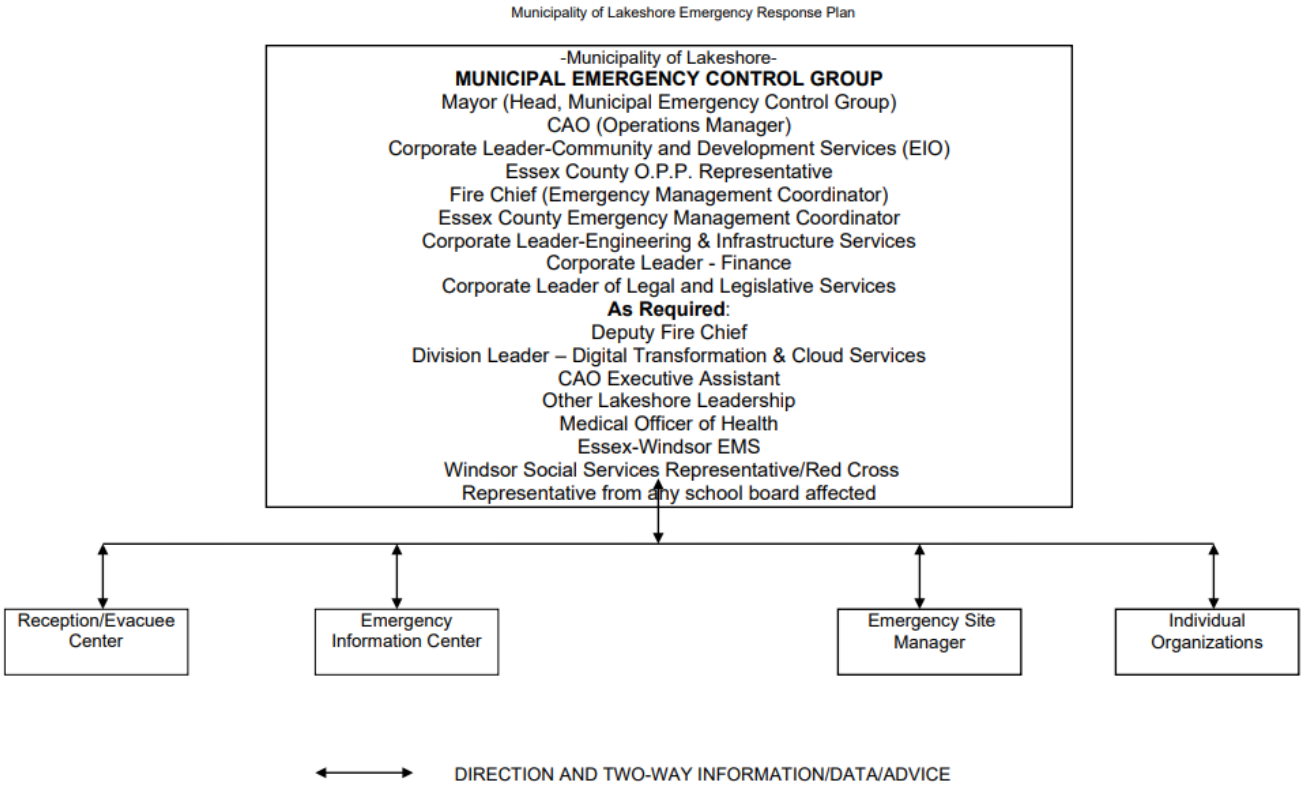
The municipality of Lakeshore adopted By-law 59-2016 on the 14th of June 2016, repealing the previous By-law 100-2005. The By-law meets the requirements of the *EMCPA* with respect to an emergency management program, an emergency response plan (ERP), as well as the requirement for the emergency plan to be reviewed annually.

The *EMCPA* also stipulates that municipalities are to conduct training programs and exercises. In compliance, the municipality conducted a Municipal Emergency Control Group Training and Exercise remotely in 2022. It is recognized by the Community Emergency Management Co-ordinator (CEMC) that the ERP, Hazard Identification & Risk Assessment, and Critical Infrastructure require housekeeping in 2023.

By-law 59-2016 – *A By-law to Adopt and Implement an Emergency Response Plan for the Town of Lakeshore* conforms in principle to Part II Municipal Standard of Ontario regulation 380/04 made under the *EMCPA*. For instance, the composition and responsibilities of the emergency management program committee meet the requirements of section 11 of the regulation, members of the municipal emergency control group are identified as per section 12 of the regulation, an emergency information officer has been designated as per section 14 of the regulation, and the Municipality's ERP consists of an ERP that assigns responsibilities and sets out the procedures for notifying the members of the municipal emergency control group of the emergency, as per section 15 of the regulation. However, further information will be provided to outline a plan that is Incident Management System (IMS) based. IMS is recommended, but not mandatory in Ontario.

[19] Ontario, "Emergency Management and Civil Protection Act, R.S.O. 1990, c. E. 9," accessed June 28, 2023, https://www.ontario.ca/laws/statute/90e09

This current plan is designed as an all-hazards response plan that then provides guidance for any type of emergency that may occur within the community. An organizational chart that outlines the reporting structure of the Emergency Control Group is shown below.



The CEMC duties have been assigned to the fire chief with the deputy fire chief as the alternate.

The latest version of the ERP was dated April 1, 2019, with a last full review in 2020. It is a legislative requirement for ERPs to be reviewed and updated each year. In some cases, 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.

The ERP identifies a primary and secondary emergency operation centre (EOC) in which the two locations are approximately 24 kilometres between each other. The alternate EOC is the primary EOC for the County of Essex. Use of this location as a secondary EOC is beneficial in that its physical configuration is ideal. Conversely, it is recommended that a plan be developed to understand the

full logistical ramifications of using this alternate site. In the event of a major emergency within the Municipality of Lakeshore that expands into other municipalities within the County of Essex, the County EOC may be required to be activated and therefore be staffed by County personnel deeming them unavailable for the Municipality of Lakeshore.

5.2 Incident Management System

Interagency, multi-jurisdictional, multi-government, and *multi-disciplinary* are terms used when operating in a large-scale emergency environment. 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 equivalent to the IMS.

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."[20]

IMS is not identified in the ERP or other response plans. The planning that is in place identifies individuals, or alternates, to conduct certain operations. In a longer-term event, this plan will tax the individuals as time passes and thereby leave gaps in the response or provide for the potential of substitutions of inadequately trained individuals.

Within the IMS structure a similar plan or processes are required but allow for others who are trained in the processes to complete the function. This structure allows for 8-hour shift rotations with 3 shifts on a 24-hour period. When one shift finishes, they are then able to rest while the next one commences. The third shift remains 'on-deck', should other issues or events arise.

An example of one of the key roles in IMS is Finance. The concept of IMS is not that the person fulfilling the role of Finance is a trained accountant or works within the Finance Department. Ultimately having a person fulfil the function within IMS for what they are professionally trained for is the most favourable, but not always possible. Within the IMS, the processes are established so that other personnel can fill the position of Finance. The Treasurer for the municipality would assist in the development of these processes so that adequate documentation and tracking are in place. Within the IMS training these processes would be taught and understood so that anyone with this

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

minimum training can fulfill this function. This same process would also be utilized for other service areas.

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 is no minimum training identified for the EOC. Most incidents are routinely dealt with without activating the EOC. The EOC is activated when an event is expected to expand in complexity and duration, requiring an efficient coordination among departments or responding agencies.

There are three key types of incident management levels that the municipality should consider as their basis for staff related training:

- **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.

The IMS doctrine from the Province of Ontario is designed to be consistent with the Canadian Standards Association (CSA) *Z1600 – Canadian Emergency Management and Business Continuity Program Standard*. It is recommended that during the 2023 review of the Municipal ERP, the plan be redeveloped to incorporate IMS principles. A review of the County of Essex ERP will provide guidance in local plan development and align plans in case of a major emergency within a larger geographical area.

During a flood, ice/snowstorm, utility disruption, sever wind, major fuel leak/spill, etc., there is a high likelihood of the implementation of a Unified Command structure. Additional agencies to consider for the EOC include:

- Fire Marshal's Office
- Ministry of Environment

- Ministry of Transportation
- Non-Governmental Organizations
    - Canadian Red Cross
    - St. John Ambulance
    - Samaritan's Purse, etc.

5.3 Agreements and Non-Governmental Organizations

As noted, longer term emergency responses can quickly tax local resources. Utilizing Non-Governmental Organizations (NGOs) will aid in ensuring maintenance of key functions throughout an event. Many of these NGOs are national and international where they can pull resources from unaffected areas to assist in a local impacted area. Within the planning, training, and exercises, the processes used by these NGOs of choice should be incorporated to ensure a smooth transition from internal staff to the NGO as they arrive and begin to function. These

NGOs provide many specialized services with some focusing on specific areas more that others. Below is an outline of the focused services for some of the more commonly known NGOs. There may be other resources within the local area that could also be utilized in a similar manner.

Psychological support to the community:

- The Salvation Army
- The Canadian Red Cross
- Samaritan's Purse
- Adventist Community Services Disaster Response
- Mennonite Disaster Service
- Billy Graham Rapid Response Team

Animal welfare:

- SPCA
- Humane Society
- Clean-up & Debris Management
- Mennonite Disaster Services
- Samaritan's Purse

- Team Rubicon

Clothing:

- Salvation Army
- The Canadian Red Cross

Donation Management:

- Adventist Community Services Disaster Response
- The Salvation Army
- The Canadian Red Cross

Food Services:

- The Salvation Army
- The Canadian Red Cross
- Global Medic

Medical Response Support:

- St. John Ambulance
- The Canadian Red Cross
- Global Medic

Rebuilding:

- Mennonite Disaster Service
- Samaritan's Purse
- World Renew Disaster Response Services
- The Canadian Red Cross

Shelter Services:

- The Canadian Red Cross
- Global Medic

Establishing the functions of an NGO within a response plan brings a reliance on the services that they provide. This can be especially true in the case of a widespread major emergency where, without agreement, these NGOs may deploy their resources elsewhere. It is best that a formal agreement with clear understanding from both parties be utilized to avoid any confusion that would need to be corrected during the time of an emergency. The NGO Alliance Ontario is a collaborative group of NGOs. Their joint statement of the Alliance notes the purpose of the cooperation, "To increase mutual awareness and enable a greater understanding of the unique roles and responsibilities, identities, mission and provisional capabilities of each member agency."[21] This alliance provides the municipality with a simple one-stop-shop to obtain information and guidance into agreements.

5.4 Educating and Advising the Public

Communication is essential for any large-scale incident. A mass notification system sends messages via personal cell phones to communicate to the public during an emergency. The County of Essex and all other municipalities in the county, with the exception of Lakeshore and Leamington, utilize Everbridge Notification System. The County ERP on page 53 notes, "Everbridge Mass Notification provides robust analytics, GIS targeting and enables users to send notifications to individuals or groups using lists, locations, and visual intelligence. This comprehensive notification system keeps everyone informed before, during and after all events whether emergency or non-emergency."

Alternate communication methods between the emergency site(s), the EOC, as well as from the Head of Council to the public should be reviewed and included in planning. During larger scale emergencies, cellular networks are impacted by the volume of traffic or inclement weather causing damage or power issues. Reliance on a single source of communication may cause problems. Within the planning clear directions in activating and utilizing alternate communication sources would be imperative.

Many municipalities take advantage of social media platforms including their municipality's website to promote the need for residents to be prepared for an emergency. As it states on the Municipality's web page, having education about being prepared in advance and having supplies readily available to take in an emergency for up to 72 hours is important. The Municipality of Lakeshore should consider additional information. Common misunderstandings are the difference between a weather watch and a warning, shelter in place direction, and spring freshet levels. The

[21] NGO Alliance of Ontario, "Creating a Climate for Cooperation," accessed June 28, 2023, https://www.ngoallianceontario.ca/

Municipality's website links to outside agencies such as the Province of Ontario Emergency Preparedness Site and the Government of Canada Emergency Preparedness. The Municipality's webpage could reference several types of emergency events that align to the Hazard Identification and Risk Assessment and provide guidance to residents and visitors.

Each spring brings a level of flooding in the local municipality. Higher water levels bring the chance of some flooding events in other communities are historically controlled and mitigated by way of a Flood Emergency Plan. Prior to the spring melt, the 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 could be achieved through social media, public messaging on radio and television stations, print media, and active education to individuals and groups. This same principle can also be followed for other noted hazards the municipality is exposed to.

While using social media and the city website is effective, in some demographics it is important to meet with people in times of calm to provide them with the education and advice prior to an emergency occurring. This education can then direct the people to social media and/or the city website to receive updates and specific direction in times of emergencies. The two conservation authorities with jurisdiction in Lakeshore have an excellent procedure to notify the public of significant events.

Active Shooter/ Hostile Event Response (ASHER) Program

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. 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 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 5: Recommendations

Recommendation #27

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.

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate (0-1 year)

Rationale: This documentation provides a tracking of changes over time and the rationale for the changes.

Recommendation #28

Develop a plan to understand the full logistical ramifications of using the Alternate EOC at its current location.

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Short-term (1-3 years) ongoing

Rationale: In the event of a major emergency within the Municipality of Lakeshore that expands into other municipalities within the County of Essex, the County EOC may be required to be activated and therefore be staffed by County personnel, deeming them unavailable for the Municipality of Lakeshore.

Recommendation #29

The Municipality of Lakeshore adopt IMS to aid in understanding the means of mitigating and recovering from an emergency with the inclusion of IMS within the ERP and other specific hazard plans.

Due to the importance of staff understanding their roles and responsibilities in the EOC, implement a policy that identifies IMS 200 as the minimum standard for staff required to be in the EOC with IMS 300 being the goal for all department heads.

Estimated Cost: Staff time (courses are offered at no charge). Repairs could range from $40,000 to $100,000 or more.

Suggested Timeline: Short-term (1-3 years) ongoing

Rationale: Incident Management training will provide all EOC members a consistent level of training and understanding of their roles within the EOC structure.

Recommendation #30

Recognition of services required in response to emergencies be noted within the HIRA. Agreements with NGOs to aid in the provision of services beyond the scope and/or resources of local staff will ensure adequate responses. Formalized agreements with the needed NGOs will provide some assurances of capability.

Estimated Cost: TBD – Agreement Costs.

Suggested Timeline: Short-term (1-3 years)

Rationale: Utilization of NGOs under formalized agreements will provide ongoing services for the response and mitigation of major emergencies over a longer term.

Recommendation #31

With the assistance of policing agencies, the Municipality of Lakeshore include, as a Response Plan, the Active Shooter/Hostile Event Response (ASHER) program. The section should include an integrated response program comparable to NFPA 3000, Standard for an ASHER Program.

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Short-term (1-3 years)

Rationale: Preparing a response plan for ASHER will ensure adequately resourced responders, with equipment and training, to respond to potential and real threats.

Recommendation #32

Investigate and include in planning alternative communications between the EOC and emergency site(s) as well as from the Head of Council to the public.

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate (0-1 year)

Rationale: After action reports of many major emergencies find that the greatest difficulties in managing an emergency are due to communication issues. Providing guidance in communication sources and alternate sources will ensure linkages to the site and to the public are maintained.

Section 6: Mutual Aid, Automatic aid and Fire Service Agreements

6.1 Mutual Aid

The Provincial Mutual Aid Program is a borderless, reciprocal agreement that allows participating fire departments to assist other fire departments who have taxed their own local resources in the mitigation of emergency events. Under this plan, assistance is at no direct cost to the department requesting the assistance. Public Fire Safety Guideline 04-05-12 notes, "Mutual aid plans allow a participating fire department to request assistance from a neighbouring fire department authorized to participate in a plan approved by the Fire Marshal[22]". Section 7 of the *FPPA, 1997, S.O. 1997, c. 4*, provides the authority for the Fire Marshal to appoint Fire Coordinators who in turn establish and maintain the Mutual Aid Plan.

The local Mutual Aid Plan has been established within the County of Essex. The current Provincial Mutual Aid Plan is established from 2022-2026. The Provincial Mutual Aid Plan requires an annual review to be completed prior to April of each year. Fire departments within the County of Essex and Windsor, inclusive of the LFD, should ensure the local mutual aid plan is reviewed and up to date. The current Lakeshore By-Law that permits the LFD is By-Law 118-2005. It is recommended that with the updating of Mutual Aid Plans (i.e., 2022) the plan is presented to council with an updated By-Law. This provides council with an understanding of the services received and provided by the LFD.

6.2 Automatic Aid

Automatic Aid Agreements allow for fire stations from other jurisdictions, that may be closer to an emergency event, to respond either first, or in conjunction with the local municipal fire department. "Automatic aid is generally considered in other jurisdictions as a program designed to provide and/or receive assistance from the closest available resource, irrespective of municipal boundaries, on a day-to-day basis[23]." These agreements allow for a level of service that is manageable and sustainable within a given area of a municipality. These agreements are like the Mutual Aid Plan but differ in that there is an expectation that a

[22]Public Fire Safety Guidelines, PFSG 04-05-12, Mutual Aid, http://www.mcscs.jus.gov.on.ca/english/FireMarshal/FireServiceResources/PublicFireSafetyGuidelines/04-05-12.htm

[23] Public Fire Safety Guidelines, PFSG 04-04-12 Automatic Aid, http://www.mcscs.jus.gov.on.ca/english/FireMarshal/FireServiceResources/PublicFireSafetyGuidelines/04-04-12.html

call for service will occur regularly and is thereby expected to occur. It is also established within the agreements as to what level of service will be provided. Some examples are strictly for structure fires, whereas others may bean all-encompassing service. These are written agreements and enacted through Council in the form of a By-Law. The authority to enact such agreements is derived from the *FPPA, 1997, S.O. 1997, c. 4*. It states:

Automatic Aid Agreements

> 1(4) For the purposes of this Act, an automatic aid agreement means any agreement under which,
>
> (a) a municipality agrees to ensure the provision of an initial response to fires, rescues and emergencies that may occur in a part of another municipality where a fire department in the municipality is capable of responding more quickly than any fire department situated in the other municipality; or
>
> (b) a municipality agrees to ensure the provision of a supplemental response to fires, rescues and emergencies that may occur in a part of another municipality where a fire department situated in the municipality is capable of providing the quickest supplemental response to fires, rescues and emergencies occurring in the part of the other municipality. 1997, c. 4, s. 1 (4)

In general, these agreements are paid agreements that come with an annual retainer and/or a by-call user fee. At times these can be reciprocal and equal agreements where there is no fee attached. There are also some provisions within these agreements that allow for the coverage of expenses by the responding fire department.

The Municipality of Lakeshore has one Automatic Aid Agreement. This agreement is with the Municipality of Chatham-Kent under By-Law 77-2005. EMG has reviewed the agreement and observed that, while in need of updating, it remains in effect. The agreement outlines that Chatham-Kent Fire and Rescue, from Tilbury Station 19, will respond to structure fires only within the Municipality of Lakeshore within a set area as defined within the agreement.

With the age of the current Automatic Aid Agreement with Chatham-Kent and changes in legislation, the LFD should consider updating the current By-Law and Automatic Aid Agreement to ensure the coverage area is adequate and the service level provided is done with certified firefighters that Chatham-Kent Fire and Rescue can provide. The certification must be in accordance with Ontario Regulation 343/22 *Firefighter Certification*.

Further specifications within the agreement should include that reports should be sent to LFD from Chatham-Kent Fire and Rescue as an 'Automatic Aid' type incident. This same report is also required to be sent to the OFM in the same form. The LFD should then submit the incident reports to the OFM specific to the type of incident that Chatham-Kent responded to (i.e., structure fire). This process avoids duplication of reporting the specific incident's type. By receiving these incident reports the LFD administration can then track usage and reconcile invoicing against the incidents responded to.

Additionally, it is in the best interest that fire departments in an automatic aid agreement identify annual training sessions where firefighters get acquainted with personnel and the equipment of each department. These combined training sessions also build the working relationship and morale between fire departments. Without combined training sessions to practice as a team, the team cannot effectively function, and breakdowns can occur. Additional benefits of the joint training sessions are to identify gaps in equipment, communications, or training prior to a real emergency.

It is highly recommended that when the current Automatic Aid Agreement with Chatham-Kent is 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 agreement should lay out a commitment to ongoing meetings with senior fire department leadership. These 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 that enhances fire protection for the participating agencies and communities.

6.3 Fire Service Agreements

6.3.1 Medical Tiered Response Agreement

The Medical Tiered Response Agreement with EWEMS was provided to EMG for review. This agreement does not appear to be signed and there does not appear to be a conjoined by-law authorizing the fire chief to form an agreement. This agreement appears to encapsulate all fire departments within the Essex Windsor area. As it is Council that sets the level of service, it is recommended that this Medical Tiered Response Agreement with EWEMS be formally introduced to council, and supported with the passage of a by-law once the agreement is reviewed and updated.

The agreement states, "It is assumed that fire services will be tiered to calls in which their assistance is required as part of their responsibilities identified in the *Fire Protection and Prevention Act*, 1997 and any other applicable provincial and municipal legislation." These primary service level calls that form the foundational response types for most fire departments are listed.

Emergency Call Types

a) Multi-Casualty Incidents

b) Industrial Accidents

c) Entrapment, Extrication, and other Rescues

d) Motor Vehicle Collision requiring EWEMS

Specific tiered medical responses are shown in a table within the agreement. The following response types for the LFD are shown within a table. These are consistent with most volunteer fire departments in the county and are defined within the agreement.

Fire Service	Response Type
Cardiac Respiratory Arrest	Yes
Airway Obstruction	**No**
Unconscious Unresponsive	**No**
Limited Resource	Yes
When requested by paramedics	Yes

Approximately 12% of LFD's call volume is medical-related.

As part of the preventive maintenance program of each defibrillator, replacement of defibrillators, ongoing supplies and associated training, this agreement, in concert with the Essex County Council Report 2007-R0005-LA-07-18-BB, provides an annual grant of $1000.00 per defibrillator to LFD. This agreement states, "At the commencement of each calendar year, each fire service must submit an inventory list of Tiered Response Defibrillators to determine eligibility for the grant funding." In the 2021 operating budget, $5,000.00 was reported to be received from the County of Essex for this defibrillator maintenance.

The agreement outlines the supply of expendable medical supplies. It notes:

- EWEMS will supply expendable medical supplies used by the Fire Service partners at medical response incidents. Such items include:
    - Medical oxygen cylinders

- Defibrillator Pads
- Oxygen Masks
- Oropharyngeal airways
- Burn gel dressings
- Suction canisters

Training for firefighters is outlined within the agreement. It states, “EWEMS, in collaboration with the Fire Services and local medical direction will review the current International Liaison Committee On Resuscitation (ILCOR) guidelines, the current MOH&LTC Standards of Practice in Resuscitation, the Ontario Base Hospital Group (OBHG) protocols and the direction of the Provincial Medical Advisory Committee (MAC) to determine the current and future best practice in developing a robust, comprehensive and consistent resuscitation training curriculum to be delivered to the respective fire services.” This ensures that those responsible to respond to medical tiered emergencies are provided with the most up-to-date training for medical responses for cardiac related emergencies.

The agreement does not provide any guidance for training required to respond to other types of medical and/or trauma related injuries. This should be considered either within the agreement or through the Fire Department regular training initiatives. Base Hospital provides a training document that firefighters are to achieve.

Each medical response requires a Medical Assist Report (MAR) to be generated. This MAR, along with the downloaded data from a defibrillator (where appropriate) will be audited by EWEMS. The agreement does not outline how EWEMS will provide feedback on these medical emergencies that will enable firefighters to learn and improve their standard of care. The addition of audit review feedback into the Medical Tiered Response agreement would be beneficial to those requiring the service in the future.

6.2.2 Cyanide Antidote Deployment – Windsor Regional Hospital

This agreement, under By-Law 54-2016 provides the ability for the LFD to benefit from the EMS Supervisor to carry and administer/deploy cyanide poisoning antidote. During a fire, cyanide is one of many gasses that are produced as a result of combustion. Fire departments in the region felt that this antidote deployment was in the best interest for the health and safety of the firefighters and the public served.

This agreement with Windsor Regional Hospital was enacted on the 24th of May 2016. It is recommended that this agreement and By-Law with Windsor Regional Hospital, in accord with other fire departments from Windsor and Essex, for Cyanide Antidote Deployment be reviewed to ensure adequacy for today's emergency responses.

EMG recommends that all Automatic Aid, Mutual Aid and Fire Protection/Service Agreements continue to be reviewed annually and revised if necessary. Particular attention should be paid to adherences to regular defined review periods and/or expiry dates identified. Also, a page listing the dates of review and areas revised should be an addendum to any of the revised agreements and associated by-laws

Section 6: Recommendations

Recommendation #33

Fire departments within the County of Essex and Windsor, inclusive of the LFD, should ensure the local mutual aid plan is reviewed and up to date. It is further recommended that with the updating of Mutual Aid Plans (i.e., 2022).

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate (0-1 year)

Rationale: The Provincial Mutual Aid program is updated every 4 – 5 years. The local plans need to be updated to keep in step with the provincial plan.

Recommendation #34

When the current Automatic Aid Agreement with Chatham-Kent is revised and updated, include a defined commitment to regular training that designates the position accountable for completion of this task

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate (0-1 year) ongoing

Rationale: Joint training initiatives under an Automatic Aid Agreement ensure smooth operation on the emergency scene. This also increases the overall health and safety of all fire crews working collectively and the residents being served.

Recommendation #35

Formally introduce the Medical Tiered Response Agreement with EWEMS to Council.

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate (0-1 year)

Rationale: As council sets the level of service for a local fire department it is incumbent upon the fire chief to present agreements to council for passage via by-law before providing the service therein.

Recommendation #36

The Medical Tiered Response Agreement does not provide any guidance for training required to respond to any types of medical and/or trauma related injuries other than those that are cardiac related. An increased level of training should be considered either within the agreement or through the Fire Department regular training initiatives.

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate (0-1 year) ongoing

Rationale: Ensuring that firefighters have the skills, knowledge and tools required to respond to emergency calls provides for better outcomes for those needing assistance.

SECTION 7: Finance, Budgeting, Fees, & Cost Recovery Mechanisms

7.1 Finance

EMG reviewed several documents in preparation for the review of finances as they relate to the operation and function of the LFD. These documents included the Corporate Strategic Plan 2019-2022, the KPMG Service Delivery Review (dated September 14, 2020), Fire Chief Williamson's Report to Council (dated April 20/2021), and various operating and capital budget documents that were made available for review. Our review included Statistics Canada data as well as data collected from other Ontario municipalities through BMI Management Consulting's annual consolidated data gathering efforts.

The current methodology of establishing budgets for the LFD follows a pattern similar to that of many other Ontario municipalities wherein successive budgets are based on existing budgets with changes proposed based on a variety of factors, primarily Consumer Price Index (CPI)/inflation rate fluctuations.

The COVID pandemic of the last two years has caused CPI increases over and above the norms that Canadians had become accustomed to in recent years, hence 1.5-3% budget increases have been commonplace in many Ontario communities. With the CPI for 2022 having been calculated at 6.8%, many municipalities were hard-pressed to follow suit with such tax increases.

The table below illustrates the CPI/inflation rate as published by Statistics Canada for 2022 (Ontario's CPI for December was 6.7%).

Table #7: CPI/ Inflation Rates for 2022

Month	CPI	Monthly Inflation Rate (%)	Yearly Inflation Rate (%)
January	145.3	0.9	5.1
February	146.8	1	5.7
March	148.9	1.4	6.7
April	149.8	0.6	6.8
May	151.9	1.4	7.7
June	152.9	0.7	8.1
July	153.1	0.1	7.6
August	152.6	-0.3	7.0
September	152.7	0.1	6.9
October	153.8	0.7	6.9
November	154.0	0.1	6.8
December	150.163	0.725	6.838

Few Ontario municipalities purchase milk and eggs; fuel, asphalt and large vehicles are more typically the subject of municipal corporate acquisitions. This observation is offered to give some context to the notion of constructing cost estimates utilizing more sector specific indices which the fire department largely does by examining budget actual expenditures on a yearly basis.

In the fire-centric realm, the cost of fire apparatus, as an example, has risen over 20% over the last two years according to some industry experts. These costs are being driven by a global economy, rising demands for equipment and machinery (equating to longer delivery times), labour shortages, rising costs for component materials, lasting effects of the COVID-19 pandemic, and even the Russia-Ukraine war. It is not unusual to see a million-dollar price tag on a pumper (the mainstay of any fire fleet) in Ontario now – something unheard of a few short years ago.

Recent data compiled by BMI Management Consulting of 114 Ontario communities identified that, as an indicator of local taxation levels, the Municipality of Lakeshore assessment sat at $1,549/per capita in 2021, well within the “low” scale of those communities that participate in the BMI study.

7.1.1 Operating Budget

The 2022 operating budget for the department was established at approximately $2.3, a slight increase over the 2021 budget.

On a per capita basis, the 2022 fire department budget represents an annual cost of $56.92, or $4.74 per month.

Human resource costs for LFD in 2022 accounted for 60% of the budget, which is typical for most volunteer-based fire services with a small complement of career-based staff. For comparison, most full-time/career-based departments experience human resource costs in the 90% range due to notably higher salary costs.

Data analysis of five-year actuals can be helpful in determining future budget allocations, however the impact of COVID-driven pricing on cost forecasting is extremely difficult when supply chain issues, delivery costs, and general higher-than-expected municipal price index increases are considered. EMG notes that for the years 2018 through 2021, the fire department was in a positive operating budget position at the end of each year. As of this writing, 2022 actuals were not available for review.

A full financial analysis of the performance of all cost centers is more appropriately within the realm of Corporate Services staff other than to suggest that continued improvements in service provision by the LFD are sure to have an impact on tax rates. This is particularly true if the council elects to enhance service levels in emergency operations and training by introducing even a small number of additional full-time staff to meet the growing needs of the community.

As a quick snap-shot relative to costs, EMG selected four comparator municipalities based solely on 2022 census population figures from Statistics Canada. The fire services costs for each are illustrated in Table #7.

Table #8: Fire Department Per Capita Costs with Comparator Municipalities

Municipality (Population)	2022 Operating Budget - Fire	Cost per Capita/Year	Cost per Capita/Month
Lakeshore (40,410)	$2.3 million	$56.92	$4.74
Brant (40,548)	$3.0 million	$73.99	$6.16
Timmins (42,012)	$7.1 million	$169.00	$14.08
St. Thomas (43,184)	$6.9 million	$159.78	$13.31
Innisfil (43,459)	$7.6 million	$174.88	$14.57

Fire services in smaller communities almost always appear to be a value proposition when one considers the per capita cost of fire protection relative to the monthly cost of other household consumer goods such as internet or cable TV service.

Virtually, no other municipal entity uses volunteer, or paid-per-call employees to deliver core services to the same extent and effectiveness as a fire department.

The need for the introduction of a limited number of career-based firefighters to support the volunteer-based component of LFD is discussed in another area of this report, however in terms of financial impacts, one must consider whether paying too little for a service really equates to “better”. In the end, ratepayers get the level of service that they pay for.

EMG submits that any increased investment in the fire service is an investment in the Municipality and thus contributes to a quality of life that is palpable in the community.

7.1.2 Capital Budget

The multi-year capital budget forecast for the fire department is well laid out in that it addresses apparatus and equipment needs for most items. During our review of the forecast, EMG paid particular attention to the five-year horizon and notes the following:

- The cost projection noted for the replacement of the Rescue truck in 2024 falls short of reflecting the current acquisition costs of such a vehicle. It is recommended that adjustments be made to better reflect accurate forecasted expenses.
- Beginning in 2025, a significant deficit appears in the funding component of the plan. If reserves continue to be the main source of funding for capital projects, EMG recommends that a strategy be developed for establishing more significant contributions to reserves in the operating budget.
- Currently, no allocation in the capital budget exists for small equipment replacement or hose replacement; both of which are hard assets with definitive life cycles for the most part and depreciative values over their lifespan. EMG recommends that these two elements be shifted to the capital budget with annual funding allocations for each line item.

Beyond the five-year horizon, the cost projection for the replacement compressor (in 2034) is insufficient, especially if the replacement is to include air storage capacity as most contemporary systems do. It is suggested that this valuation would more realistically be documented at $100,000 in 2023.

EMG notes that facility improvements or replacements are not identified as part of the fire department capital plan and as noted in Section 8 of this report, definitive action is required to address these assets and deficiencies which exist (see the Section 4 for additional details). Fire station replacement falls under the auspices of the Facilities Department.

7.2 Revenue Opportunities – Development Charges & User Fees By-Law

New construction and redevelopment of buildings attract more people to live and work in the Municipality of Lakeshore. As a result of this growth, municipalities typically undertake new infrastructure projects (e.g., roads, recreational facilities, fire stations, etc.) to provide a stable level of service for all ratepayers.

The money the Municipality collects from development charges for this new construction pays for a portion of the capital costs due to more people using municipal infrastructure.

These are known as growth-related capital costs. Examples of capital projects development charges could help to fund that are specific to fire services include:

- Building a new (additional) fire station
- Purchasing new (additional) fire apparatus
- Purchasing new bunker gear for an expanded firefighting force

Council approves capital projects every year during the annual budget process and directs the use of development charges to fund growth-related capital projects that benefit the whole Municipality.Without these charges, the Municipality would have to pay for growth-related capital costs from property taxes or another source of revenue.

Aside from increasing tax rates and collecting monies through fees for service, municipalities have very few ways to generate additional revenue to keep tax increases to a minimum. The assessment of development charges on new residential, commercial, and industrial development is one of the few other ways to generate revenue. In this case, it is the intention that the developer pay for the extra costs (and thus increasing demands on existing services) that the growth they are facilitating will create.

It has been long and often said that new development should pay for itself, but this is seldom the case. Ultimately, it is the taxpayer who is left to underwrite the new costs placed on municipalities due to development, especially when development charges are less than adequate.

EMG reviewed the Municipality of Lakeshore Development Charges By-law (number 56-2022, approved for FY2022) Schedule B and noted that the fire department is currently allocated $711 out of the $11,576/ $29,914 (Rural/Urban rates) collected for single and semi-detached residences.

During the next Development Charge review process, EMG recommends a review of the fire department specific costs that are contained within the Development Charge policy with a view to increasing the allocation for fire services and fully identifying those future costs which could be attributed to growth (new or increased fire station size and fleet needs).

EMG also reviewed Schedule E of the User Fees By-law (2022-15) and note the following comments and additional revenue or cost recovery mechanisms:

- Apart from a “Failure to Locate Utilities” provision, there is currently no specific fee stipulated for the response to a hazardous materials incident (such as a fuel spill, or the inadvertent release of natural gas due to a supply line rupture). A suitable fee in

line with other response costs based on time committed should be assessed to the property owner (preferred) or contractor creating the hazard.

- There is currently no fee stipulated to the recovery of costs such as may be necessary when the fire department issues an order under the OFC (i.e., immediate threat to life situation where the Department has to facilitate short-term accommodations for persons displaced by their order). Cost recovery should be assessed to the property owner.
- The term "Recovery – External Services Costs" as contained in the schedule is not well defined and while this leaves some great latitude for interpretation and therefore application by municipal administrators, it also could be the subject of a grievance by a ratepayer or other person/entity receiving an invoice. EMG recommends updated wording be provided for these provisions of the by-law.

7.3 Reserves

The Municipality of Lakeshore currently maintains two fire-department-specific reserve accounts – one receiving all fire department funds allocated through the collection of Development Charges (the current balance is approximately $1.5 million); the other a Fire Equipment and Vehicle reserve (the current balance of this account is approximately $629,000).

Aside from the remarks previously offered in this section of the report regarding near- future capital expenditures, EMG has no additional suggestions for improvement.

Section 7: Recommendations

Recommendation #37

Revise the cost projections for the rescue truck due for acquisition in 2024 to reflect the recent cost increases in the fire apparatus market.

Estimated Cost: $380,000

Suggested Timeline: Immediate (for 2024 Capital Budget)

Rationale: To be reflective of the current marketplace.

Recommendation #38

In 2030, update the cost projections contained in the Capital Forecast for the replacement of the breathing air compressor, fill station, and air storage to reflect anticipated acquisition costs.

Estimated Cost: $100,000

Suggested Timeline: Long-term (7-10 years) in 2030 (for 2034 purchase)

Rationale: The current acquisition cost estimate is overly conservative.

Recommendation #39

Finance and fire department administrators work collaboratively to establish a strategy for council's approval that properly funds the fire department Equipment and Vehicle Reserve in anticipation of the shortfall that is identified to occur in 2025.

Estimated Cost: To be determined

Suggested Timeline: Immediate (for 2025 Capital Budget)

Rationale: Current funding allocations are inadequate.

Recommendation #40

Add two additional line items to the Capital Forecast for the Fire Department (Hose Replacement and Small Equipment) and that these line items be funded with an annual allocation of funds going forward.

Estimated Cost: To be determined

Suggested Timeline: Immediate (for 2024 Capital Budget)

Rationale: These assets have a life cycle and annual diminishing value based on usage.

Recommendation #41

The next iteration of the Development Charges By-law considers a revision to the cost allocation for the fire services portion of the assigned fees

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate to short term (1-3 years)

Rationale: Current allocation for fire service requires revision.

Recommendation #42

Revise the Fees By-Law to include/ specify cost recovery elements for:

- Fire investigation purposes
- rental of heavy equipment to facilitate safety or investigative needs.

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate to short term (1-3 years)

Rationale: To protect the Municipality/ ratepayers from incurring costs that should not be borne by individual property owners.

SECTION 8: Review Of Previous Fire Related Reports

8.1 Master Fire Plan and Station Location Study

The Municipality of Lakeshore commissioned two previous reports that have contextual importance for the purposes of this report – a Fire Master Plan prepared by Dillon Consulting Limited in 2011, and a Fire Station Location Study conducted by the FUS in 2018.

8.1.1 2011 Fire Master Plan

The 2011 Fire Master Plan was a comprehensive review of the Department of 91 pages (plus appendices) which drew 30 conclusions and made 37 recommendations.

These recommendations are summarised below by departmental business unit (Division). Many of the recommendations noted in the two previous reports have also been identified in this 2023 FMP.

Administration

- Complete the administrative review initiative by assessing and selecting an appropriate records management software solution that meets the fire administrative requirements. Upon completion, bring forward recommendations for implementation.
- Review and update by-laws pertaining to the fire department, including those that still require introduction. The fire department should ensure that these by-laws are updated as needed.
- Continue the systematic review, development, and revision of fire department operational guidelines.
- Consider options to improve constrained office space at Headquarters station. Interim options should be considered to resolve space constraint issues currently facing the department, until new station facilities are provided as a permanent solution.

Fire Prevention and Public Education

- Continue the process of updating the Simplified Risk Assessment to establish priorities, address demographic risks and develop an implementation plan for public education and fire prevention activities.

- Continue to assess the workload and time commitment required to carry out inspections. This has been improved with the addition of the Fire Inspector position but will need to be continuously evaluated as the Town grows.
- Conduct annual presentations to seniors' groups and clubs. Consider implementing organized programs such as Older and Wiser.
- Improve the tracking of public education activities and fire prevention inspections using the selected data management solution. Consider community risks, fire prevention and public education opportunities relating to the Town's seven marinas in the Simplified Risk Assessment.
- Continue the practice of having the volunteer firefighters actively involved in public education programs.
- Implement pre-fire planning of key buildings as time and resources allow.
- Continue the process of developing and approving policies for Fire Prevention and Public Education as one of the priorities of the department.
- Consider additional administrative support for the Fire Prevention and Public Education Division. This would improve the staff resources available to improve and expand the public education and fire prevention coverage and would help to improve the frequency of which the scheduled inspections can be carried out.

Fire Suppression

- Adopt performance targets for the department. No current mandatory standard or legislative requirement exists for fire suppression performance measures in Ontario. The Town Council should determine the level of service desired from the Lakeshore Fire Department. Policies should be developed to reflect these decisions and measure performance annually against performance targets. It is recommended that the O.F.M. 10-in-10 performance measure be adopted as the performance target for the urbanized parts of the municipality. A reduced response can be targeted for rural areas.
- Target to have a minimum of four firefighters initially responding.
- Aim to reduce assembly times of suppression staff within the department.
- Continue the practice of the Chief, Deputy and Assistant Deputy taking their department vehicles home and rotating duties as the on-call Chief.

- Continue to place emphasis on firefighter safety, first response (four firefighters) and depth of response (10 firefighters in 10 minutes), for more urbanized areas like Belle River.
- Consider staffing improvements to achieve a minimum of 10 firefighters within 10 minutes for either aggressive interior fire suppression or rescue operations 90% of the time. Currently, the number of firefighters typically responding within the ten-minute window is less than the O.F.M. guideline.
- Implement staffing recommendations over a number of years and time improvements to match growth in financial resources brought on by development growth. This could include working toward the objective of staffing Station 3 with one crew of firefighters, 24 hours a day, seven days a week as per industry performance measures and best practices.
- Council could also consider interim measures such as hiring an additional staff member for department training public education as these would help mitigate the inherent risks being adopted.

Training

- Continue to follow O.F.M. Firefighter Certification Program.
- Develop a policy which prioritizes the focus of specialized training programs towards the most probable events. Partnering opportunities should be investigated with adjacent municipalities to deliver specialized training.
- Identify crucial programs and develop a long-range plan to deliver these programs. Such a plan would outline expected training levels, staffing requirements, records management needs and budget projections and consider the future growth of the Town.
- Investigate opportunities for live fire training.
- Consider one additional full-time administrative assistant that could be shared between public education, fire prevention, training, and emergency planning as an interim measure.
- Consider one full-time trainer / public educator that would develop and deliver all Lakeshore fire suppression training, including delivery of public education programs. This would provide one additional full-time fire administrative staff member available for emergency response, provide consistency in departmental training, provide

capacity to enhance public education programs and prepare for the training needs of future full-time firefighters.

- Consider options to develop a central training facility or training sessions including cross training between stations.

Fleet

- Continue the planned fleet replacement program.
- Continue the practice of having the air quality in the fire department's breathing apparatus and compressor system checked twice per year.
- Continue the present small equipment budget at the current rate to allow for replacement of equipment that is aged and/or out for repair.
- Continue the practice of maintenance being performed by Windsor Fire and Rescue Services mechanical shop, as they are well accustomed to and familiar with the specialized nature of fire apparatus.
- Replace the aerial ladder at Station 1. The aerial ladder response procedure should be regularly reviewed and revised as necessary as growth and development within Lakeshore continues.
- Rust proof the fire fleet. Each year the fleet should be inspected to check if reapplication is necessary.
- Continue the department's small vehicle replacement program as it is within acceptable standards of most municipalities. Monitor mileage and maintenance costs and alter the replacement program in place if a particular vehicle starts to have recurring problems.

Communications and Technology

- Continue to monitor and assess the dispatch service provided as growth occurs in coming years.

The final FMP report was presented to Council during a special Council meeting held on June 29, 2011, with the following staff recommendation:

That Council:

- *Receive the Fire Master Plan for information and*

- *In conjunction with administration, meet to review points and determine the future service levels of the Lakeshore Fire Department*

EMG has been advised that no further substantive activities with respect to the 2011 FMP were actioned through resolutions of Council. However, LFD considered the recommendations made and took action on those without budget allocations or that may have resulted in a change of service level as authorized by Council.

8.2 The Fire Underwriters Survey Report

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 defences maintained in built-up communities, including incorporated and unincorporated communities across Canada. The results of these surveys will establish a Public Fire Protection Classification (PFPC) for each municipality. Underwriters also use the PFPC to determine the amount of risk they are willing to assume in each community or section of a community. While the FUS is not involved in setting rates, the information provided through the Fire Insurance Grading Index is critical in developing commercial lines property insurance rates.

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 significant fires. This process is accomplished 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), used by personal lines insurers to determine property insurance rates for detached dwellings with no more than two dwelling units. The DPG is a measure of the ability of the fire services of a community to prevent and control structure fires in detached dwellings by evaluating the adequacy, reliability, strength, and efficiency of the fire department and comparing the level of protection against the level of fire risk associated with a typical dwelling.

The fire insurance grading system does not consider past fire loss records but rather fire potential based on the physical structure and makeup of the built environment. Every insurance company has a formula for calculating its underwriting capacities and insurance

rates; however, the PFPC and DPG classifications are extremely useful to insurers in determining the level of insurable risk in a community. When a community improves its PFPC or DPG, property owners may see a reduction in their insurance rates, while their underwriting capacities may increase.

A FUS assessment provides an opportunity for a fire department to apply for its Superior Tanker Shuttle Accreditation which the LFD has accomplished for three of its five fire stations – stations 2, 4 and 5.

The continuing and anticipated growth of the community in certain areas, combined with a desire to look to the future needs of the community were the impetus behind an effort to examine the location of existing fire stations in 2017.

FUS conducted their study utilizing - primarily - their (insurance risk focus) standards and a variety of variables as a basis for their conclusions. They ultimately presented a detailed 67-page (plus appendices) report which outlined their analysis, identifying four options for optimizing fire department responses in the community.

The optimization options put forth in the FUS reports (of 2011 and 2017) were based solely on the operations of a volunteer fire department and included the following:

Option 1 **-** *build thirteen (13) new fire stations and rely on two (2) stations in adjoining communities for responses in the Town of Lakeshore*.

Option 2 **–** *Build nine (9) new fire stations and rely on two (2) stations in adjoining communities for responses in the Town of Lakeshore*.

Option 3 **–** *Build five (5) new fire stations and rely on two (2) stations in adjoining communities for responses in the Town of Lakeshore*.

Option 4 **-** *Build four (4) new fire stations and rely on (2) two stations in adjoining communities for responses in the Town of Lakeshore*.

In essence, the FUS report advocated that the existing five Lakeshore fire stations be moved/replaced and supplemented with others (identified in all Options) and FUS staff ultimately recommended that Option 3 be selected as the preferred way forward (maintaining but relocating five Lakeshore fire stations).

For clarity and accuracy, the following is excerpted from the Executive Summary from this Report:

This study, as previously stated developed four optimizations of varying degrees based on applicable industry standards to determine an appropriate service model and fire hall alignment to serve the Town of Lakeshore for the next 30 - 40 years. Coverage analysis was first determined using current locations of fire halls, as it relates to Fire Underwriters Surveys' Table of Effective Response found in Table 3, and N.F.P.A. 1720 guidelines found in Table 5 – NFPA 1720 Staffing and Response Timetable.

Secondarily, identifying whether current fire hall configurations could meet these standards of fire suppression response and coverage was completed. In an attempt to reduce the amount of needed fire hall response facilities for all optimizations completed; aiding neighbouring fire halls located in Essex and Tilbury were treated as fixed locations in each design to reduce the need for additional fire halls, as their response facilities can provide adequate rural response coverage. Essex and Tilbury fire halls are directly adjacent to Lakeshore administrative boundaries, which makes each fire hall a viable option to provide coverage within the Town of Lakeshore; specifically in rural areas of the community where it would be challenging to maintain fire halls.

The completion of Optimization No.1 – Table of Effective Response and Optimization No.2 – NFPA 1720 (9 New Fire Halls with 2 Aid Fire Halls) indicated the challenges associated with providing a consistent level of fire suppression response throughout the Lakeshore Fire Protection Area. Large areas used for agriculture, as well as numerous remote building locations allude to the difficulties of providing consistent response characteristics to all properties. These long distances and vast geographical areas create impractical fire protection needs, which if addressed, could cause a significant financial burden, and little enhancement to service levels. Each of the first two optimizations could be re-configured to determine what impact career staffing could have to reduce the number of fire halls required; however, the basis of these optimization designs was built to address current fire protection service models related to the (sic) fire suppression resources of a volunteer nature. NFPA1720 guidelines indicate the standard can be used by volunteer or composite type departments, and may highlight the need to consider an enhanced service model including readily available on-duty staffing of a career nature. Likewise, career staffing of suppression staff was previously identified in the 2011 Master Fire Plan. Career staffing is also recommended through the NFPA 1720 guideline for areas of the community considered urban, which are identified mainly in the northwestern

portion of the community; please see Figure 19 Town of Lakeshore – NFPA1720 Demand Zones. This is also the area of Lakeshore which has experienced the most growth regarding residential and commercial buildings.

Optimization No. 2 – NFPA 1720 (No New Fire Halls with 2 Aid Fire Halls) aims to achieve a utilitarian approach to supplying as many properties as possible with a response within prescribed travel distances associated with Commercial and Personal Lines insurance. Commercially insured property within 5km by road of a fire hall, and Personal Lines insured property within 8km by road travel distance of a fire hall are required to decrease fire insurance premiums paid by business stakeholders and constituents within the Town of Lakeshore. This optimization improves the amount of demand points within 5km/8km by road travel distance from optimized fire hall locations, when compared to current locations of fire halls in Lakeshore. Consideration should be given to the design of one of the fire halls located in the Emeryville, Puce and Belle River corridor to include a fire hall that can incorporate and accommodate career staffing of suppression firefighters. As previously stated, this study aims to provide fire hall facilities for fire protection consideration for the next 30-40 years; incorporating population growth and increases in building stock, as well as increased risk levels.

The result of the fourth optimization illustrates a significant decrease in response coverage related to most criteria evaluated throughout this report. Additionally, another undesirable impact of this fire hall configuration is the inability of the model to address growth in the Northwestern portion of the community. Optimization No.4 – Maximizing 8km Travel Distance Response reduces the amount of fire halls servicing the area of the community experiencing the most growth, densification of population and high value commercial property. Multiple commercial areas and properties are located beyond 5km by road travel distance of a fire hall and would likely result in significant increases of property insurance premiums associated with Commercial Lines insurance. Likewise, the configuration of fire halls would also impact currently updated fire insurance Town of Lakeshore Fire Protection Area classifications of the community, as the decrease in response capacity would lose substantial credit related to Public Fire Protection Classification (PFPC) grading schedule.

The recommended optimization from the developed options presented in this report is Optimization No.3 – Maximizing Insurance Coverage Standards. This design clearly demonstrates and aligns with community growth experienced in the Northwestern

portion of the Town of Lakeshore. Although Optimization No.1 and No.2 illustrate significant improvements in response coverage throughout the Town of Lakeshore, their design is restrictive due to the significant increase in finances necessary to accommodate such expenditures. Based on geographical challenges pertaining to the size, composition and unique make-up of the community which contains areas considered urban, suburban and rural; developing fire protection services primarily addressing response coverage only, is believed to be unsustainable for the Town of Lakeshore. A fire protection model that incorporates heightened proactive fire inspection and public education initiatives to reduce risk, with a reasonable capacity to respond to alarms safely and effectively would likely prove more suitable to the community's needs. Subsequently, Optimization No.3 improves coverage under categories of 5km and 8km response distances, maximizing coverage, as it pertains to Commercial lines and Personal Lines insured property. Subsequently, Optimization No.3 also maintains the current number of fire halls at five, alleviating further potential increases in staffing, apparatus, equipment and facilities associated with designs requiring an increase in the number of fire halls to achieve ideal response coverage levels.

Once again, the fire chief submitted a report to council on January 16, 2018, with the following recommendations:

That Council:

1. *Accept the Fire Station Location Study, in-principle, for the Town of Lakeshore's Fire and Rescue service level strategic planning, and;*
2. *Accept, in principle, Optimization No. 3 - Maximizing Insurance Coverage Standards, and;*
3. *Direct administration to develop an implementation plan that sustains a service level of fire protection consistent with Optimization No. 3 and integrates the Fire Station Location Study with the Strategic Facilities Plan, and the Asset Management Plan.*

EMG staff reviewed the FUS report, and the presentation made to Council on that date, available via the Municipality's website at https://lakeshoreon.swagit.com/play/01162018-974 (January 16, 2018 Regular Council Meeting - Lakeshore. ON (swagit.com)).

Ultimately, the recommendation as put forth by the fire chief was accepted by council with a minor amendment, however the development of the municipality's overarching asset management plan has hindered any forward movement with respect to fire station re-locations.

EMG's review of LFD facilities can be found in Section 4.

EMG recommends that the Fire Station Location study conducted by FUS be reviewed by the municipality and that the fire department develop a pragmatic approach and plan to implement the study, presenting this to council for further discussion, debate, and financing.

With respect to the 2011 Master Fire Plan, EMG makes no recommendations relative to the content thereof, but rather relies on the recommendations made in this report as a reasonable and prudent path forward.

It must be emphasised that if this process is to have value for the department and the community, a comprehensive and pragmatic implementation plan must be developed by the department for those recommendations it supports, ultimately to be endorsed and approved by Municipal Council.

As a final note, if a full-time component is approved and implemented, then NFPA 1710, which is the standard for full-time firefighters should become the reference for that particular contingent.

Section 8: Recommendations

Recommendation #43

The municipality review the Fire Station Location study conducted by FUS and that the Fire Department develop a pragmatic approach and plan to implement the study, presenting this to council for further discussion, debate, and financing.

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate to short term (1-3 years)

Rationale: This report is relatively recent and reflects a thoughtful and standards- based approach to improving fire station re-locations such that response times can be approved across the municipality for the benefit of ratepayers.

SECTION 9: Recommendations, Timelines, and Associated Costs

9.1 Conclusion

During the review conducted by EMG, it was demonstrated that the full-time staff and volunteer firefighters are truly dedicated to the community they serve. The council, chief administrative officer, and fire chief are sincerely committed to ensuring the safety of the community and the firefighters.

Based on the present staffing, equipment, and fire station locations, LFD is endeavoring to offer the most efficient and effective service possible. Through the acquisition of this FMP, the Municipality demonstrates its desire to improve upon its services and their delivery.

All costs and associated timelines noted in this report are approximate estimates that can be implemented through prioritization between the fire chief, CAO, and council.

This FMP is a long-range planning document. It is recommended that annual updates be completed, along with a full review to be conducted at the five-year mark.

9.2 Recommendations, Estimated Costs, & Rationale

The following chart provides a detailed overview of the recommendations found throughout this report along with any estimated costs and suggested timelines for implementation.

This FMP document is a culmination of 43 recommendations.

Lakeshore Fire Department Recommendations Chart

Section 1 – Community and Fire Department Overview

Recommendation #1

The Fire Chief brings forth a revised version of the Establishing & Regulating By-Law for Council's approval and, with annual review and updates as necessary.

All other by-laws noted in this document should be reviewed and updated as required. All by-laws should be reviewed annually to ensure currency of the document.

Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Short-term (1-3 years) ongoing

Rationale: Having an up-to-date E&R By-Law will guide the operations of the LFD and identifies response guidelines, fire prevention and public education programs and levels of training.

Recommendation #2

Fire Administration to review by-laws that affect the daily operations of the fire department.

Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Short-term (1-3 years)

Rationale: Having current by-laws will reflect changing the circumstances of the Municipality and meet federal or provincial Acts and Regulations.

Recommendation #3

Establish an SOG Committee representing all divisions of the LFD that develops new SOGs and reviews current ones regularly.

Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Short-term (1-3 years)

Rationale: Establishing an SOG committee will aid in maintaining the information in the database while allowing the participation of LFD members to determine the fire department's operations

Section 2 – Risk Assessment

Community Risk Assessment document contains its own set of recommendations.

As such, no recommendations are noted in this section of the master plan.

Section 3 – Fire Department Divisions

Recommendation #4

Increase administrative support for each of the divisions (training, suppression, and fire prevention) in line with departmental growth.

Estimated Cost: Hiring of one or more Admin Assistants; $60,000 - $75,000 per position.

Suggested Timeline: Immediate (0 to 1 year)

Rationale: The present Administrative Assistant is tasked with all general administrative (day to day) duties that includes records management, filing of reports and dealing with public enquiries.

With the inclusion of the OFM training and certification requirements, more support of the Training Division will be required, which will necessitate the need for another Administrative Assistant.

A possible challenge here is the lack of space at the fire station to house another Administrative Assistant.

Recommendation #5

Refresh and revise all fire prevention SOGs to reflect current LFD practices.

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate to short-term (0 to 3 years)

Rationale: Contemporary SOGs that are reflective of industry informed practices guide staff and decrease liability risk to the community.

Recommendation #6

LFD expand and formalize its Public Education activities by establishing and funding a Public Education Program and Plan with supporting SOGs.

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Short-term (1 to 3 years)

Rationale: Active and engaging Public Education Programming can reduce the incidence of unwanted fires and change unwanted and unhealthy behaviours.

Recommendation #7

LFD continue to invest in its fire cause and determination program through certification and continuing educational opportunities for designated members with supporting SOGs.

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Short-term (1 to 3 years)

Rationale: Comprehensive fire cause determination efforts help to direct fire prevention and public education efforts to community specific needs.

Recommendation #8

LFD review its current inspection practices with a view to changing from a report-based practice to that of an order-based practice.

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Short-term (1 to 3 years)

Rationale: This will facilitate an easier prosecution process should this be necessary to move non-compliant buildings to a state of compliance.

Recommendation #9

LFD examine opportunities to digitise its fire inspection reporting and record keeping practices including the use of handheld computing devices for inspectors.

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Short-term (1 to 3 years)

Rationale: The use of handheld computing devices (i.e., tablets) can optimise administrative related inspection and reporting activities, saving time.

Recommendation #10

Consider expanding the designated training nights at all stations from two per month to three per month.

Estimated Cost: To be determined.

Suggested Timeline: Immediate to short-term (0 to 3 years)

Rationale: To allocate additional time for focus on maintaining existing skill sets and to allow for emerging issues to be identified and trained on.

Recommendation #11

Add the position of Full-time/Career Training Officer to its compliment of FTEs.

Estimated Cost: $90,000 to start.

Suggested Timeline: Short-term (1 to 3 years)

Rationale: To address immediate and future training needs; conduct on-going gap analysis and address deficits.

Recommendation #12

Train and certify all members to the appropriate NFPA standards (1001, 1002, 1006, 1021, 1031, 1041, etc.)

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate to short-term (0 to 3 years)

Rationale: Required by Ontario Regulations.

Recommendation #13

Train all firefighters who participate in vehicle, water, or ice rescue responses to the current NFPA 1006 Standard.

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate to short-term (0 to 3 years)

Rationale: Required by Ontario Regulations.

Recommendation #14

Convene regular (bi-annual) meetings for all chief officers.

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate to short-term (0 to 3 years)

Rationale: Enhances communications at all command levels within the organization.

Recommendation #15

Fire department staff, in consultation with Human Resources, staff develop and implement a policy or SOG specifically with the internal promotional process for all departmental line officers (training officers, captains, and district chiefs).

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate to short-term (0 to 3 years)

Rationale: To allow for a consistent approach to promotions and afford those desiring promotion with a clear understanding of how to prepare for and pursue promotional opportunities.

Recommendation #16

The fire chief to review the present recruitment and retention programs and make enhancements based on the information noted in the FMP body.

Estimated Cost: Staff time, but some costs may be incurred.

Suggested Timeline: Immediate to short-term (0 to 3 years) and ongoing

Rationale: Volunteer firefighters are the most valuable resource for the fire department. Ongoing recruitment and retention of the firefighters is critical to the success of the fire department.

Recommendation #17

Recruit a full-time contingent of firefighters, with two options in mind:

1. A total of two full-time day crews be hired, to cover times that volunteer responses are at their lowest (e.g., 8am to 5pm, Monday to Friday) and assign them to either station #1 or station #3.

Or

2. Implementation a full-time, 24/7 at either station #1 or station #3, to ensure full-time, 24-hour coverage of the community.

Hire a second 24/7 crew incrementally (as call volumes increase) to be assigned to whichever station is available (station #1 or #3).

Financial implications of both recommendations should be assessed.

Estimated Cost: Depending on the option implemented, costs could range from $1 to $2 million annually.

Suggested Timeline: Immediate to mid-term (0 to 6 years)

Rationale: Based on anticipated growth, expected call volumes (due to a larger population) could exceed the capabilities of the present volunteer firefighter response capabilities.

The incremental hiring of full-time firefighters can start with one station offering 24/7 coverage. With the second set of fulltime firefighters starting on a Monday to Friday 8am to 4pm coverage and building from there as needed.

Recommendation #18

LFD to review their Health, Fitness and Wellness programs to ensure that their firefighters are receiving proper coverage for PTSD, Cancer Prevention, and Mental Well-Being.

Estimated Cost: Costs will be incurred based on the programs provided to the firefighters.

Suggested Timeline: Immediate to short-term (0 to 3 years) and ongoing

Rationale: Firefighters are the greatest asset of any fire service, and it is imperative that their Health, Fitness and Wellness 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.

Recommendation #19

When researching for an RMS implementation, LFD should consider the ability of the systems to provide dispatch information and call management directly into the RMS from the dispatch service provider.

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate (0 to 1 year)

Rationale: The ability to receive call information from the dispatch service directly into the RMS will ensure accurate records and decrease the administrative burden.

Recommendation #20

While it is still not clear what changes will be required downstream in the 911 system at local fire departments that purchase dispatch services from Public Safety Answering Point or Secondary-Public Safety Answering Point, the municipality should contact the Canadian Radio and Telecommunications Commission (CRTC) for updates and potential financial impacts.

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Staff time; short-term (0 to 3 years)

Rationale: The Municipality of Lakeshore should identify the potential funding needs for Next-Generation 911 impacts. At this time, EMG is unable to estimate costs for this upgrade because the CRTC has not provided this information.

Recommendation #21

Develop a preventative maintenance program as well as a backup plan in the event of failure of the infrastructure.

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Staff time; short term (0 to 3 years)

Rationale: A consistent and dependable radio system is imperative for the health and safety of firefighters.

Recommendation #22

The Municipality to budget funds for upgrading the radio system to the 800 MHz, which includes new mobile and portable radios, pagers, transmission towers and transmitters, generators at each transmission tower, and possibly mobile repeaters if the audit warrants their purchase.

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Staff time; short term (0 to 3 years)

Rationale: Motorola will no longer support the radio system in place after 2024. Providing a budget for the replacement radio system will ensure a timely transition to an updated radio system.

Recommendation #23

Create an IT support person to provide in station and remote connectivity, hardware and software management, and life-cycle updates, be created.

Estimated Cost: IT review required to estimate cost.

Suggested Timeline: Short term (0 to 3 years)

Rationale: For fire services of today, it is essential for IT systems to be up to date and managed appropriately ensuring both in-station and remote connectivity.

Section 4– Facilities and Vehicles

Recommendation #24

Address the list of station concerns noted in section 4.2 of the report.

Note: *an overview of concerns is also noted in the adjoining Rationale section.*

Estimated Cost: A full assessment will be required by the facilities department to obtain an estimate of costs.

Repairs could range from $40,000 to $100,000 or more.

Suggested Timeline: Short to Mid-term (1-6 years)

Rationale: The Lakeshore fire stations are nearing or at maximum capacity for storage of vehicles and equipment. Overall, the concerns noted during the station visits include:

- The proximity of the firefighter's gear 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.
- Washrooms including showers are required in all stations. Facilities for both male and female firefighters.
- Stations require generators

Recommendation #25

In consultation with the fire chief, Council to consider a feasibility study of the two future staffing options presented:

- **Option #1** – Full-time Day Crews
- **Option #2** – 24/7 coverage at two of the present stations.

- **Option #3** – a combination of a day time station with the other being 24/7 coverage.

Conduct a feasibility study by the Director of the Works Department or through a third party.
Estimated Cost: Option #1 - $600,000 $1 million; Option #2 - $1.9 – 2.4 million; and the Feasibility Study.

Suggested Timeline: Mid to Long-term (3-10 years). Possibly longer dependent on the option

Rationale: The intent of the options suggested are to provide the most efficient use of resources while improving coverage for the community.

Recommendation #26

The fire chief needs to identify the present fire vehicle stock to ensure that there is a spare pumper truck and elevated device available in the case that one of the front-line units is put out of service for any mechanical reason.

Estimated Cost: A new pumper truck or elevated device can range from $900,000 up to $2 million.

Suggested Timeline: Short-term assessment to be made and plans put into place for future spare units, as needed.

Rationale: The FUS recommends and assess a fire service based on their stock of spare pumper trucks, tankers, and aerial/elevated devices. The key point to note is that for every eight vehicle types in the departments inventory, there should be a spare unit that can be put into service as needed.

Section 5 Emergency Management

Recommendation #27

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.

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate (0-1 year)

Rationale: This documentation provides a tracking of changes over time and the rationale for the changes.

Recommendation #28

Develop a plan to understand the full logistical ramifications of using the Alternate EOC at its current location.

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Short-term (1-3 years) ongoing

Rationale: In the event of a major emergency within the Municipality of Lakeshore that expands into other municipalities within the County of Essex, the County EOC may be required to be activated and therefore be staffed by County personnel, deeming them unavailable for the Municipality of Lakeshore.

Recommendation #29

The Municipality of Lakeshore adopt IMS to aid in understanding the means of mitigating and recovering from an emergency with the inclusion of IMS within the ERP and other specific hazard plans.

Due to the importance of staff understanding their roles and responsibilities in the EOC, implement a policy that identifies IMS 200 as the minimum standard for staff required to be in the EOC with IMS 300 being the goal for all department heads.

Estimated Cost: Staff time (courses are offered at no charge). Repairs could range from $40,000 to $100,000 or more.

Suggested Timeline: Short-term (1-3 years) ongoing

Rationale: Incident Management training will provide all EOC members a consistent level of training and understanding of their roles within the EOC structure.

Recommendation #30

Recognition of services required in response to emergencies be noted within the HIRA. Agreements with NGOs to aid in the provision of services beyond the scope and/or resources of local staff will ensure adequate responses. Formalized agreements with the needed NGOs will provide some assurances of capability.

Estimated Cost: TBD – Agreement Costs.

Suggested Timeline: Short-term (1-3 years)

Rationale: Utilization of NGOs under formalized agreements will provide ongoing services for the response and mitigation of major emergencies over a longer term.

Recommendation #31

With the assistance of policing agencies, the Municipality of Lakeshore include, as a Response Plan, the Active Shooter/Hostile Event Response (ASHER) program. The section should include an integrated response program comparable to NFPA 3000, Standard for an ASHER Program.

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Short-term (1-3 years)

Rationale: Preparing a response plan for ASHER will ensure adequately resourced responders, with equipment and training, to respond to potential and real threats.

Recommendation #32

Investigate and include in planning alternative communications between the EOC and emergency site(s) as well as from the Head of Council to the public.

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate (0-1 year)

Rationale: After action reports of many major emergencies find that the greatest difficulties in managing an emergency are due to communication issues. Providing guidance in communication sources and alternate sources will ensure linkages to the site and to the public are maintained.

Section 6 Fire Service Agreements

Recommendation #33

Fire departments within the County of Essex and Windsor, inclusive of the LFD, should ensure the local mutual aid plan is reviewed and up to date. It is further recommended that with the updating of Mutual Aid Plans (i.e., 2022).

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate (0-1 year)

Rationale: The Provincial Mutual Aid program is updated every 4 – 5 years. The local plans need to be updated to keep in step with the provincial plan.

Recommendation #34

When the current Automatic Aid Agreement with Chatham-Kent is revised and updated, include a defined commitment to regular training that designates the position accountable for completion of this task

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate (0-1 year) ongoing

Rationale: Joint training initiatives under an Automatic Aid Agreement ensure smooth operation on the emergency scene. This also increases the overall health and safety of all fire crews working collectively and the residents being served.

Recommendation #35

Formally introduce the Medical Tiered Response Agreement with EWEMS to Council.

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate (0-1 year)

Rationale: As council sets the level of service for a local fire department it is incumbent upon the fire chief to present agreements to council for passage via by-law before providing the service therein.

Recommendation #36

The Medical Tiered Response Agreement does not provide any guidance for training required to respond to any types of medical and/or trauma related injuries other than those that are cardiac related. An increased level of training should be considered either within the agreement or through the Fire Department regular training initiatives.

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate (0-1 year) ongoing

Rationale: Ensuring that firefighters have the skills, knowledge and tools required to respond to emergency calls provides for better outcomes for those needing assistance.

Section 7 – Finance

Recommendation #37

Revise the cost projections for the recue truck due for acquisition in 2024 to reflect the recent cost increases in the fire apparatus market.

Estimated Cost: $380,000

Suggested Timeline: Immediate (for 2024 Capital Budget)

Rationale: To be reflective of the current marketplace.

Recommendation #38

In 2030, update the cost projections contained in the Capital Forecast for the replacement of the breathing air compressor, fill station, and air storage to reflect anticipated acquisition costs.

Estimated Cost: $100,000

Suggested Timeline: Long-term (7-10 years) in 2030 (for 2034 purchase)

Rationale: The current acquisition cost estimate is overly conservative.

Recommendation #39

Finance and fire department administrators work collaboratively to establish a strategy for council's approval that properly funds the fire department Equipment and Vehicle Reserve in anticipation of the shortfall that is identified to occur in 2025.

Estimated Cost: To be determined

Suggested Timeline: Immediate (for 2025 Capital Budget)

Rationale: Current funding allocations are inadequate.

Recommendation #40

Add two additional line items to the Capital Forecast for the Fire Department (Hose Replacement and Small Equipment) and that these line items be funded with an annual allocation of funds going forward.

Estimated Cost: To be determined

Suggested Timeline: Immediate (for 2024 Capital Budget)

Rationale: These assets have a life cycle and annual diminishing value based on usage.

Recommendation #41

The next iteration of the Development Charges By-law considers a revision to the cost allocation for the fire services portion of the assigned fees

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate to short term (1-3 years)

Rationale: Current allocation for fire service requires revision.

Recommendation #42

Revise the Fees By-Law to include/ specify cost recovery elements for:

- Fire investigation purposes
- rental of heavy equipment to facilitate safety or investigative needs.

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate to short term (1-3 years)

Rationale: To protect the Municipality/ ratepayers from incurring costs that should not be borne by individual property owners.

Section 8 – Review of Previous Master Fire Plan and Station Location Study

Recommendation #43

The municipality review the Fire Station Location study conducted by FUS and that the Fire Department develop a pragmatic approach and plan to implement the study, presenting this to council for further discussion, debate, and financing.

Estimated Cost: Staff time (based on availability of staff to complete this task)

Suggested Timeline: Immediate to short term (1-3 years)

Rationale: This report is relatively recent and reflects a thoughtful and standards- based approach to improving fire station re-locations such that response times can be approved across the municipality for the benefit of ratepayers.

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, considering 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: Ontario Fire College Course Curriculum and Timelines Overview

The following chart identifies programs offered by the Ontario Fire College and its regional training centres. Costs for each program can vary greatly depending on the pricing of the regional training centre and local colleges that offer these programs. Therefore, EMG is not providing costing formulas for each program.

NFPA Title	Program	Prerequisites	Course Format and Timelines
NFPA 1001 FIRE FIGHTER I			
NFPA 1001 FF I Recruit	Fire Fighter I Recruit	Standard First Aid, CPR Level "C", and AED	**This program is offered in two formats – Blended and In-Class** Blended Delivery: Online, self-directed and instructor supported learning followed by a ten day in-class session and practicum. In-Class Delivery: This in-class delivery requires the student to complete a pre-class reading assignment with a knowledge quiz followed by a 15 day in-class session and practicum.
NFPA 1001 FIRE FIGHTER II			
NFPA 1001 FF II Recruit	Fire Fighter II Recruit	NFPA 1001 Fire Fighter I	**Blended Delivery:** Online, self-directed and instructor supported learning followed by a seven day in-class session and practicum. **In-Class Delivery:** This in-class delivery requires the student to complete a pre-class reading assignment with a knowledge followed by a nine day in-class session and practicum.

NFPA Title	Program	Prerequisites	Course Format and Timelines
NFPA 1002 APPARATUS EQUIPPED WITH A FIRE PUMP (CHAPTER 5)			
NFPA 1002 Pump Ops	Apparatus Equipped with a Fire Pump (Chapter 5)	Valid DZ Licence	**Blended Delivery:** Online, self-directed and instructor supported learning followed by a five day in-class session, and practicums.
NFPA 1021 FIRE OFFICER			
NFPA 1021 FO I	Fire Officer I	NFPA 1001 Fire fighter II	**Blended Delivery:** Online, self-directed and instructor supported learning followed by a three day in-class session.
NFPA 1021 FO II	Fire Officer II	NFPA 1021 Fire Officer I	**Blended Delivery:** Online, self-directed and instructor supported learning followed by a five day in-class session.
NFPA 1021 FO III	Fire Officer III	NFPA 1021 Fire Officer II	**Blended Delivery:** Online, self-directed and instructor supported learning followed by a five day in-class session.
NFPA 1021 FO IV	Fire Officer IV	NFPA 1021 Fire Officer III	**Blended Delivery:** Online, self-directed and instructor supported learning followed by a five day in-class session.

NFPA Title	Program	Prerequisites	Course Format and Timelines
NFPA 1031 FIRE INSPECTOR			
NFPA 1031 FIRE INSPECTOR I **(Ontario certification requires the completion of the 6 courses & exam outlined in this box)** • Legislation (Online Self-Directed) • NFPA 472 or NFPA 1072 Hazardous Material Awareness (OFC Online self -directed course) • NFPA 1031 Fire Inspector I • Fire Code Div. B Part 2 and 6 Fire Safety and Fire Protection Equipment • Courtroom Procedures • Fire Code Div. B Part 9 Retrofit Successful completion of the NFPA 1072or NFPA 472Hazardous Materials Awareness Exam through Academic Standards & Evaluation is also required for certification.			
NFPA 1031 FIRE INSPECTOR II **(Ontario certification requires the completion of the 3 courses outlined in this box)** Prerequisite is the completion of NFPA 1031 Fire Inspector I. The following courses can be taken in any order: • NFPA 1031 Fire Inspector II • Fire Code Div. B Part 3 and 5 Industrial, Commercial, Hazardous Materials, Processes and Operations Fire Code Div. B Part 4 Flammable Liquids and Combustible Liquids			

NFPA Title	Program	Prerequisites	Course Format and Timelines
NFPA 1031 FIRE INSPECTOR II **(Ontario certification requires the completion of the 3 courses outlined in this box)** Prerequisite is the completion of NFPA 1031 Fire Inspector I. The following courses can be taken in any order: • NFPA 1031 Fire Inspector II • Fire Code Div. B Part 3 and 5 Industrial, Commercial, Hazardous Materials, Processes and Operations • Fire Code Div. B Part 4 Flammable Liquids and Combustible Liquids			
NFPA 1031 Fire Insp I	Fire Inspector I	NFPA 1072 Hazardous Materials Awareness	**In-Class Session:** Five days
Courtroom Procedures	Courtroom Procedures	None	**In-Class Session:** Three days
Fire Code Div. B PT 2 & 6	Fire Code Div. B PT 2 & 6 – Fire Safety & Fire Protection Equipment	None	**In-Class Session:** Five days **Online Delivery:** Online, self-directed learning and instructor supported; students will have eight weeks to complete the class.
Fire Code Div. B PT 3 & 5	Fire Code Div. B PT 3 & 5 – Industrial, Commercial,	Fire Code Div. B PT 2 & 6	**In-Class Session:** Four days

NFPA Title	Program	Prerequisites	Course Format and Timelines
	Hazardous Materials: Process & Operations		**Online Delivery:** Online, self-directed and instructor supported learning; students will have eight weeks to complete the class.
Fire Code Div. B PT 4	Fire Code Div. B PT 4 – Flammable & Combustible Liquids	Fire Code Div. B PT 2 & 6	**In-Class Session:** Five days **Online Delivery:** Online, self-directed and instructor supported learning; students will have eight weeks to complete the class.
Fire Code Div B PT 9	Fire Code Div. B PT 9 – Retrofit	Fire Code Div. B PT 2 & 6	**In-Class Session:** Five days **Online Delivery:** Online, self-directed and instructor supported learning; students will have eight weeks to complete the class.
NFPA 1031 FIRE INSPECTOR II			
NFPA 1031 Fire Insp II	Fire Inspector II	NFPA 1031 Fire Inspector I, Fire Code Div B PT 2 & 6, Fire Code Div B PT 9, Courtroom Procedures, and OFC NFPA 1072 Hazardous	**In-Class Session:** Five days

NFPA Title	Program	Prerequisites	Course Format and Timelines
		Materials Awareness	
NFPA 1033 FIRE INVESTIGATION			
NFPA 1033 Fire Invest	Fire Investigator	Intended for officers or firefighters with a minimum five years of work experience	**Blended Delivery:** Online, self-directed and instructor supported learning (approximately 40 hours) followed by a four day in-class session, and practicums.

NFPA Title	Program	Prerequisites	Course Format and Timelines
NFPA 1035 FIRE & LIFE SAFETY EDUCATOR			
NFPA 1035 FLSE I	Fire and Life Safety Educator I	None	**In-Class Session:** Three days **Online Delivery:** Online, self-directed and instructor supported learning; students will have eight weeks to complete the class.
NFPA 1035 FLSE II	Fire and Life Safety Educator II	NFPA 1035 Fire and Life Safety Educator I	**In-Class Session:** Four days
NFPA 1035 Public Info Off	Public Information Officer	None	**In-Class Session:** One day **Online Delivery:** Online, self-directed and instructor supported learning; students will have 30 days to complete the class. Each of the five modules has an assignment that assists the student-learners develop the knowledge and competencies to complete the required skills for certification.
NFPA 1041 FIRE INSTRUCTOR			
NFPA 1041 Fire Instructor I	Fire Instructor I	None	**Blended Delivery:** Online, self-directed learning followed by a four day in-class session.

NFPA Title	Program	Prerequisites	Course Format and Timelines
NFPA 1041 Fire Instructor II	Fire Instructor II	NFPA 1041 Fire Instructor I	**Blended Delivery:** Online, self-directed learning followed by a five day in-class session.

NFPA Title	Program	Prerequisites	Course Format and Timelines
NFPA 1041 Fire Instructor III	Fire Instructor III	NFPA 1041 Fire Instructor II *Participants are expected to have a minimum of five years experience in a Training Officer role	**Blended Delivery:** Online, self-directed learning followed by a four day in-class session.
NFPA 1072 Hazardous Materials			
NFPA 1072 HMA Online	Hazardous Materials Awareness	None	**Online Delivery:** Online, self-directed
NFPA 1072 HM Operations	Hazardous Materials Operations	NFPA 1072 Hazardous Materials Awareness	**In-Class Session:** Five days
NFPA 1072 HM Air Monitor	Hazardous Materials Air Monitoring	NFPA 1072 HM Operations	**In-Class Session:** Two days
NFPA 1072 HM Mission Spec	Hazardous Materials Operations Mission-Specific	NFPA 1072 Hazardous Materials Operations	**In-Class Session:** Five days
NFPA 1072 HM Tech	Hazardous Materials Technician	NFPA 1072 Hazardous Materials Operations	**In-Class Session:** Ten days (two consecutive weeks)

NFPA Title	Program	Prerequisites	Course Format and Timelines
NFPA 1521 INCIDENT SAFETY OFFICER			
NFPA 1521 ISO	Incident Safety Officer	NFPA 1021 Fire Officer I	**Blended Delivery:** Online, self-directed and instructor supported learning followed by a three day in-class session, and practicums.

APPENDIX C: RESPONSE DATA

Call Volume by Time of Day

***Note**: The data relating to "station 10" are low risk/non-emergency responses from Fire HQ by administration.*

2019

	Station 1			Station 2			Station 3			Station 4			Station 5			Station 10		
	00:00-07:59	8:00-15:59	16:00-23:59	00:00-07:59	8:00-15:59	16:00-23:59	00:00-07:59	8:00-15:59	16:00-23:59	00:00-07:59	8:00-15:59	16:00-23:59	00:00-07:59	8:00-15:59	16:00-23:59	00:00-07:59	8:00-15:59	16:00-23:59
Sunday	6	12	12	2	2	6	4	7	8	4	2	5	1	2	4	0	0	0
Monday	2	12	11	1	6	4	2	4	9	2	3	4	4	2	6	0	1	1
Tuesday	4	10	12	2	4	6	4	10	7	3	2	3	2	5	7	0	0	0
Wednesday	7	7	13	0	4	0	11	4	11	1	4	3	5	6	7	0	0	0
Thursday	6	11	15	1	1	4	7	4	7	2	4	2	1	9	6	0	1	0
Friday	3	13	15	1	4	3	5	7	8	0	0	3	0	5	6	0	0	0
Saturday	3	22	12	2	3	6	3	11	8	0	4	4	2	7	5	0	0	0

2020

	Station 1			Station 2			Station 3			Station 4			Station 5			Station 10		
	00:00-07:59	8:00-15:59	16:00-23:59	00:00-07:59	8:00-15:59	16:00-23:59	00:00-07:59	8:00-15:59	16:00-23:59	00:00-07:59	8:00-15:59	16:00-23:59	00:00-07:59	8:00-15:59	16:00-23:59	00:00-07:59	8:00-15:59	16:00-23:59
Sunday	6	4	12	2	4	6	4	6	8	4	1	5	1	5	4	0	0	0
Monday	2	19	11	1	2	4	2	11	9	2	1	4	4	7	6	0	1	1
Tuesday	4	6	12	2	2	6	4	5	7	3	2	3	2	6	7	0	4	0
Wednesday	7	15	13	0	6	0	5	10	11	1	0	3	5	4	7	0	1	0
Thursday	6	20	15	1	3	4	1	7	7	2	0	2	1	5	6	0	2	0
Friday	3	9	15	1	1	3	5	6	8	0	4	3	0	5	6	0	0	0
Saturday	3	13	12	2	6	6	3	6	8	0	6	4	2	4	5	0	0	0

2021

	Station 1			Station 2			Station 3			Station 4			Station 5			Station 10		
	00:00-07:59	8:00-15:59	16:00-23:59	00:00-07:59	8:00-15:59	16:00-23:59	00:00-07:59	8:00-15:59	16:00-23:59	00:00-07:59	8:00-15:59	16:00-23:59	00:00-07:59	8:00-15:59	16:00-23:59	00:00-07:59	8:00-15:59	16:00-23:59
Sunday	6	7	6	0	3	3	0	4	7	0	0	2	0	10	6	0	0	0
Monday	4	11	6	1	2	3	0	10	13	1	5	3	1	5	3	0	0	0
Tuesday	6	15	10	1	4	4	5	5	4	0	3	1	5	3	4	1	0	0
Wednesday	1	7	6	1	4	1	0	13	5	0	1	2	0	3	5	0	1	0
Thursday	6	7	8	1	4	1	5	6	5	0	3	4	2	4	11	0	1	0
Friday	8	13	13	3	4	0	3	7	5	0	1	4	3	5	3	0	0	0
Saturday	2	11	21	3	5	1	3	15	14	1	5	1	3	7	5	0	0	0

2022

	Station 1			Station 2			Station 3			Station 4			Station 5			Station 10		
	00:00-07:59	8:00-15:59	16:00-23:59	00:00-07:59	8:00-15:59	16:00-23:59	00:00-07:59	8:00-15:59	16:00-23:59	00:00-07:59	8:00-15:59	16:00-23:59	00:00-07:59	8:00-15:59	16:00-23:59	00:00-07:59	8:00-15:59	16:00-23:59
Sunday	7	10	9	2	2	2	3	4	6	11	17	9	7	13	6	0	0	0
Monday	5	17	9	33	1	3	3	7	4	10	7	13	5	5	6	0	0	0
Tuesday	5	13	13	1	1	4	2	12	4	12	5	16	13	7	13	0	0	0
Wednesday	6	13	9	1	4	5	3	15	11	0	5	7	8	6	9	0	0	0
Thursday	7	12	13	3	0	5	7	11	8	9	6	11	6	10	11	0	0	0
Friday	10	8	15	4	3	2	4	11	9	10	6	12	6	7	7	0	0	0
Saturday	10	16	5	1	4	2	3	3	11	11	16	11	13	8	10	0	0	0

Average Number of Firefighters Responding by Time of Day

***Note**: The data relating to "station 10" are low risk/non-emergency responses from Fire HQ by administration.*

2019

	Station 1			Station 2			Station 3			Station 4			Station 5			Station 10		
	00:00-07:59	8:00-15:59	16:00-23:59	00:00-07:59	8:00-15:59	16:00-23:59	00:00-07:59	8:00-15:59	16:00-23:59	00:00-07:59	8:00-15:59	16:00-23:59	00:00-07:59	8:00-15:59	16:00-23:59	00:00-07:59	8:00-15:59	16:00-23:59
Sunday	5	7	7	9	6	5	7	4	7	8	7	7	4	4	7	0	0	0
Monday	5	6	6	4	6	8	5	5	7	4	0	7	6	5	7	0	1	1
Tuesday	6	5	7	5	8	6	6	1	5	7	1	9	5	5	5	0	1	0
Wednesday	5	4	7	0	5	0	5	0	5	6	0	7	5	5	5	0	1	0
Thursday	6	5	5	0	5	8	0	3	6	6	0	5	10	4	6	0	1	0
Friday	7	5	7	7	4	9	6	4	7	0	6	7	0	4	6	0	0	0
Saturday	5	5	7	8	5	7	9	6	6	0	6	0	5	7	6	0	0	0

2020

	Station 1			Station 2			Station 3			Station 4			Station 5			Station 10		
	00:00-07:59	8:00-15:59	16:00-23:59	00:00-07:59	8:00-15:59	16:00-23:59	00:00-07:59	8:00-15:59	16:00-23:59	00:00-07:59	8:00-15:59	16:00-23:59	00:00-07:59	8:00-15:59	16:00-23:59	00:00-07:59	8:00-15:59	16:00-23:59
Sunday	5	7	4	9	8	6	7	7	6	8	0	8	4	7	9	0	0	0
Monday	5	7	7	4	7	8	5	5	8	4	5	7	6	6	11	0	0	0
Tuesday	6	5	8	5	7	7	6	6	4	7	7	8	5	5	9	0	0	0
Wednesday	5	7	7	0	6	10	5	4	7	6	4	7	5	8	5	0	1	0
Thursday	6	5	6	0	0	4	2	4	5	6	7	7	10	4	8	0	0	0
Friday	7	6	6	7	5	0	6	4	8	0	2	6	0	4	5	0	0	0
Saturday	5	5	6	8	6	6	9	6	9	0	6	10	5	6	6	0	0	0

2021

	Station 1			Station 2			Station 3			Station 4			Station 5			Station 10		
	00:00-07:59	8:00-15:59	16:00-23:59	00:00-07:59	8:00-15:59	16:00-23:59	00:00-07:59	8:00-15:59	16:00-23:59	00:00-07:59	8:00-15:59	16:00-23:59	00:00-07:59	8:00-15:59	16:00-23:59	00:00-07:59	8:00-15:59	16:00-23:59
Sunday	6	6	6	5	5	6	6	7	7	7	5	7	7	7	7	0	0	0
Monday	5	5	7	5	4	9	10	4	6	0	4	10	7	3	6	0	1	1
Tuesday	6	4	6	0	4	7	6	4	6	13	8	7	7	3	8	0	0	0
Wednesday	6	4	6	11	3	12	5	3	6	6	5	7	4	3	6	0	0	0
Thursday	7	4	5	0	8	7	4	3	5	0	4	8	4	3	10	0	1	0
Friday	4	5	6	0	5	6	4	4	5	8	0	9	0	5	6	0	0	0
Saturday	8	6	6	5	7	5	6	5	7	0	7	8	6	8	5	0	0	0

2022

	Station 1			Station 2			Station 3			Station 4			Station 5			Station 10		
	00:00-07:59	8:00-15:59	16:00-23:59	00:00-07:59	8:00-15:59	16:00-23:59	00:00-07:59	8:00-15:59	16:00-23:59	00:00-07:59	8:00-15:59	16:00-23:59	00:00-07:59	8:00-15:59	16:00-23:59	00:00-07:59	8:00-15:59	16:00-23:59
Sunday	8	7	6	12	9	8	10	9	9	11	17	9	7	13	6	0	0	0
Monday	6	7	9	8	7	9	7	8	11	10	7	13	5	5	6	0	0	0
Tuesday	8	5	11	7	3	0	9	6	11	12	5	16	13	7	13	0	0	0
Wednesday	7	6	10	0	6	8	9	5	13	0	5	7	8	6	9	0	0	0
Thursday	10	7	10	6	0	7	8	9	11	9	6	11	6	10	11	0	0	0
Friday	5	7	7	8	6	9	6	10	11	10	6	12	6	7	7	0	0	0
Saturday	9	9	9	8	11	5	9	8	10	11	16	11	13	8	10	0	0	0

Table #9: 90th percentile response time

Time	Stations					
	Station 1	Station 2	Station 3	Station 4	Station 5	Station 10
2019						
00:00 – 07:59	00:14:27	00:13:42	00:13:46	00:17:34	00:19:54	00:00:00
08:00 – 15:59	00:13:15	00:13:36	00:14:30	00:16:28	00:21:38	00:18:01
16:00 – 23:59	00:14:27	00:13:42	00:13:46	00:17:34	00:19:54	00:00:00
2020						
00:00 – 07:59	00:15:30	00:17:51	00:13:59	00:12:22	00:22:24	00:00:00
08:00 – 15:59	00:14:04	00:14:14	00:14:15	00:16:34	00:19:10	00:00:00
16:00 – 23:59	00:14:56	00:14:06	00:12:11	00:17:00	00:17:52	00:00:00
2021						
00:00 – 07:59	00:14:23	00:14:20	00:14:47	00:16:06	00:25:32	00:00:00
08:00 – 15:59	00:14:38	00:13:58	00:11:08	00:18:31	00:23:54	00:03:49
16:00 – 23:59	00:13:13	00:12:15	00:11:37	00:14:31	00:21:21	00:00:00
2022						
00:00 – 07:59	00:21:57	00:21:41	00:22:01	00:16:54	00:17:25	00:00:00
08:00 – 15:59	00:17:09	00:14:36	00:14:15	00:20:48	00:23:28	00:00:00
16:00 – 23:59	00:15:36	00:15:43	00:14:38	00:16:17	00:20:30	00:00:00

Appendix D: FUS Technical Document On Elevated Devices

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).

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 2012 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.

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.

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
Opta Information Intelligence Fire Underwriters Survey 101-8333 Eastlake Drive Burnaby, British Columbia, V5A 4W2 1-800-665-5661	Opta Information Intelligence Fire Underwriters Survey 255, boul. Cremazie E, 2nd Floor Montreal, Quebec, H2M 1M2 1-800-263-5361	Opta Information Intelligence Fire Underwriters Survey 600-175 Commerce Valley Dr. W. Markham, Ontario, L3T 7P6 1-800-268-8080	Opta Information Intelligence Fire Underwriters Survey 220-30 Damascus Road Bedford, Nova Scotia, B3B 1Y2 1-877-634-8564

APPENDIX E: Master Plan and Community Risk Assessment Recommendation Comparison Chart

Project Planner

Fire Master Plan Recommendation	Community Risk Assessment Recommendation	Plan Start	Plan Duration	Percent Complete Of Goals
Community and Fire Department Overview				
The Fire Chief brings forth a revised version of the Establishing & Regulating By-Law for Council's approval and, with annual review and updates as necessary. All other by-laws noted in this document should be reviewed and updated as required. All by-laws should be reviewed annually to ensure currency of the document				
Fire Administration to review by-laws that affect the daily operations of the fire department.				
Establish an SOG Committee representing all divisions of the LFD that develops new SOGs and reviews current ones regularly.				
Fire Department Administration and Staffing				
Increase administrative support for each of the divisions (training, suppression, and fire prevention) in line with departmental growth.				

Fire Master Plan Recommendation	Community Risk Assessment Recommendation	Plan Start	Plan Duration	Percent Complete Of Goals
Fire Prevention & Public Education				
Refresh and revise all fire prevention SOGs to reflect current LFD practices.	LFD will see growth in the mercantile building stock, which will need to be inspected and may require additional resources in fire prevention.			
LFD expand and formalize its Public Education activities by establishing and funding a Public Education Program and Plan with supporting SOGs.	Future public education opportunities should discuss the following topics of interest: sound of fire, importance of working smoke/CO alarms; emergency preparedness (evacuation), prolonged power loss, severe weather events; safe cooking practices, dangers of using oil/grease for cooking; develop and practice an escape plan for their home; how to extinguish a cooking fire; operating a fire extinguisher; fall prevention; burn prevention; the senior's safety book; open-air burning; etc.			
LFD continue to invest in its fire cause and determination program through certification and continuing educational opportunities for designated members with supporting SOGs.	The department could enhance public education for the senior demographic by incorporating the dangers of wearing loose-fitted clothing near stovetops, especially those with open flames,			

Fire Master Plan Recommendation	Community Risk Assessment Recommendation	Plan Start	Plan Duration	Percent Complete Of Goals
	into their Safe Cooking Program.			
LFD review its current inspection practices with a view to changing from a report-based practice to that of an order-based practice.	Work towards having a bi-lingual Fire Prevention and PFLSE staff that reflects the multicultural community.			
LFD examine opportunities to digitise its fire inspection reporting and record keeping practices including the use of handheld computing devices for inspectors.	Another option is the contractual employment of personnel to assist the LFD with interpreting and delivering fire prevention messages if English is not their second language.			
	Some fire services have implemented junior firefighter programs for the youth to assist around the fire stations and learn about fire safety and firefighting. Opportunities may be available to have the youth of Lakeshore achieve their required community service hours by helping around the fire station or at public education events by dressing as Sparky, the fire service mascot. Under the current staffing levels, this may not be easy to achieve, but it should be considered in the future when staffing permits its implementation under the PFLSE.			

Fire Master Plan Recommendation	Community Risk Assessment Recommendation	Plan Start	Plan Duration	Percent Complete Of Goals
	Some fire services have implemented junior firefighter programs for the youth to assist around the fire stations and learn about fire safety and firefighting. Opportunities may be available to have the youth of Lakeshore achieve their required community service hours by helping around the fire station or at public education events by dressing as Sparky, the fire service mascot. Under the current staffing levels, this may not be easy to achieve, but it should be considered in the future when staffing permits its implementation under the PFLSE.			
	LFD should develop a smoke alarm Outreach Program for the Indigenous demographic and local stakeholders to support their efforts. Having a PFLSE in the department would be able to spearhead this promotion.			
	Complete a needs analysis before implementing based on fires within the demographic and increased smoke alarm calls.			

Fire Master Plan Recommendation	Community Risk Assessment Recommendation	Plan Start	Plan Duration	Percent Complete Of Goals
	Emergency responders and community groups should work together to develop and deliver education programs to the responders and public on avoiding or mitigating a situation to preserve life and prevent further harm. Focus groups should include camps and campgrounds, places of worship, financial institutions, and schools.			
	LFD to continue providing public fire safety education during Fire Prevention Week on smoke alarms, beginning with school children.			
	LFD requires additional resources in Fire Prevention to make the inspection program more encompassing of all occupancies. Present staffing levels prevent inspection levels from being where they should be.			

Fire Master Plan Recommendation	Community Risk Assessment Recommendation	Plan Start	Plan Duration	Percent Complete Of Goals
	Consider a radio system upgrade that includes purchasing mobile repeaters.			
	Address the needs of those with mobility and cognitive behavioural issues in escaping a fire.			
	Address the needs of those with mobility and cognitive behavioural issues in escaping a fire.			
	A part-time dedicated PFLSE would greatly assist LFD. Public education opportunities require completion as the first line of defence. Public education programs need to meet the needs of Lakeshore as, presently, there is no dedicated PFLSE.			
	Many areas of public education could be either enhanced or implemented if additional resources were available			

Fire Master Plan Recommendation	Community Risk Assessment Recommendation	Plan Start	Plan Duration	Percent Complete Of Goals
	in the form of a part-time dedicated PFLSE.			
	Many areas of public education could be either enhanced or implemented if additional resources were available in the form of a part-time dedicated PFLSE.			
	Provide public education messaging on the dangers of unattended cooking, uncleaned or unmaintained chimneys, aged electrical and mechanical equipment, and lack of good housekeeping practices.			
	Promote artificial candles during the holiday season to reduce the risk of fires.			
	In some traditions, educate the public on the dangers of using real candles, sprays, or wreaths on Christmas trees.			

Fire Master Plan Recommendation	Community Risk Assessment Recommendation	Plan Start	Plan Duration	Percent Complete Of Goals
	Provide year -round education on preventing injuries from and causing cooking-related fires.			
	The fire department's fire prevention staff could include, during fire inspections, a discussion about installing back-flow valves on septic lines and ensuring that sump pumps are operational.			
	Provide public education on transporting, storing LPG tanks, and connecting hose lines.			
	Promote safe BBQ and portable stove usage to prevent leaks and fires involving propane tanks.			
	Contact TSSA for all locations with permanently installed LPG tanks.			
	Ensure that warning signage is in place as required at each solar			

Fire Master Plan Recommendation	Community Risk Assessment Recommendation	Plan Start	Plan Duration	Percent Complete Of Goals
	photovoltaic system locations.			
Fire Department Training				
Consider expanding the designated training nights at all stations from two per month to three per month.	The LFD should consider taking the NFPA online training course Alternative Fuel Vehicles Training Program for Emergency Responders.			
Add the position of Full-time/Career Training Officer to its compliment of FTEs.	Railway Incidents: HAZMAT response SOGs, policies, and training should be updated.			
Train and certify all members to the appropriate NFPA standards (1001, 1002, 1006, 1021, 1031, 1041, etc.)	LFD to maintain and update ice/water rescue training protocols, SOGs, policies, and activities on an ongoing basis.			
Train all firefighters who participate in vehicle, water, or ice rescue responses to the current NFPA 1006 Standard.	Assess the need to move to the operations level of ice rescues with crews leaving shore utilizing an inflatable raft and tethered to a maximum of 305 m (1,000 ft) from the shoreline.			
Convene regular (bi-annual) meetings for all chief officers.	LFD should conduct a needs analysis to upgrade their level of response to operations, including adherence to NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications regarding floodwater rescues.			

Fire Master Plan Recommendation	Community Risk Assessment Recommendation	Plan Start	Plan Duration	Percent Complete Of Goals
Fire department staff, in consultation with Human Resources, staff develop and implement a policy or SOG specifically with the internal promotional process for all departmental line officers (training officers, captains, and district chiefs).	Acquire rescue equipment and develop SOGs, procedures, and training for livestock rescue and handling.			
	LFD should have SOGs and policies for responding to locations experiencing a terrorist/active shooter attack.			
	Ensure procedures are in place for every municipally owned building for responding to active shooters and hostage situations (identify safe rooms).			
	Ensure SOGs, policies, equipment, and high-rise training are in place to fight fires in higher structures.			
	LFD should ensure SOGs, training, and pre-incident plans for solar photovoltaic systems are in place and current.			
	Having additional members on-scene trained in NFPA 921 and NFPA 1033 may assist in observing items or events that are overlooked and may prompt further investigation by more experienced personnel.			

Fire Master Plan Recommendation	Community Risk Assessment Recommendation	Plan Start	Plan Duration	Percent Complete Of Goals
	LFD must ensure members who have completed the NFPA 1033 Standard for Professional Qualifications for Fire Investigators course also achieve their certification to Pro Board/IFSAC standards certification			
	During investigations, the investigator should note if ongoing fire-cause trends are developing and act accordingly.			
Recruitment & Retention				
The fire chief to review the present recruitment and retention programs and make enhancements based on the information noted in the FMP body.				
Recruit a full-time contingent of firefighters, with two options in mind: 1. A total of two full-time day crews be hired, to cover times that volunteer responses are at their lowest (e.g., 8am to 5pm, Monday to Friday) and assign them to either station #1 or station #3. *Or* 2. Implementation a full-time, 24/7 at either station #1 or station				

Fire Master Plan Recommendation	Community Risk Assessment Recommendation	Plan Start	Plan Duration	Percent Complete Of Goals
#3, to ensure full-time, 24-hour coverage of the community. Hire a second 24/7 crew incrementally (as call volumes increase) to be assigned to whichever station is available (station #1 or #3). Financial implications of both recommendations should be assessed.				
Health, Fitness and Wellness				
LFD to review their Health, Fitness and Wellness programs to ensure that their firefighters are receiving proper coverage for PTSD, Cancer Prevention, and Mental Well-Being.				
Communications & Technology				
When researching for an RMS implementation, LFD should consider the ability of the systems to provide dispatch information and call management directly into the RMS from the dispatch service provider.				
While it is still not clear what changes will be required downstream in the 911 system at local fire departments that purchase dispatch services from Public Safety Answering Point or Secondary-Public Safety Answering Point, the municipality should contact the Canadian Radio and Telecommunications				

Fire Master Plan Recommendation	Community Risk Assessment Recommendation	Plan Start	Plan Duration	Percent Complete Of Goals
Commission (CRTC) for updates and potential financial impacts.				
Develop a preventative maintenance program as well as a backup plan in the event of failure of the infrastructure.				
The Municipality to budget funds for upgrading the radio system to the 800 MHz, which includes new mobile and portable radios, pagers, transmission towers and transmitters, generators at each transmission tower, and possibly mobile repeaters if the audit warrants their purchase.				
Create an IT support position to provide in-station and remote connectivity, hardware and software management, and life-cycle updates.				
Fire Suppression				
In consultation with the fire chief, Council to consider a feasibility study of the two future staffing options presented: **Option #1** – Full-time Day Crews **Option #2** – 24/7 coverage at two of the present stations. **Option #3** – a combination of a daytime station with the other being 24/7 coverage.				

Fire Master Plan Recommendation	Community Risk Assessment Recommendation	Plan Start	Plan Duration	Percent Complete Of Goals
Conduct a feasibility study by the Director of the Works Department or through a third party.				
Fire Stations				
Address the list of station concerns noted in section 4.2 of the report.	The LFD should explore the opportunity of achieving Tanker Shuttle accreditation for the remaining two fire stations.			
Vehicles & Equipment				
The fire chief needs to identify the present fire vehicle stock to ensure that there is a spare pumper truck and elevated device available in the case that one of the front-line units is put out of service for any mechanical reason.	Evaluate the need to update equipment specific to ice/water rescues.			
	If a fire involves fuel or a fibreglass vessel, LFD may require abundant foam concentrate.			
	Following a fuel spill into the water, containment booms and porous materials may be necessary.			
	Consider when the next engine is due for replacement to acquire a Quintuple combination pumper (Quint), a more versatile apparatus to operate as the front-line apparatus out of the			

Fire Master Plan Recommendation	Community Risk Assessment Recommendation	Plan Start	Plan Duration	Percent Complete Of Goals
	station to which it is assigned.			
	Increase the minimum size of the water mains from the current 50 mm (2") to 150 mm (6") or greater to ensure adequate water supply for firefighting operations while continuing to provide domestic water			
	Ensure standby generators installed at all the fire stations can energize the entire building.			
	Complete an electrical audit to identify the generator size required for each location.			
Emergency Management				
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.	As with any HAZMAT incident, Lakeshore may need to implement its ERP or open its reception centres.			

Fire Master Plan Recommendation	Community Risk Assessment Recommendation	Plan Start	Plan Duration	Percent Complete Of Goals
Develop a plan to understand the full logistical ramifications of using the Alternate EOC at its current location.	Ensure an area in the Emergency Response Plan addresses oil/gas well emergencies.			
The Municipality of Lakeshore adopt IMS to aid in understanding the means of mitigating and recovering from an emergency with the inclusion of IMS within the ERP and other specific hazard plans. Due to the importance of staff understanding their roles and responsibilities in the EOC, implement a policy that identifies IMS 200 as the minimum standard for staff required to be in the EOC with IMS 300 being the goal for all department heads.	Ensure maps of the well locations are available, whether active or not			
Recognition of services required in response to emergencies be noted within the HIRA. Agreements with NGOs to aid in the provision of services beyond the scope and/or resources of local staff will ensure adequate responses. Formalized agreements with the needed NGOs will provide some assurances of capability.	The Planning Division needs to be aware of the locations of wells to ensure no structures are located over them.			

Fire Master Plan Recommendation	Community Risk Assessment Recommendation	Plan Start	Plan Duration	Percent Complete Of Goals
With the assistance of policing agencies, the Municipality of Lakeshore include, as a Response Plan, the Active Shooter/Hostile Event Response (ASHER) program. The section should include an integrated response program comparable to NFPA 3000, Standard for an ASHER Program.	Monitor findings of the Wheatley explosion.			
Investigate and include in planning alternative communications between the EOC and emergency site(s) as well as from the Head of Council to the public.	Arrange for the Red Cross to evaluate each reception centre location to assess its suitability as a reception centre, considering the number of residents it may need to accommodate. Also, consider whether the site is suitable for long-term operations, whether there is an emergency power supply, and what amenities are available.			
	Ensure all sites are AODA compliant.			
	Develop a database of the inventory of all building stock based on the OBC.			

Fire Master Plan Recommendation	Community Risk Assessment Recommendation	Plan Start	Plan Duration	Percent Complete Of Goals
	Develop an inventory of all building stock with LWC components, excluding houses, per the OFM Directive 2022-001.			
	LFD to promote the value of residential sprinklers, (i.e., their inclusion during the initial building of new residential occupancies)			
	Develop a hydrant maintenance program that complies with the OFC, Article 6.6.4 and NFPA 291, Recommended Practice for Water Flow Testing and Marking of Hydrants			
	Once dry hydrants are in place, develop maps identifying their locations, with circles determining the response distances, which become available to the residents to provide to their insurance provider. This service may permit the residents to take advantage of savings on their insurance premiums.			
	Promote installing dry hydrants to property owners with access to a water supply.			
	LFD lacks the resources to develop and maintain an active pre-incident plan program. Pre-planning before an			

Fire Master Plan Recommendation	Community Risk Assessment Recommendation	Plan Start	Plan Duration	Percent Complete Of Goals
	incident occurs is essential for efficient operations and the safety of the firefighters at the incident.			
Fire Service Agreements				
Fire departments within the County of Essex and Windsor, inclusive of the LFD, should ensure the local mutual aid plan is reviewed and up to date. It is further recommended that with the updating of Mutual Aid Plans (i.e., 2022) the plan is presented to council with an updated By-Law for enactment.	If the decision is not to enhance response levels to operations (for ice rescues), in that case, it is recommended that a response agreement with a neighbouring fire service that does mitigate ice/water rescues at the operations level be implemented.			
When the current Automatic Aid Agreement with Chatham-Kent is revised and updated, include a defined commitment to regular training that designates the position accountable for completion of this task.	Enter into a response agreement with a neighbouring fire department for the immediate response of an aerial when Lakeshore receives a confirmed fire in residential structures over three storeys, industrial and commercial occupancies.			
Formally introduce the Medical Tiered Response Agreement with EWEMS to Council and support it with the passage of a by-law once the agreement is reviewed and updated.				

Fire Master Plan Recommendation	Community Risk Assessment Recommendation	Plan Start	Plan Duration	Percent Complete Of Goals
The Medical Tiered Response Agreement does not provide any guidance for training required to respond to any types of medical and/or trauma related injuries other than those that are cardiac related. An increased level of training should be considered either within the agreement or through the Fire Department regular training initiatives.				
Fire Service Agreements				
Revise the cost projections for the Recue Truck due for acquisition in 2024 to reflect the recent cost increases in the fire apparatus market.	Ensure that warning signage is in place as required at each solar photovoltaic system locations.			
In 2030, update the cost projections contained in the Capital Forecast for the replacement of the breathing air compressor, fill station, and air storage to reflect anticipated acquisition costs.				
Finance and fire department administrators work collaboratively to establish a strategy for Council's approval that properly funds the fire department Equipment and Vehicle Reserve in anticipation of				

Fire Master Plan Recommendation	Community Risk Assessment Recommendation	Plan Start	Plan Duration	Percent Complete Of Goals
the shortfall that is identified to occur in 2025.				
Add two additional line items to the Capital Forecast for the Fire Department (Hose Replacement and Small Equipment) and that these line items be funded with an annual allocation of funds going forward.				
The next iteration of the Development Charges By-law considers a revision to the cost allocation for the fire services portion of the assigned fees.				