Township of Essa

Fire Department Master Plan 2024

TOWNSHIP of ESSA
Where Town and Country Meet

ESSA
FIRE & RESCUE

EMG Emergency Management Group

EXECUTIVE SUMMARY

This Fire Master Plan (FMP) encompasses a comprehensive review of Essa Fire Department's (EFD) strengths, weaknesses, opportunities, and challenges. It consists of a review of the community (through the development of a separate Community Risk Assessment (CRA) report), along with identifying current and future population statistics and anticipated community growth. This 10-year planning document is a result of the analysis conducted.

Benefits of Master Planning

The benefits of 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.
- The ability to communicate with staff and internal and external stakeholders about the organization's future goals.

The recommendations 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 EFD resources and staffing.

The recommendations provided by EMG have been broken down into the following timelines:

- Immediate: 0 – 1 year, which should be addressed as soon as possible due to legislative or health and safety requirements, or other immediate needs.
- 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 that the Town Council provides, as well as the allocation of associated resources and the ability to move forward with the related recommendations contained within the document.

Scope of Requirements

The scope of requirements for this FMP were to provide a plan for the future of Fire and Emergency Services for the Town of Essa (hereafter known as "the Town"), aligning with Council's Strategic Plan, federal and provincial directions, and trends, with realistic and achievable short- (3 year), mid- (4-7 year) and long-term (8-10 year) goals and strategies. This was accomplished through addressing the following:

- Identification of the risks faced by the fire service now and well into the future so that EFD can develop and deliver mitigation strategies.
- A plan for programs, services, budgets, facilities, and assets to be closely aligned with ideas and initiatives which are generated and supported by the community by outlining the process for an ongoing loop of information exchange, engagement, feedback and consultation and the necessary mechanisms and tools (and budgets) to support it.
- A document that guides municipal planning, budgeting decisions, staffing and achievable service standards so that considerations are included in municipal decision making (must meet *Accessibility for Ontarians with Disabilities Act (AODA)* requirements).
- A guide to give direction for future work plans, partners, projects, and budgets in the development of future programs and infrastructure, including identifying funding, technology, facility improvements, and partnership opportunities – both public and private.
- A complete assessment of the current inventory and adequacy of apparatus, equipment, and facilities.
- Identify department potential savings and efficiencies.
- Create a plan to address growth and future demands for services based on the needs of the community.
- Define current and future trends, community needs.

Summary Overview of Recommendations

Based on the information received during the meetings, a review of supplied documentation, and reference to industry standards and best practices, there are 44 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.

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 chronological recommendations chart can be found in Section 9. This chart has also included brief rationale comments to assist the reader with justification for each recommendation.*

Rec #	Recommendation	Suggested implementation Timeline	Estimated Costs	Rationale
2	Review and update all SOGS, including establishing an SOG Committee that meets on a pre-determined schedule and operates under a newly developed Terms of Reference.	Immediate (0 to 1 year)	Staff time Pending the decision to establish a SOG Committee, there may be a financial impact on the budget for firefighter participation.	Current SOGs provide clear direction on the expected operations of the EFD.
5	Add the provision to local by-law to provide monetary penalties to non-compliant inspections.	Immediate (0 to 1 year)	Staff time	This will provide a tool to gain compliance of infractions, as well as support the cost of existing resources to carry out these functions.

Rec #	Recommendation	Suggested implementation Timeline	Estimated Costs	Rationale
8	Design a career path model for all specialised functions/positions within the EFD.	Immediate (0 to 1 year)	Staff time	Firefighting is a high-risk profession. Training is essential to enable firefighters to respond more efficiently to emergencies, reducing the property damage caused by fire, loss of life, and public hazards, as well as reducing personnel injuries. Although the EFD has a career path model for firefighter maintenance training, recruit firefighters, and officer promotion, there is limited documentation regarding career path modeling for other specialised positions, such as fire prevention officer, fire investigator, public educator, or technical rescuer.
9	Township of Essa and the EFD review their funding obligations to ensure adequate financial support to meet the training objective iterated in point four of the "Objectives of the Essa Fire and Emergency Services" section of The Township of Essa By-law 2022-16.	Immediate (0 to 1 year)	Staff time	This is becoming critical with the adoption of the Firefighter Certification regulation made under the *FPPA*, 1997.

Rec #	Recommendation	Suggested implementation Timeline	Estimated Costs	Rationale
11	EFD ensure that any training props comply with NFPA 1402, *Standard on Facilities for Fire Training and Associated Props*.	Immediate (0 to 1 year)	Staff time	NFPA 1402 provides guidance for the planning of fire service training centers, focusing on the main components necessary to accomplish general fire fighter training effectively, efficiently, and safely.
12	EFD create a Live Fire Training SOG to support their live fire training efforts.	Immediate (0 to 1 year)	Staff time	The most frequently cited contributing factors in the National Firefighter Near-Miss Reporting System are situational awareness, followed by decision making. In the live-fire training environment, both skills are crucial to the success of the operation and can be repeatedly practiced and fine-tuned. An SOG will solidify the importance of live-fire training.

Rec #	Recommendation	Suggested implementation Timeline	Estimated Costs	Rationale
13	Township of Essa By-law 2022-16 be updated to align technical rescuer core services with wording from Table 1 of the O. Reg. 343/22. The Township of Essa has an Memorandum of Understanding in place with the City of Barrie who provides technician level technical rescuer services. Thirdly, all technical rescuer training programs should be monitored to adhere to the NFPA 1006: *Standard for Technical Rescue Personnel Professional Qualifications* and in accordance with O. Reg. 343/22: *Firefighter Certification*. Finally, EMG also recommends that the EFD aligns its technical rescuer operations and training to NFPA 2500: *Standard for Operations and Training for Technical Search and Rescue Incidents and Life Safety Rope and Equipment for Emergency Services*.	Immediate (0 to 1 year)	Staff time	Aligning wording in the By-law with O. Reg. 343/22 will avoid misunderstanding as to the adequate level of service provided and to avoid unnecessary training expenses. This standard specifies the minimum requirements for the EFD identified levels of functional capability for conducting operations at technical search and rescue incidents while minimizing threats to rescuers.

Rec #	Recommendation	Suggested implementation Timeline	Estimated Costs	Rationale
4	Provide adequate resources such as software and staff time to expand the current pre-incident planning program.	Immediate to Short-term (0 to 3 years)	Staff time	This will improve information when responding to emergencies, work to improve current information in the RMS on building risk, and engage staff.
6	Add, refresh, and revise all fire prevention SOGs to reflect current EFD practices.	Immediate to Short-term (0 to 3 years)	Staff time	Contemporary SOGs that are reflective of industry informed practices guide staff and decrease liability risk to the community.
28	Equipment with definitive lifecycles should be part of the Township of Essa Lifecycle Management Strategy.	Immediate to Short-term (1-3 years)	Staff time	Currently, fire protection services identifiable equipment with a definitive lifecycle are not outlined in the Township's lifecycle management strategy.

Rec #	Recommendation	Suggested implementation Timeline	Estimated Costs	Rationale
29	Review the EFD 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).	Immediate to Short-term (1-3 years)	Staff time	With revenue generation in mind, during the next Development Charge review process, the Township of Essa's anticipated growth and its impact on emergency services should be factored into the formula applied for fees and charges.
1	Fire Administration review by-laws that affect the daily operations of the fire department.	Short-term (1-3 years)	Staff time	Having current by-laws will reflect changing the circumstances of the Town and meet federal or provincial Acts and regulations.
3	Review input received from the surveys to identify further opportunities for the Department and the community it serves.	Short-term (1-3 years)	Staff time, but some recommendations may include associated costs	Keeping track of the input received from the surveys can result in the implementation of new ideas and sharing this information with staff will support the value of their input.

Rec #	Recommendation	Suggested implementation Timeline	Estimated Costs	Rationale
7	EFD expand its Public Education activities by establishing and funding a Public Education Program and Plan with supporting SOGs.	Short-term (1 to 3 years)	Staff time	Active and engaging Public Education Programming can reduce the incidence of unwanted fires and change unwanted and unhealthy behaviours.
10	EFD create a full-time Training Officer position to manage training needs for the EFD. During the daytime when staffing is critical, the Training Officer could respond to calls.	Short-term (1 to 3 years)	FTE cost and benefits could be in the amount of approximately $90,000.	Although EMG's analysis suggests that 4.5 staff would be required to adequately support EFD training needs, EMG is of the opinion that a full-time dedicated Training Officer supported by a training clerk would suffice to adequately administer the EFD training needs. The full-time Training Officer would be coordinating and supervising training delivery through appointment of captains as per the current model. A full-time Training Officer would provide consistency and uniformity in training delivery. While on duty the Training Officer should respond to fire calls as a firefighter.

Rec #	Recommendation	Suggested implementation Timeline	Estimated Costs	Rationale
14	Suppression staff be trained to Fire and Life Safety Educator Level 1 and that the EFD operations Division Captains also be trained as Public Information Officer, under the NFPA 1035.	Short-term (1 to 3 year)	Staff time	EMG applauds that public fire and life safety education training aligns with NFPA 1035. However, given the importance of the first two lines of defence, all staff should be trained to NFPA 1035 Level 1.
15	At least the District Chief at each station should be certified to NFPA 1031 Fire Inspector Level 1. Ideally, both district chiefs and all captains should be trained and certified to NFPA 1031 Fire Inspector Level 1.	Short-term (1 to 3 year)	Staff time	Having these extra resourced with help to meet the goals set in The Township of Essa By-law 2022-16 pertaining to FIRE PREVENTION – Core Services.
16	At least two members of EFD train to the Operations Level in elevator rescues per the TSSA Standard for training.	Short term (1 to 3 years)	Staff time, plus training and possibly some hand tools.	Having at least two members trained in this discipline permits EFD to meet its due diligence in ensuring the members of EFD train to the Awareness Level.

Rec #	Recommendation	Suggested implementation Timeline	Estimated Costs	Rationale
17	Implement SOGs, training and specialized equipment to fight fires involving lithium batteries found in vehicles, scooters, and motorbikes.	Short-term (1 to 3 years)	Staff time The cost of training programs and specialized equipment has yet to be determined. Early estimates for the Emergency Plug are USD 1,000.00.	Electric vehicles present a high rate of fires involving lithium-ion batteries with approximately 400 volts. Fires have also occurred in scooters and e-bikes with the same battery type.
18	Include references to NFPA 1225 and 1061 in the Township of Essa's dispatch agreement with the City of Barrie.	Short-term (1 to 3 years)	Staff time	This addition to the agreement will identify expected competencies and service provisions from BFC.
19	Invest in a connection at the source exhaust extraction system when building the replacement fire station in Angus.	Short-term (1 to 3 years)	Costs vary depending on the length of the track, fan size, number of vehicle connections required, etc.	At source exhaust extraction system will reduce the risk more than an internal ventilation system, as less particulate and carcinogens circulate throughout the structure.

Rec #	Recommendation	Suggested implementation Timeline	Estimated Costs	Rationale
20	The Township of Essa needs to develop a formal PTSD Prevention Plan with EFD.	Short-Term (1 to 3 years)	Staff Time	While the Township has included members of EFD in its EAP through Homewood Health Services, the requirement still exists that a complete PTSD Prevention Plan be developed.
21	The Township of Essa, include in their 2024 budget deliberations, funds to build a new Fire Station 2.	Short term (1 to 3 years)	$8 to $9.5 million.	Station 2 is at the end of its life span. Several amenities lacking in the present station would be advantageous to have, including some to address the risk of contracting cancer. Further delays will reflect in higher construction costs.

Rec #	Recommendation	Suggested implementation Timeline	Estimated Costs	Rationale
23	Inspect all fire hydrants and test as required in Section 6.6 of the *Ontario Fire Code* and NFPA 291, *Recommended Practises of Fire Flow Testing and Marking of Hydrants*. Further, EFD should works with the Water Department to convert the steamer ports to Storz couplings and make Storz connections the new standard for hydrants in the Township.	Short-term (1 to 3 years)	Staff time and costs	This ensures compliance with the Ontario Fire Code. The conversion of the hydrants from threaded steamer ports to Storz lugs need not be completed in one year. This retrofit could be managed over several years.
24	Establish a budget line specifically for "Community Emergency Planning Initiatives" within the annual operating budget.	Short-term (1 to 3 years)	To be determined.	To allow broader community education efforts and establish a funding pool for exercise design and implementation.
25	EFD needs to review and update, as necessary, all response and automatic aid agreements annually.	Short-term (1 to 3 years)	Staff time	Maintaining an up-to-date agreement will ensure the communities receive fire service protection that meets current and future circumstances.

Rec #	Recommendation	Suggested implementation Timeline	Estimated Costs	Rationale
26	The EFD must review and prepare the Mutual Aid Participation By-law 2006-31 for the Council's Approval.	Short-term (1 to 3 years)	Staff time	By-laws and Agreements need reviewing and updating annually to ensure they are current and meet the community's needs.
27	Include in the Fees and Charges By-law responding to and mitigating technical rescues at full cost recovery.	Short-term (1 to 3 years)	Staff time	Including this charge in the by-law ensures that local taxpayers do not bear the cost of mitigating technical rescues, which can cost thousands of dollars.
30	EFD continues to implement recommendations from the 2014 FMP as feasible.	Short-term (1 to 3 years)	Staff time	The implementation of recommendations will advance EFD in fire protection services and initiate fire and life safety programs.
31	The Fire Chief should contact FUS and acquire copies of the previous FUS Survey to identify gaps found either in the operations of EFD or the municipality.	Short term (1 to 3 years)	Staff time	Acquiring and reviewing the previous survey will aid EFD in improving its efficiency, which may result in lower insurance costs for some of the community.

Rec #	Recommendation	Suggested implementation Timeline	Estimated Costs	Rationale
22	Develop a Respiratory Program.	Short-term (1 - 3 years) ongoing	Staff time	This program is an industry standard and best practice. It also aids in ensuring the health and safety of firefighters when wearing respiratory protection devices.

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ACRONYMS

AHJ	Authority Having Jurisdiction
AODA	Accessibility for Ontarians with Disabilities Act
BFC	Barrie Fire Control
BFES	Barrie Fire and Emergency Service
BLS	Basic Life Support
CACC	Central Ambulance Communications Centres
CAD	Computer-Aided Dispatch
CAFC	Canadian Association of Fire Chiefs
CAFI	Canadian Association of Fire Investigators
CAO	Chief Administrative Officer
CEMC	Community Emergency Management Coordinator
CERB	Central Emergency Reporting Bureau
CFAI	Commission on Fire Accreditation International
CFB	Canadian Forces Base
CFO	Chief Fire Official
CO	Carbon Monoxide
CRA	Community Risk Assessment
CRRP	Community Risk Reduction Plan
CRTC	Canadian Radio-television and Telecommunications Commission
CSPS	County of Simcoe Paramedic Service
DRD	Drag Rescue Device

ACRONYMS

E&R	Establishing and Regulating (By-law)
EFD	Essa Fire Department
EMG	Emergency Management Group Inc.
ESA	Electrical Safety Authority
FMP	Fire Master Plan
EAP	Employee Assistance Program
EMCPA	Emergency Management and Civil Protection Act
EMO	Emergency Management Organization
EOC	Emergency Operations Centre
ESA	Electrical Safety Authority
FESO	Fire Emergency Services Organization
FPO	Fire Prevention Officer
FPPA	Fire Protection and Prevention Act
FPSS	Fire Protection Survey Services
FUS	Fire Underwriters Survey
HAZMAT	Hazardous Materials
HRFP	Health-Related Fitness Program
IAAI	International Association of Arson Investigators
IBC	International Building Code
ICS	Incident Management System
IDLH	Immediately Dangerous to Life and Health

ACRONYMS

IFSTA	International Fire Service Training Association
IMS	Incident Management System
IT	Information Technology
KPI	Key Performance Indicators
LMS	Learning Management System
LWC	Lightweight Construction
MDT	Mobile Data Terminal
MNRF	Ministry of Natural Resources and Forestry
MOU	Memorandum of Understanding
MPDS	Medical Priority Dispatch System
MVC	Motor Vehicle Collision
NFCP	National Fireworks Certification Program
NFPA	National Fire Protection Association
NIOSH	National Institute for Occupational Safety and Health
NIST	National Institute of Standards and Technology
OBC	Ontario Building Code
OCWA	Ontario Clean Water Agency
OFC	Ontario Fire Code
OFM	Office of the Fire Marshal
OHSA	Occupational Health and Safety Act
OMFPOA	Ontario Municipal Fire Prevention Officer's Association

ACRONYMS

OSI	Occupational Stress Injuries
PAD	Public Access Defibrillator
PFLSE	Public Fire Life Safety Educator
PPE	Personal Protective Equipment
PTSD	Post-Traumatic Stress Disorder
RFP	Request for Proposal
RMS	Record Management System
RRT	Real-time Texting
SCBA	Self-Contained Breathing Apparatus
SOG	Standard Operating Guideline
SOP	Standard Operating Policy
STA	Short-term Accommodation
SWF	Standard Workflow (analysis)
SWOT	Strengths, Weaknesses, Opportunities, and Threats
TIC	Thermal Imaging Cameras
TSSA	Technical Standards and Safety Authority
UTV	Utility Terrain Vehicle
WETT	Wood Energy Technology Transfer
WSIB	Workplace Safety & Insurance Board

Introduction

INTRODUCTION

Project Methodology

Emergency Management Group Inc. (EMG) has based its review process on the Town's initial Request for Proposal (RFP) and the response document submitted by EMG. The specific scope of work required was addressed and incorporated in each section of this document. The FMP review was completed 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.

The methodology involves a considerable amount of research, documentation review, data analysis, and stakeholder consultation. It further involves the submission of draft reports and related recommendations. The final product is a living document that provides high-level strategic direction for Council and the Fire Department.

To accomplish the scope of requirements, EMG has:

- Reviewed the Establishing and Regulating (E&R) By-law.
- Reviewed applicable municipal, provincial, and federal legislations.
- Reviewed planning department documents regarding community and areas of growth projections.
- Reviewed any previous risk assessment, council's strategic priorities, and other pertinent documents.
- Conducted a general risk assessment based on the information supplied and garnered during interviews and site visit.
- 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, 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 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 Town (development fees).

Based on these criteria, and through meetings with members of Council, firefighters, and community stakeholders, the consulting team completed a thorough review of elements that are working well and areas requiring improvement within EFD. This review culminated in a total of 44 recommendations.

Performance Measures and Standards

This FMP has been based upon (but not limited to) key performance indicators (KPIs) 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 (OFM) Communiques
- The *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 Fire Underwriters Survey (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:

- Darryl Culley, President
- Lyle Quan, Fire Service Consultant/ VP of Operations - Project Lead
- Rick Monkman, Fire Service Consultant
- Guy Degagne, Fire Service Consultant
- Larry Brassard, Fire Service Consultant
- Monty Armstrong, Fire Service Consultant

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

SECTION 1

Community and Fire Department Overview

SECTION 1: COMMUNITY & FIRE DEPARTMENT OVERVIEW

1.1 Community Overview

Essa Township is a mixed rural and urban area, located in the heart of Simcoe County. It lies directly southwest of the City of Barrie and is roughly 100 kilometers north of the City of Toronto. Essa Township's borders are County Road 90 to the north, County Road 27 to the east, Highway 89 to the south, and County Road 15 to the west. Essa Township consists of the three major communities of Angus, Baxter, and Thornton as well as the smaller hamlets of Colwell, Egbert, Ivy, and Utopia. Canada's largest Canadian Forces training base, CFB Borden, is located inside Essa Township, just west of Angus, and impacts the economy of Essa Township positively.

In 2021, the enumerated population of Essa was 22,970, which represents a change of 9% increase from 2016. This compares to the provincial average of 5.8% and the national average of 5.2%. In 2021, there were 7,949 private dwellings occupied in Essa[1].

According to Statistics Canada, the land area of the Town is 279.92 km^2, and the population density was 82.1 people per square kilometre.

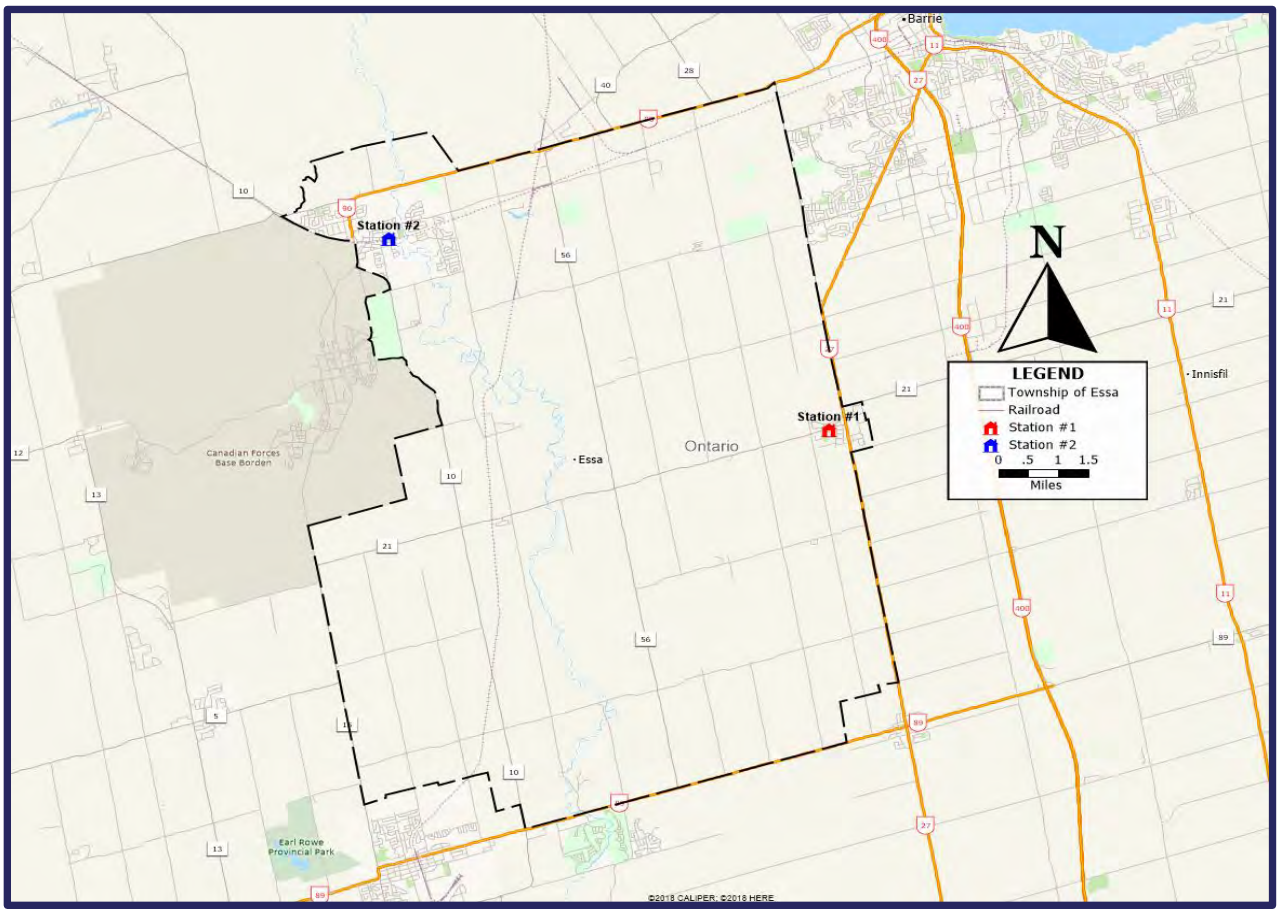
[1] Statistics Canada, Profile table, Census Profile, 2021 Census of Population - Essa, Township (TP) [Census subdivision], Ontario (statcan.gc.ca), accessed November 3, 2023, https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/details/page.cfm?Lang=E&SearchText=Essa&DGUIDlist=2021A00053543021&GENDERlist=1,2,3&STATISTIClist=1,4&HEADERlist=0

FIGURE #1: BOUNDARIES OF THE TOWNSHIP OF ESSA

1.2 Fire Service Overview

EFD provides emergency response and fire prevention programs from two fire stations located in the communities of Angus and Thornton. Staff consists of four full-time personnel that include the Fire Chief, a Deputy Fire Chief, an FPO/PFLSE and an Administrative Assistant. Response to calls for service are covered by a group of dedicated volunteer firefighters that are dispersed amongst the two fire stations.

FIGURE #2: LOCATION OF FIRE STATIONS



On average, the department annually responds to between 450 to 500 calls for service. More information relating to call volumes of the fire stations will be covered in sections three and four of this report.

The population of Simcoe County is forecasted to grow by over 40% between 2022 and 2046.[2] With this anticipated growth, there will most likely be an increase in call volume and related demands placed on fire prevention for inspections, and the need for enhanced levels of public education. Based on this information, the EFD need will need to review their current capacity to meet the required number of

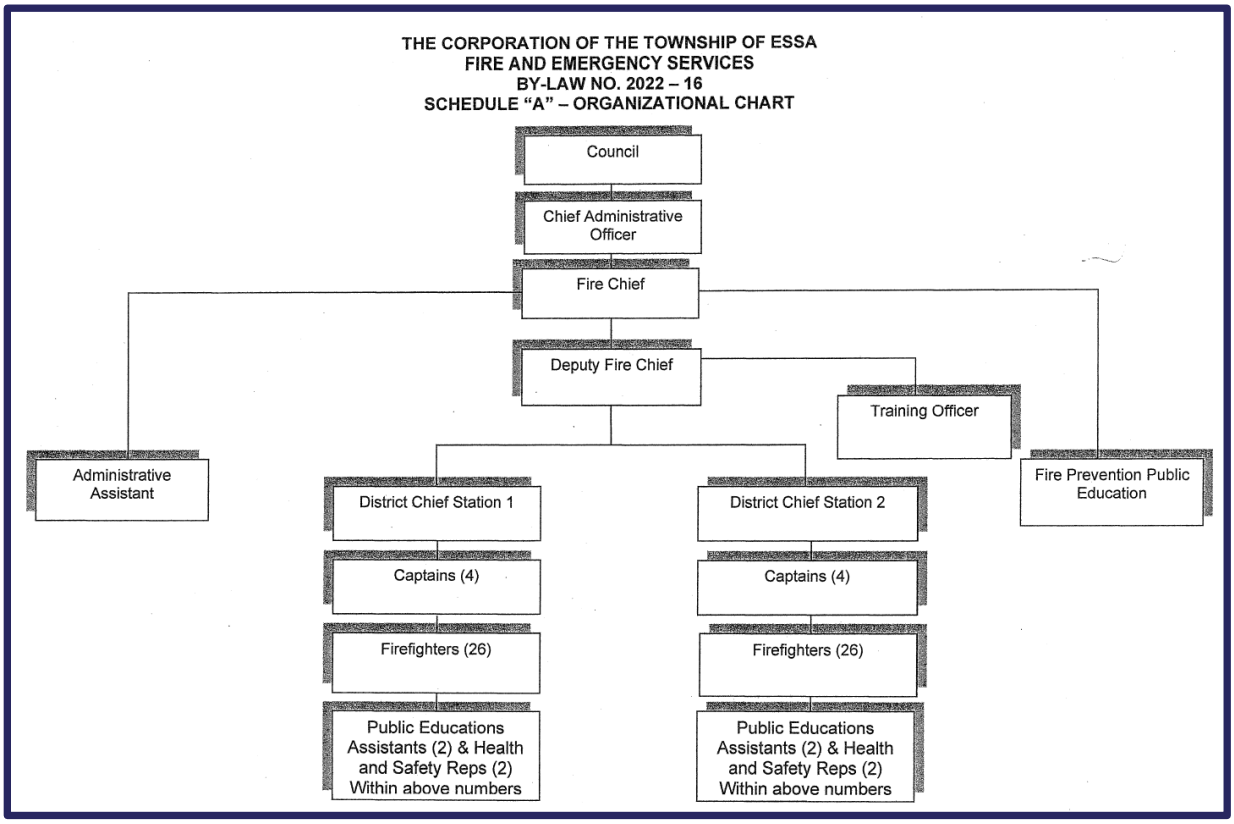
[2] "Ontario population projections," King's Printer for Ontario. Accessed September 27, 2023, https://www.ontario.ca/page/ontario-population-projections#:~:text=Ontario%E2%80%99s%20population%20is%20projected%20to%20increase%20by%2043.6,to%20almost%2021.7%20million%20by%20July%201%2C%202046.

inspections and public education events versus the need for additional resources. More information on fire prevention and public education will be noted in Section 3 of this document.

Reporting Structure

The Fire Chief reports to the Chief Administrative Officer (CAO) for all fire service-related matters. The organizational chart noted in Figure #3 reflects the general reporting structure.

FIGURE #3 : FIRE DEPARTMENT ORGANIZATIONAL CHART



Based on the present reporting structure of the fire service organization, EMG is not presenting any recommendations in this section of the report.

More information relating to the fire department divisions and response criteria will be presented in Section 3.

Section 1: Recommendations

There are no recommendations for Section 1.

SECTION 2

Risk Assessment

SECTION 2: RISK ASSESSMENT

2.1 Community Risk Assessment

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

The 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, the council can decide on the service level provision.

O. Reg. 378/18 Community Risk Assessment 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. Assessment of the information gathered, which includes the likelihood of these scenarios occurring and subsequent consequences, 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 EFD develop and implement 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 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, canyons and other landforms, railroads, wildland-urban interfaces, bridges, and other specific community features.

Building Stock Profile – Potential high-risk occupancies, whether residential, commercial, or industrial; building density; building code classifications; age of structure; occupancies that could be a high life safety risk; and historic buildings. Inventory the building stock and identify each that incorporated lightweight construction practices.

Public Safety Response Profile – How are resources 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 – Hazards that are human, technological, or natural in nature.

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 high impact or small chronic events with a high frequency and low impact.

The CRA is distinct from the FMP. After the Fire Chief has reviewed these documents, they should hold discussions with the Council, senior management, and the CAO to review and discuss their findings.

2.2 Community Risk Assessment – Identified Risks

The following information outlines some identified risks to life safety and property. Now that the CRA and this FMP are complete, the Fire Chief can implement 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 include early warning detection systems (i.e., smoke alarms), proactive inspections, and public education.

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

Transportation Incidents – A large workforce drives along Simcoe County Road 90 through Angus into Base Borden every day. This increased traffic volume increases the risk of motor vehicle collisions (MVCs), especially along the four-lane County Road 90, where speeding is a significant issue. Many serious accidents occur annually. Other notable roadways include county roads 10, 21 and 56, which are experiencing higher traffic volumes due to developments and the increase in residents in the area, not just the Township of Essa.

Industries – The Township of Essa has very few large employers; the largest is DECAST Ltd., with 500 staff. Some smaller employers include Phoenix Building Components, which has 100 employees, FS Partners, HJV Equipment, and Alliance Agri-Turf. Industries have specific risks to their processes. For example, DECAST Ltd. manufactures concrete storm and sanitary pipes, bridges, and girders; each has its dangers. Industries such as these require fire inspections by inspectors uniquely familiar with the operations of each and related fire safety industrial regulations.

Hazardous Material Incidents – There is a heightened threat of hazardous materials (HAZMAT) incidents in the Township. EFD responds to these incidents per NFPA 472, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents,* at the Awareness Level and are supported by Barrie Fire & Emergency Service (BFES) through a Special Operations Memorandum of Understanding (MOU). Canadian Pacific Railway has a line running through the Township, which increases the risk of a HAZMAT incident occurring. Such an incident could be largely impactful, due to the quantities transported via rail.

Technical Rescues – These rescue types include Trench, Confined Space, High and Low Angle, and Elevator. The mitigation of technical rescues requires that Standard Operating Guidelines (SOGs), policies and procedures, equipment, and training specific to each discipline are in place. EFD responds at the minimum Awareness Level for each technical rescue except elevator and low/high-angle rescues, as EFD provides no training in this discipline. A response mitigation strategy is in place under the Special Operations MOU with the City of Barrie and the Township of Essa.

Few elevators are in operation within the Township. EFD will need to monitor if their numbers increase, along with the call volume for rescues. If elevator rescues are carried out by EFD personnel, they must train to the standards established by the Technical Standards and Safety Authority (TSSA).

Bodies of Water – The primary body of water in the Township is the Nottawasaga River, which meanders the length of the Township. With it are several tributaries, including the Mad and Pine Rivers. The many rivers and streams also present risks including slippery riverbanks causing people to fall into the river, and high-water levels resulting in flooding from spring thaws or significant rain events.

Currently, the EFD's level of response is at the Awareness Level. This level of response requires firefighters to remain on shore and restricting the ability to transverse the ice/water to reach the victim in the water. The fast-flowing Nottawasaga River can sometimes carry persons downstream in a short period, which may also result in drowning. The MOU also covers these rescues through services provided by BFES.

Weather Events – This area of Southern Ontario is known to receive severe weather events ranging from snowstorms to extreme wind events, including tornadoes. The Township of Essa has access to the mobile Alertable App and should promote installation to residents of the Township. Currently, the Township uses the app to keep residents informed of road closures or other inconveniences that may directly affect their daily lives. The Township should expand access to the app to post fire department information that could affect public safety in the Township.

The severity of some weather events may require the activation of the Township's Emergency Operations Centre (EOC). Preparations in handling such events should include either tabletop or real-time training exercises that include participation by members of the Township's Control Group and allied agencies.

Domestic Terrorism - The threat of domestic terrorism exists in Canada, with numerous incidents producing havoc and terror among the populace. Active shooter incidents may occur in factories, schools, supermarkets, and seasonal facilities. Situations have appeared in several Canadian cities with catastrophic consequences.

NFPA 3000 – Standard for an Active Shooter/Hostile Event Response (ASHER) Program, defines ASHER as:

> *"…an incident where one or more individuals are or have been actively engaged in harming, killing, or attempting to kill people in a populated area by means such as firearms, explosives, toxic substances, vehicles, edged weapons, fire, or a combined thereof."*

It further describes the ASHER Program as "a community-based approach to preparedness, mitigation, response, and recovery from an ASHER incident, including public or private partnerships, emergency management, the medical community, emergency responders, and the public."

Too often, communities wait until an event has occurred with catastrophic consequences and loss of life before identifying the need for public education and preparedness to handle such incidents. Terrorism attacks quite often focus on those of religious faith.

Several events are occurring worldwide, which have heightened the risk of a terrorist attack. This risk is especially noteworthy within the Township due to its proximity to CFB Borden, which could be a prime target for nefarious acts.

Demographics – Demographic statistics are constantly growing and are forecasted to grow by over 40% in the County of Simcoe between 2022 and 2046.[3] With this anticipated growth, there will be an increase in call volume and consequently an increase in demands placed on fire prevention for inspections, as well as the need for enhanced levels of public education.

To meet the community's needs, the EFD needs to review their current capacity to meet the required number of inspections and public education events as well as the need for additional resources, including acquiring an FPO/PFLSE that is duly trained as a firefighter who will respond while on duty to incidents.

Building Stock - The lack of attainable and affordable housing in the Township could lead to illegal additional dwelling units. The Township should require every additional dwelling unit to be registered and licensed with the Township and inspected by the Building and Fire Departments. While permitted by the Township's by-law, additional dwelling units must comply with Ontario Building Code (OBC) and Ontario Fire Code (OFC) requirements.

There is also an unknown number of short-term accommodations (STAs) in the Township. Fortunately, the Township has passed a by-law regulating these accommodations. Owners of these dwellings must be aware that they must comply with the Township's by-laws, such as Property Standards and Open-Air Burning.

During the development of this CRA, the new STA by-law was not yet available. Upon its completion, however, it should include a registry for annual fire inspections of these locations. These inspections should also have a fee for this service.

[3] "Ontario population projections." King's Printer of Ontario. Accessed September 27, 2023, https://www.ontario.ca/page/ontario-population-projections#:~:text=Ontario%E2%80%99s%20population%20is%20projected%20to%20increase%20by%2043.6,to%20almost%2021.7%20million%20by%20July%201%2C%202046.

A safety requirement should mandate any owner of a dwelling with a wood-burning appliance to complete a Wood Energy Technology Transfer (WETT) inspection of the appliance to ensure compliance with building and manufacturers' installation requirements.

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. Failure to comply with this requirement is illegal and exposes the Township to significant fines. EFD and the Building Department must collaborate to develop an ongoing list of all building stock based on the OBC Occupancy Classifications.

This requirement was initiated in response to the loss of firefighters in structure fires due to the premature collapse of the building under fire conditions. The OFM is working diligently to reduce this risk through this method of identification of each structure with LWC. One occupancy not required to be included in the list of building stock is houses; the OFM believes all fire services must assume all houses have some form of LWC.

2.3 Community Risk Reduction Plan

With the CRA completed (and all risks identified), developing a Community Risk Reduction Plan (CRRP) is the next step. When properly applied, the CRRP coordinates emergency operations with prevention and mitigation efforts throughout the community and at the fire station level. The involvement of fire station personnel is critical for gathering local risk data and performing activities necessary to implement the CRRP.

Aside from the primary benefits to the community, a CRRP can positively impact the fire department by identifying possible gaps in training and response capabilities. A properly applied CRRP can improve firefighters' and emergency responders' safety and health. This is partly due to the enhancements in the number of fire inspections and fire life safety education events completed, enforcement of the OFC, and the reduction in the number of fires resulting from these measures.

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

- Identifying new and emerging hazards and managing risks makes the community safer.
- Declining budgets among fire departments and local governments; a CRRP can improve resource allocation.
- Improves community engagement.
- Better defines the fire department's purpose and value within the community beyond just fighting fires.

With the completion of the CRA and this FMP, the Fire Chief has the components needed for the CRRP.

There are several steps in the development of a CRRP:

Identification and Prioritization – Upon identifying the risks and completing the CRA, the priorities are determined, and the results become itemized for use in the remaining planning process. The document does not need to be complex or complicated but must be presented in a clear and concise format that enables the reader to understand the risks and those that should have the highest priority.

During this process, consider the following:

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

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

Five elements to be reviewed during the development of the plan include:

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

Prepare the CRRP – With the risks now identified and prioritized, the strategies and tactics become determined for prevention and mitigation. It will be necessary to develop a written plan.

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

Monitor the Progress, Evaluate Your Findings, and Modify the CRRP – The final step involves monitoring and evaluating the plan's effectiveness and adjusting as necessary. This process will enable the organization to determine if they are achieving their desired goals and if the program is impacting them. Ongoing monitoring allows for prompt plan modifications.

A successful CRRP will generate additional resources through partnerships within the fire department and the community. The community-based approach increases public safety because of the collective work within the community to understand, assess, and provide inclusive solutions to community safety issues.

2.3.1 The Township of Essa Fire Loss Statistics

The OFM provided the following information taken from the past reports. 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 Township of Essa 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 2017 to 2022:

- Group C – Residential occupancies (43)
- Structures/ Properties not classified by Ontario Building Code (6)
- Group A – Assembly (3)
- Classified under National Farm Building Code (2)
- Group D – Business and Personal Service (1)
- Group F – Industrial (1)
- Group B – Care and Detention (0)
- Group E – Mercantile (0)

The Township of Essa Reported Fire Cause

Assessing the possible cause of the fires is essential when identifying potential trends or areas to consider 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 (19)
- Mechanical/electrical failure (11)
- Arson (9)
- Undetermined (6)
- Other Unintentional (4)
- Other (3)
- Unintentional Undetermined (2)
- Design/Construction/Maintenance Deficiency (1)
- Vandalism (1)

The Township of Essa Ignition Source Class

The leading causes of ignition sources were:

- Open flame tools, smokers' articles (11)
- Cooking equipment (9)
- Electrical distribution equipment (7)
- Exposure (6)
- Other Electrical, Mechanical (5)
- Miscellaneous (5)
- Undetermined (5)
- Heating equipment, chimney, etc. (4)
- Appliances (2)
- Lighting equipment (2)

From the compiled data, most fires occur in residential occupancies, with the leading cause being the misuse of Ignition Source/Material First Ignited. The ignition source was often an Open Flame, Tools, or Smoker's Articles. EFD must be diligent in completing fire investigations. All too often, fire services are quick to declare the origin and cause of the fire as 'undetermined' due to the lack of resources and time to complete an investigation which may not fall under the parameters of calling in OFM resources to assist. For those responsible for fire investigations in EFD, completing additional fire origin and cause courses and becoming certified will aid in conducting a more thorough investigation.

2.4 Governance and Establishing & Regulating By-law

To assist the Fire Administration in meeting the needs and expectations of the Council, the E&R By-law must be updated annually to identify changes based on the Township's requirements and the fire department's overall operational needs. The E&R By-law must align with the expectations of the *FPPA* of 1997. The current by-law was updated in 2023.

The By-law outlines the Council's direction to the EFD and prescribes what services to provide. The municipal Council is responsible for setting the level of service within a municipality; these E&R by-laws fulfill this requirement.

The Township's Solicitor should vet draft by-laws before the Council's passing as part of any by-law update process.

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 must establish an objective, definitive response time in the E&R By-law. NFPA recommends completing 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 identify 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
- OFM Guidelines concerning staffing and response recommendations.
- *FPPA* of 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, EFD will ensure that staffing, training programs, fire prevention, public education initiatives, and response to the community adhere to industry best practices.

While the current by-law mentions the Department's Goals and Objectives, most departments, including EFD, have developed department-specific Mission and Values Statements. What was lacking was a statement outlining the Vision of EFD.. Once the Vision statement is approved, it and the Mission and Values Statements should be posted in each station to remind the members what the EFD strives to achieve in serving the community.

The updated by-law should refer to the OFM *Regulation 378/18*, *Community Risk Assessments,* which came into effect on July 1st, 2019, indicating the need for an annual review and a new CRA document produced every five years. Reference to O. Reg. 2022-001 regarding Building Stock and Lightweight Construction Materials needs to be in the by-law. It should also identify the Community Risk Reduction Plan that needs to be developed and initiated as part of the CRA.

The *FPPA* requires fire departments to have a smoke alarm program; EFD has one in place which needs amending to include carbon monoxide (CO) alarms. The program, including its purpose, goals, and expected outcomes, should be included in the new document. Note that smoke alarms are stored on the apparatus, ensuring firefighters only leave a residence after confirming one is installed and operational.

Other items found within the current by-law for consideration include:

- Include all applicable NFPA standards per rank within the department.
- Reference the Ministry of Labour's Section 21 Guidance Notes.
- Identify the frequency of fire inspections per NFPA 1730 or FUS.
- Review and update the organizational chart as required.
- Identify the level of service provision for Technical Rescues and HAZMAT incidents, including elevator rescue.

- Identify the mitigation strategy for technical rescue responses.
- Once developed, include that there is a Mental Wellness and a Respiratory program.
- Reference and identify the firefighters' associations by their names.
- Identify response times goals and benchmarks identified based on NFPA 1720.
- Reference the NFPA and ULC Standards for the construction of fire apparatus.
- 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.
- Develop and include a policy that outlines the goals and expected outcomes of the Fire Prevention Division.

2.5 Assessment of Current Fire Services By-laws

2.5.1 Open Air Burning By-law – 2015-92

The Open-Air Burning By-law stipulates the parameters for outdoor burning within the Township of Essa. It came into effect in 2015, making this an eight-year-old by-law. This by-law, like other by-laws, should be updated annually.

Consider the following for inclusion in the revised by-law:

- The amended by-law should reference the OFC Article 2.4.4.4., Open Air Burning.
- 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.
- The by-law must include that any approved manufactured burning appliances must have 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.
- In the by-law, note that wood-burning outdoor furnaces are increasing in popularity as a cost-saving measure for heating homes and heating of (household) water. Some of these appliances will accommodate pieces of wood over a metre in length and must comply with the *Technical Standards and Safety Act* (TSSA) of 2000.

- Some municipalities have included a clause prohibiting outdoor burning past a designated hour. The purpose of such a clause is to reduce the sounds emanating through the neighbourhood associated with activities around the fire.

2.5.2 Fireworks By-law 2020-059

The Township of Essa's Fireworks By-law regulates the sale and discharge of fireworks. To support the by-law, the Township has an excellent online document on how to discharge domestic fireworks and safety tips.

Note: *Most municipalities do not include a segment asking for residents to respect military families, especially those with a member suffering from PTSD but consideration for such a notation is worth contemplating.*

The Township should include, in an amended by-law, that the municipal authority to control fireworks rests within the OFC O. Reg. 213/07, Division B, Part 5, ss 5.2. The by-law does reference the *Explosives Act* of Canada.

The Township should further consider the inclusion of the following in its next update to the Fireworks By-law:

- During Exhibition Fireworks displays, EFD would be responsible for completing the post-inspections of the site. They would also provide a fire apparatus and crew.
    - A fire apparatus with a crew of four firefighters will be on standby during the discharge of exhibition fireworks.
    - There should be two post-event inspections of the area adjacent to the discharge zone to look for unexploded ordinances. One assessment occurs the night of the display and the second the following morning.
- Reference and enforce the Ontario Fire Code, Section 5.2 - Explosives, Fireworks and Pyrotechnics.
- The by-law could reference the importance of fire safety while setting off fireworks. Therefore, it would also be appropriate to post safety information on EFD's Fireworks Page when discharging family fireworks.
- The by-law identifies when fireworks may be legally discharged, such as during holidays and special occasions; these include:
    - Victoria Day
    - Canada Day

    - Religious-based holidays
        - Consider the inclusion of New Year's Eve and Civic Holiday Weekend (Simcoe Day)
- Include a requirement that all those discharging high-hazard fireworks have completed the National Fireworks Certification Program (NFCP) on discharge.
- For discharging exhibition ordinances, the EFD should conduct a pre-event inspection of the site to ensure it complies with the application by a member of the EFD who has completed the NFCP course.
- The Fees and Services By-law includes post-discharge inspections and the standby fire crew at a rate of full-cost recovery.

2.5.3 Short-Term Accommodations By-law

During the development of this FMP, the Township was completing the development and implementation of a by-law that governs STAs. Additional dwellings like second suites are permitted per the Zoning By-law. Granny flats, also known as cottage suites, are prohibited per the *Provincial Planning Act* since they do not meet the requirements to be classed as an Additional Residential Unit, as described.

A few points about rental properties:

- An unknown number of STAs operate in the Township.
- Detached dwellings may be lodging multiple visitors, with possible bedrooms in basements.
- Dwellings may not meet the requirements of the OBC and OFC. Violations can include lack of proper exits, inadequately sized basement windows, and a lack of smoke alarms, CO alarms, fire extinguishers, fire escape plans, etc.
- Property owners may not understand their responsibilities regarding fire safety and the fire code. Section 9.8 of the OFC sets out the minimum fire safety features required when converting a residential building with two existing dwelling units. This section identifies the need for fire separation standards, means of egress, Electrical Safety Authority (ESA) and inspection requirements.
    - EFD should review its Fire Prevention and Enforcement resources regarding adequate staffing to inspect all the STAs in the municipality for OFC violations.
        - EFD may not have the resources to correctly complete such inspections along with the other inspection requirements of the Township.
    - EFD and the Building Department should establish and advertise a method (reporting line) to identify possible illegal locations in cooperation with by-law enforcement.

    - While residential developments are in progress, some may become designated STAs.
    - Unknown increase in population with the new developments in various stages of approvals.
- Many STAs may have wood-burning appliances installed. Consider the requirement for a WETT inspection.
- All EFD fire inspections completed that are relevant to these occupancies should be in the Fees and Charges By-law.

Considering these points, the Planning and Building Departments should create a by-law regulating additional dwelling units, including licensing these locations. The document should include the responsibilities of the fire department.

Other by-laws reviewed for this FMP include the following:

- Mutual Aid By-law 2006-31 (Discussed in the Fire Service Agreements and Mutual Aid, Section 6)
- Tiered Medical Response By-law 2006-61 (Discussed in Suppression, Section 3).
- Automatic Aid and Mutual Fire Aid By-laws 2003-66, 2004-24, 2012-07 (Discussed in the Fire Service Agreements and Mutual Aid, Section 6).
- Development Charges By-law 2018-54 (Discussed in the Finance Section 7)
- Mutual Assistance By-law 2016-71 (Discussed in Section 6)
- The Fire Dispatch Services By-law 2019-74 (Discussed in the Communications and Dispatching, Section 3)
- Wildland Firefighting Agreement 2019-48 (Discussed in the Fire Service Agreements and Mutual Aid, Section 3)
- The Fees and Charges By-law 2023-01(Discussed in the Finance, Section 7)
- Memorandum of Understanding – Special Operations with the City of Barrie, By-law 2023-17 (Discussed in the Fire Service Agreements and Mutual Aid, Section 6)

2.6 Policies, Directives, & Standard Operating Procedures

Fire department policies and guidelines have immense value for a department. They are the critical 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.

- Policy - A high-level statement that expects consistent compliance. There is very little to no flexibility permitted with a policy.
- Guideline - A standard with an acceptable level of quality or attainment. It provides direction on how to act in each situation with non-mandatory controls.
- Procedure - 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 EFD has many SOGs in place, and to ensure all the SOGs are current, they need to be reviewed and revised on an ongoing basis as circumstances change. A wholesome review has not occurred for a while due to the lack of time for the chief officers to initiate. 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.

Reviewing the SOGs can be an incredibly detailed and very involved process. Writing new SOGs and maintaining existing ones is a daunting task to leave to the sole responsibility of the Fire Chief and his Deputy. It would be wise for EFD to establish a committee that meets regularly to develop new SOGs and review old ones. Doing so would relieve some of the pressures placed on the chief officers. The development of a structured SOG Committee that creates its Terms of Reference is a great benefit to the EFD in several ways:

- Updated and current SOGs
- Increased staff involvement in fire department operations.
- Creates a safer environment for members to work.

A few points to consider when developing or updating SOGs include:

- Ensure only SOGs relevant to EFD's operations and alignment with the E&R By-law are in place. They should be available online to all department members.
- Ensure Information Technologies (IT) support is in place to support the electronically available SOGs. Doing so will eliminate the need for hard copies in the stations, as maintaining that approach is problematic.
- The committee would operate under its specific Terms of Reference. The Fire Chief's role would be the final approval process.
- While operating committees implies a financial impact, one of the main advantages is the reduced workload put on the senior officers, allowing them to focus their time on more pertinent issues.
- Ensure wording allows flexibility to account for good judgment under the circumstances that may be present.

- A source of information is in Section 21 Guidance Notes, as they are kept current by a provincial team of fire service personnel. An excellent regiment to adhere to is having a SOG and policy in place for each Section 21, Guidance Note.
- Reference and, where applicable, include NFPA Standards.
- For a fire department to operate safely and efficiently, all members must understand and adhere to all policies, SOGs, and SOPs. Those who fail to do so should be held accountable.

2.7 Stakeholder Surveys

2.7.1 Stakeholder Surveys

To understand how well the EFD meets the needs of the community and fire department, Township Council and staff input was requested in an anonymous survey via SurveyMonkey. This input helped develop the FMP recommendations to assist the Township's Council with future strategic decision-making.

Methodology

The internal survey consisted of 18 questions. All questions, except for two, were open-ended, providing opinions, feelings, impressions, and suggestions to evaluate the staff's state of mind and attitude toward the EFD. The other two questions were constructed on an interval scale, that ranged from most important to least important to evaluate the value of the core services offered by the EFD and the community's perception of the EFD service.

The Council members' survey consisted of nine questions. All the survey questions involved open-ended questions to gather valuable insight and gain detailed, valued, and descriptive information, given the target group's knowledge and understanding of the EFD, the municipality, and their constituents.

2.7.2 EFD Staff Survey

There were 17 members of the Fire Department that submitted their answers for the Internal staff survey. This equated to participation of 30 percent of the EFD staff.

Q1. What are the things that make you most proud of The Township of Essa Fire Department (e.g., the level of professionalism, community involvement or making a positive difference within the community)?

Fire service organizations are part of a type of business that requires teamwork in the achievement of altruistic goals and objectives in serving the public. Community involvement, teamwork, and professionalism transpired in all the responses provided.

Professionalism, making a difference in the community, providing excellent customer service, all within a collaborative work environment are four characteristics that resonated with most respondents. These characteristics require leadership to foster and flourish within a fire service organization. There is a consensus amongst respondents that the collaborative and altruistic nature of the fire service organization is strong and alive within the EFD.

Q2. In your opinion, what are the duties of the Fire Chief?

Q3. What are your expectations of the roles and responsibilities of your Fire Chief?

Q4. How can the current roles and responsibilities of your Fire Chief be improved?

Questions 2, 3, and 4 are a quasi 360 degrees evaluation of the Fire Chief's performance from staff that interact with them regularly. The results will inform the formulation of recommendations throughout this document from identified opportunities for growth.

All respondents see the Fire Chief position as administrative rather than operational. The duties identified relate to managerial duties to ensure proper functioning of the department in achieving fire protection services to the community.

With respect to roles and responsibilities (question 3), all the respondents expect the Fire Chief to be a "LEADER". The words used that delineate leadership values were fairness, respect, standards, accountability, decision-making, knowledgeable, delegation, integrity, in tune, advocate for personnel, approachable, mentor, and setting the bar.

Answers to question 4 shows respect and appreciation for the current Fire Chief. Overwhelmingly, respondents believe that current Fire Chief is doing an excellent job. Respondents see the roles and responsibilities of the Fire Chief to improve by increasing the department's budget and providing more full-time staff to manage prevention and training responsibilities. Respondents also believe that Community Emergency Management Coordinator (CEMC) duties take away the current fire chief's ability to perform his job. Finally, respondents believe that the Fire Chief should have better Human Resources support to manage staffing matters and succession plan.

Q5. In your opinion, what are the duties of the Deputy?

Q6. What are your expectations of the roles and responsibilities of the Deputy Chief?

Q7. How can the current roles and responsibilities of the Deputy Chief?

Like questions 2, 3, and 4, the subsequent three questions look at how the duties, roles, and responsibilities of the Deputy Chief are perceived by the EFD staff, providing insights for the formulation of this FMP.

While the duties and responsibilities of the Fire Chief are perceived within the realm of administration and strategic leadership, the duties of the Deputy are identified as tactical and in support of the Fire Chief. The functions are described more in order of overall operations of the department than administration, support to the district chiefs and captains, using action verb such as "supervise," "assist", "direct", and "maintain".

One direct operational duty identified pertains to training. Respondents indicated a direct operational rapport to training duties in providing feedback regarding the duties and responsibilities of the Deputy Chief.

One respondent believed that the Deputy Chief was responsible for the management of Fire Prevention. The EFD organizational chart indicates that Fire Prevention functions are the managerial responsibility of the Fire Chief. The EFD may benefit from a clear identification of management roles and responsibilities to staff.

With respect to question 6, succinctly, all respondents indicated that the roles and responsibilities of the Deputy Chief pertain to oversight of implementation of training, as well as assistance to the Fire Chief through department oversight. Roles and responsibilities are still perceived as administrative but with a tactical and operational overtone rather than executive role. Hence, the position is viewed as overseeing effectiveness and efficiency of training to staff, maintenance of apparatus and equipment, and liaison and communication between the Chief's office and the fire stations staff.

With respect to how the current roles and responsibilities can be improved, the respondents unanimously suggested that the Deputy Chief should be more engaged with fire station staff, including officers and captains. Respondents felt that the lack of engagement translated in untimely resolve of issues. In addition, respondents felt that although training was the responsibility of the Deputy Chief, training could be improved with the implementation of a long-term (annual) training schedule with a more comprehensive training program in accordance with the township core levels of service identified in the Township of Essa By-law 2022-16.

Q8. In your opinion, what are the duties of the captains?

Q9. What are your expectations of the roles and responsibilities of the captains?

Q10. How can the current roles and responsibilities of the captains be improved?

Respondents were asked to provide their opinions regarding the duties, roles, and responsibilities, as well as suggesting ways to improve the captain position.

The respondents agreed that the captains are the first line of communication and that their duties are as supervisors, educators, coaches, and mentors to the fire crews regarding all aspects of the day-to-

day operations. The duties also include incident command and training support. The descriptors suggest that the captains are supervisors, and their functions are operational rather than managerial in nature. To paraphrase one of the respondents, the duties of the captains are "to protect life and property by supervising the activities of personnel on calls and training, emergency care, hazardous materials, and fire prevention."

With respect to the respondents' expectations of the roles and responsibilities of the captains, as the captains are the first line of authority, all respondents had an expectation that captains be approachable and respectful of their crews. The common themes described were "fairness and integrity" using descriptors such as knowledgeable, good communicators, able to solve problems, and lead by example. As one respondent expressed, "even-tempered and able to focus on the job at hand, taking a personal interest in the improvement and advancement of the firefighters in their charge."

As the first line of command in the scalar organizational model, respondents overwhelmingly expressed a desire for captains to be more transformational in their leadership style rather than transactional. There was a cautious tone in the answers provided by the respondents that suggested an overuse of biases towards subordinates, hindering growth and development. In general terms, sentiments shared would support a need for transformational leadership training.

When asked how the current roles and responsibilities of the captains can be improved, overwhelmingly, respondents believe that captains would benefit from better officer training pertaining to leadership. The scalar organization model of fire departments often leads to a chain of command emphasis on transactional and authoritative subordinate-management rapport.

As the captains are the first line of authority, they have a direct relationship with subordinates often with little oversight from middle or senior management. Hence, it is paramount to maintain healthy relationships to provide subordinates and their supervisors with oversight. This can be achieved by promoting transformational leadership approaches emphasizing a culture of mutual respect and inclusion.

Q11. How do you think most people living in the Township of Essa perceive the EFD and why?

This question looks at the relationship between the EFD personnel and the community and provides us with a gauge of the EFD's community relationship.

Question 11 asked the respondents their opinion as to how the residents perceive the EFD. Unanimously, the feeling is that the EFD is perceived positively by the constituents. However, there is a hint of caution in the tone of the comments from EFD staff. The caution is associated with a feeling that with a changing and growing community, the residents are not aware that the EFD is a volunteer fire department. Many respondents believe that members of the community think that the EFD is a

career fire department. This belief is associated with a lack of understanding of the "Green Light" program.

There are opportunities in this FMP to address a need to educate residents on the Volunteer Firefighters Green Light Program, supported with strategically located signage and media release in support of the Volunteer Firefighters Green Light Program.

This concern should be addressed through the implementation of the FMP.

Q12. What would you say are the top three issues facing the EFD today?

Fifteen of the 17 respondents answered this question. The top two issues most mentioned by the respondents were "morale" and "firefighter retention." Respondents feel that EFD internal culture was affecting morale. Departmental culture negatively affecting morale was addressed and identified by one-third of the respondents.

The second most mentioned issue by the respondents was "retention." Respondents felt that the EFD staff renumeration is inadequate and a deterrent for firefighter recruitment and retention.

Other noteworthy mentions were the need for a full-time FPO. Finally, town growth wears heavy on the respondents' feeling about maintaining the quality of service without substantial hiring to meet increasing call volumes.

Q13. Which services do you believe are most valued by the community? Please rank in order of priority from Extremely Important to Not Important at All.

All respondents ranked 'HOW QUICKLY THE EFD RESPOND TO CALLS FOR SERVICE" as the most important service provided by the EFD.

Training ranked second as the most important service. All respondents felt that the community's perception of the EFD as a well-trained fire service was important.

The respondents felt that having well-maintained equipment was the third most important statement for the community. Only one of the respondents felt that the statement would be perceived as "Not Very Important" by the community.

The respondents are of the opinion that the taxpayers are not too concerned about the cost for providing fire protection services to the Township of Essa and that consultation is not priority. The FMP may be an opportunity to develop a plan to address engagement or rapport building between the EFD and the community.

Finally, the results indicate that the respondents favour the third line of defence – Emergency Response – rather than the first two lines of defence. This may assist the EFD in gauging the staff's views regarding the three lines of defence and inform some goals and objectives for the EFD FMP.

Q14. There are a number of core services delivered by the Town of Essa Fire Department. Which services do you believe are most important to you? Please rank in order of priority from Extremely Important to Not Important at All.

All respondents answered question 14. Ranked number one by the respondents was "Firefighting." Generally, "Emergency Response (firefighting or suppression)" has been the priority of the fire service culture. Most people chose the profession to help their community by responding to calls for service. This is also why "Auto extrication" and "Emergency medical intervention" ranked number 2, and 3, respectively. "Technical Rescue" was identified as the least important service. EMG attributes the low ranking for Technical Rescue to the fact that the service is supported by BFES.

Core services that the EFD offers that relates to the first two lines of defence, including Line 1: Public Fire Safety Education, and Line 2: Fire Safety Standards and Enforcement, ranked lower than third line of defence core services, except for technical rescue and HAZMAT services. The results are consistent with other surveyed questions from the EFD personnel population sample, where public and life safety education and fire prevention related services do not receive the accolades given to emergency response related services.

The EFD FMP is an opportunity to instill amongst the personnel a paradigm-shift in favour of the first two lines of defence.

Q15. Are there any other services that you believe the Township of Essa Fire Department should or should not provide and why?

Most respondents indicated that the EFD would benefit from hiring a full-time FPO and a full-time Training Officer. In the spirit of the first and second lines of defence, respondents felt that the EFD could also benefit from a Junior Firefighter Program and more prevention initiatives.

Again, this may assist the EFD in gauging their priorities regarding the three lines of defence and inform some goals and objectives for the EFD FMP.

Q16. What improvements does the EFD need to make to its services to be more efficient, and what do you believe would be the outcome of implementing these efficiencies?

Twelve respondents answered question 16. The following is a list of suggested improvements. Succinctly, fire prevention functions and training needs have been unanimously mentioned as areas that can be improved to make EFD more efficient and effective.

Improvement	Rationale
Hiring a full-time Training Officer	The opinion that the EFD needs a full-time Training Officer was expressed by several respondents. It is felt that this position would allow the Fire Chief and Deputy Chief to focus on managing the fire department rather than performing training-related tasks.
Transitioning to a full-time day shift and long weekend crews	With expected township growth and call volume increase already impacting delivery of fire protection services, many respondents felt a need to address diminutive daytime and long weekend response.
More staff	To ensure there are enough firefighters to help in any emergency, given increase in call volume, primarily with daytime availability.
More training opportunities	No rationale provided.
New recruits should train and receives certification through RTC NFPA 1001 programs	This will ensure consistent training to all new recruits.
Staff engagement through establishment of more committees	Some respondents felt that staff was not engaged enough, and committee involvements would reinforce a sense of belonging and improve fire service culture.
EFD should engage in more public education through community advisories and awareness campaign.	Many residents do not know that the department is a volunteer system and rely heavily on local individuals that report to the station as able. One of the Respondents felt that 60% of the population does not know what a green flashing light represents and 70% of the population does not understand how often EFD are called to preventable false alarms. More public education could improve response times and reduce the volume of preventable false alarms.

Q17. If it were up to you, what would the Township of Essa Fire Department be like 10 years from today, and why?

This question allowed respondents to have input on the future of the EFD. Fourteen of the 17respondents took advantage of this opportunity – a valuable exercise given the respondents' experience and expertise with the fire service. Unanimously, all respondents indicated that 10 years

from now the EFD would need more volunteers or would need to transition to a composite fire department with full-time, daytime coverage, from Monday to Friday, to meet the anticipated growth.

Also mentioned was larger fire prevention and training divisions (full-time staffed); an additional fire station, depending on population growth; and the implementation of an inclusion and diversity policy, with an emphasis on gender equality.

Q18. Are there any other comments/suggestions that you would like to add that would help to improve the services the EFD delivers to the community and the firefighters?

Due to the personal nature of the responses to this question, they have been provided directly below. These may benefit the EFD in their planning, development, and implementation of the FMP.

- *Provide proper funding to the department that it needs.*
- *Remove acting captain position and replace with lieutenants. Not all officers are on the same page with the acting captains' scope of practice. Some believe they are officers and others do not recognize that. Making them lieutenants would alleviate this and still allow them to act as captains when their assigned captain is absent. No cost to taxpayers or department.*
- *The name "Essa Fire and Emergency Services" has a nice ring to it. We deal with more than just fires.*
- *Better computers and better training with other department (i.e. Clearview, Springwater would help with learning and knowing members for those major fires or incidents.*

2.7.3 Council Members' Surveys

Three Council members contributed to the Council Members' survey.

Q1. Do you think the residents of the Township of Essa are getting fair value for their tax dollar in relation to the fire services provided? If so why, if not why?

When asked about the respondents' opinion regarding appropriate value for service, two out of the three respondents answered "yes." One respondent skipped the question. Both respondents indicated that the residents of the Township were getting excellent service at a low tax rate. One of the respondents suggested that the Township would not be able to afford a full-time (career) fire department.

In response to why or why not the respondents felt that the Township was getting fair value for their tax dollars, the respondents felt that good leadership and resolute personnel were contributing factors to the quality of service for the tax dollars spent on fire protection services.

Q2. Do you feel the community is protected by the present number of fire stations and fire apparatuses? If so why, if not Why?

One respondent skipped this question. The two respondents who answered this question felt that the community was protected by the present number of fire stations and fire apparatuses. However, both respondents emphasized the township growth and acknowledged the future need for expansion to meet the needs of the community. The expansion was expressed in terms of additional fire stations and full-time staff to maintain the present level of fire protection services.

Q3. Based on the future growth of the community, do you feel that the fire department can keep up with the demands in its present state?

Questions #3 addressed the impact of growth vis-à-vis the level of protection currently provided by the EFD. As an extension to question #2, the respondents unanimously believed that the EFD could not keep up with the demands in its present state. All respondents indicated that the EFD will need more volunteer firefighters, more full-time staff, and more equipment. One respondent indicated that an additional fire station may be required to meet the anticipated growth.

One respondent suggested that the Township of Essa investigate partnerships with neighbouring fire departments to meet their needs based on future growth.

Q4. What do you believe are the greatest strengths of the current Township of Essa Fire Department (EFD)?

Question 4 addresses internal resources or capacity that the EFD must effectively achieve to meet the goals and objectives of the core services it delivers. The following characteristics were identified by the respondents as the greatest strengths of the EFD:

- Leadership
- Dedicated personnel
- Training
- Recordkeeping and documentation

Respondents did not elaborate on the rationale for their selection of the strengths identified, leaving little interpretation. However, a common theme in the responses provided by all respondents relates to the appreciation for the quality of personnel from the EFD. Council members who responded to the survey unanimously conveyed their appreciation and respect for the dedication of the EFD personnel. The personnel are viewed as one of the EFD's greatest assets and strengths.

Q5. What do you believe to be the top risks/ issues facing the Township of Essa Fire Department (Barriers to response/delivery of service)?

Recruitment and retention were identified by all the respondents as an issue facing the EFD. Another issue identified by two of the respondents pertained to the availability of personnel to respond to daytime emergency calls.

One of the respondents identified the gap in salaries vis-à-vis the current standard of living as a hinderance to recruitment and retention.

A theme that arose from all the answers is a concern regarding adequate staffing to meet the fire protection services needs of the community.

Q6. How would you like to see the Township of Essa Fire Department in the next 5 to 10 years in relation to serving the community, keeping in mind growth of the community?

The opinions expressed by the respondents are insightful and can be of immense value in the formulation of the EFD FMP. The opinions expressed are paraphrased below:

- *Larger and same level of commitment.*
- *New fire hall at least in Angus to replace station 2 which is dated and too small.*
- *Augment the use of social media to highlight the great work of the EFD.*
- *Take full advantage of any partnerships with neighbouring fire departments – sharing equipment and personnel.*
- *Additional firefighters for key times with limited staffing at emergency scenes.*

Q7. Do you see an opportunity for the Township of Essa Fire Department to develop strategic partnerships with other organizations in relation to cost and service efficiencies? if so, with whom and why?

All respondents acknowledged the importance of collaboration and partnership with neighbouring fire departments to improve services to the community. Partnerships are viewed to address cost issues associated with training and staffing, as well as to improve knowledge and expertise. There are opportunities in this FMP to address strategic partnerships to scale sustainability.

Q8. Can you share any input from your constituents concerning the fire department, whether they are cost-related, service-related, or fire safety and education related?

All respondents indicated only receiving positive feedback from their constituents about the EFD. None of the respondents elaborated on the themes for the feedback.

Q9. Are there any other aspects or factors that you believe should be considered that we have not touched on already? For example, fire station closures or additions, reduction in services by the fire department, or even an increase in services through the hiring of more fire personnel.

The last question from the Council Members survey is an opportunity to address any matter that the survey may not have captured. Two of the three respondents skipped this question.

The respondent who provided feedback believed that fire station closure is not an issue to keep the level of service provided to date. The respondent also indicated that additional positions related to training, inspection, and public fire and life safety education functions will need to be further investigated. Additional full-time staff was a common theme addressed by the respondents throughout the survey.

Section 2: Recommendations

Rec #	Recommendation	Suggested Implementation Timeline	Estimated Costs	Rationale
1	Fire Administration review by-laws that affect the daily operations of the fire department.	Short-term (1 to 3 years)	Staff time	Having current by-laws will reflect changing the circumstances of the Town and meet federal or provincial Acts and regulations.
2	Review and update all SOGS, including establishing an SOG Committee that meets on a pre-determined schedule and operates under a newly developed Terms of Reference.	Immediate (0 to 1 year)	Staff time Pending the decision to establish a SOG Committee, there may be a financial impact on the budget for firefighter participation.	Current SOGs provide clear direction on the expected operations of the EFD.

Rec #	Recommendation	Suggested Implementation Timeline	Estimated Costs	Rationale
3	Review input received from the surveys to identify further opportunities for the Department and the community it serves.	Short-term (1 to 3 years)	Staff time, but some recommendations may include associated costs	Keeping track of the input received from the surveys can result in the implementation of new ideas and sharing this information with staff will support the value of their input.

SECTION 3

Fire Department Divisions

SECTION 3: FIRE DEPARTMENT DIVISIONS

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

3.1 Community Safety – Lines of Defence

The OFM community safety model revolves around three specific lines of defence - Public Education, Safety Standard and Enforcement, and Emergency Response. EMG views Emergency Management as the fourth, inclusive line of defence, and has added this into the overall concept of community safety.

i. Public Education – educating residents has proven to be the most effective means in reducing and preventing the incidences of fire and property damage. Reducing the number of fires before they start and identifying how the Town will continue to meet the fire education needs while the Town continues to grow and evolve.

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 third defence. 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, and do not have to be followed, but utilizing them to improve a community's fire service is encouraged.

3.2 National Fire Protection Association 1201

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."

3.3 Administration Division

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

The Administration Division in Essa includes the Fire Chief, Deputy Fire Chief, and an Administrative Assistant. While the administrative staff are doing an admirable job at managing the day-to-day operations of the department, there is no doubt that more resources are required. Presently, there is no back up for the Administrative Assistant position. When this person is away from the office for any reason, the Fire Chief and Deputy Chief must take on the administrative responsibilities, over and above what they are already doing. As such, EMG believes that creating either a part time/relief position or even assigning another administrative person from the Town's office for these brief periods of time would assist the fire department personnel greatly.

With the mandated OFM training and certification requirement deadline approaching (implemented in 2022), the training demands on all positions within EFD will increase 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.

Through the review, there will be a need for more administrative support to ensure proper records management of training and certification (which is currently a mix of paper-based records and certificates, along with the use of the record management system (RMS) program) to ensure that all required documentation is available if requested by the OFM (to verify certification of fire staff based on level within the fire department).

3.4 Fire Prevention and Public Education

EMG reviewed how the EFD works on keeping the community safe from fires through fire prevention and public fire safety education initiatives. EMG looked at how EFD identified and inspected new construction and worked with local officials in charge of the Buildings and Planning Department. EMG also studied how well the Fire Inspection and Code Enforcement programs worked by comparing them to existing buildings and expected town growth. This helped to identify if the Townships' plans might affect how EFD keeps Essa safe from fires and teaches people about fire safety. It also helped EMG see what EFD needs, now and in the future, and how to improve their services.

3.4.1 Fire Prevention and Public Education Resources

In some fire departments, responsibilities of fire prevention and public education are carried out by the same individual or group. While fire prevention duties are centered around fire code enforcement and investigations, public education aims to educate residents on the dangers associated with fire risks. Within the EFD fire prevention duties are led through the utilization of the volunteer firefighters under the Fire Chief and Deputy Fire Chief's supervision. The Administrative Assistant is certified to Level 2 of the NFPA 1035: *Standard on Fire and Life Safety Educator, Public Information Officer, Youth Firesetter Intervention Specialist and Youth Firesetter Program Manager Professional Qualifications* for public education initiatives.

3.4.2 Public Education Activity Opportunities

The *FPPA* legislates that each municipality, as a minimum, must establish a program of public education with respect to fire safety[4].

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

Public Education covers a broad spectrum, spanning from social media announcements to face-to-face classes and training sessions. A diverse program increases the chances of reaching a wider range of people within the community. When the community is well-informed and knowledgeable about fire and life safety risks and has clear strategies and actions to follow, it can significantly improve the effectiveness of any emergency intervention by EFD. Essentially, the better informed the residents are, the less severe a fire emergency is likely to be. An example is a smoke alarm program that ensures there are working smoke alarms in every residence. Other content of the public education program is largely left up to the local fire department to determine based on the needs and risk within the community.

EFD has a strong focus on the residential Smoke and CO Alarms, where they temporarily offer alarms to the public during emergency responses (if a missing or inoperable unit is found). Afterward, a member of the Department follows up on these incidents to ensure property owners get permanent replacements for these alarms. This follow-up also serves as an additional opportunity for one-on-one education about home fire safety and addressing any other related issues. In cases where property owners or tenants neglect their responsibilities as outlined by the fire code, provincial legislation regarding smoke alarms is enforced by EFD.

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 as suggestions to build out a comprehensive public education program:

- Older and Wiser – designed for seniors and 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 partnership with agencies such as Red Cross or St. John Ambulance. Targeted to tweens that are becoming more independent.
- Fire Extinguisher Training – often provided on a cost-recovery basis for community associations, 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 aging buildings that may not have contemporary electrical installations.
- Home and Building Renovation Safety – frequently offered in conjunction with local building officials and utility providers to promote safe renovation practices and permits.

- Secondary Suites/ 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). With adequate housing being a national priority, more municipalities are looking at ways to densify and provide housing units.
- Juvenile Fire Setters Program – operating collaboratives with police, local health services, schools, 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.
- Home Escape Planning – How to plan a way out if there is a fire emergency.
- Community Partnership

Based on the information obtained, EFD should expand and formalize its public education activities by continuing to grow and fund fire inspection and public education programs. By reaching into the community to find people interested in this work, ,EFD is building resiliency within its current staffing model to provide its services. Training of these individuals is possible through courses offered by the Ontario Fire College, as well as other public and private education providers located in Canada. Many provide online programs, reducing the barrier to receiving this specific education.

With its current resources, EFD is attempting to deliver fire prevention and education programs. EFD has a good social media presence and is encouraged to continue to develop these programs for the community. EMG recommends that more detail goes into capturing public education events and fire inspection work so that it can be reviewed regularly. It is hoped that the funding for the full-time FPO is approved for 2024, and EFD can work to build more capacity within the department.

3.4.3 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 other members of the department who are 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 the Township, the Fire Chief, as the Chief Fire Official (CFO) has the responsibility to undertake fire cause determination efforts. Under the recently adopted Ontario firefighters training and certification requirements, those conducting fire investigations are mandated to complete the NFPA 1033 training course. EFD should determine if more staff should be trained to provide fire investigation services.

In many departments, this function falls to FPOs 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 an additional set of eyes and allows the appropriate development of potential alternate fire cause hypotheses which is critical to the fire cause determination effort. It provides an increased level of safety, preventing an individual from working alone and ensures both individuals clearly understand the risks of the fire investigation and the specifics of the scene that they are working.

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 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.

Numerous organizations actively contribute to advancing the field of fire cause determination, such as the Canadian Association of Fire Investigators (CAFI) and the International Association of Arson Investigators (IAAI). Membership in these organizations provides invaluable resources for local investigators, ensuring they stay updated on the latest trends and scientific advancements.

To further enhance its fire cause and determination program, it is advised that EFD invest in ongoing education for selected staff members, incorporating certification aligned with the NFPA 1033 standard. Establishing funding for this program, including support for attendance at specialized seminars, is essential for continuous development. Considering membership in Ontario Municipal Fire Prevention Officer's Association (OMFPOA), CAFI, and IAAI as part of this initiative is also recommended. Securing high-quality continuing education in fire investigation is challenging, and affiliating with these industry groups remains an effective method to uphold proficiency.

Additionally, it is suggested that EFD formulate SOGs based on the recommendations outlined in this section, adapting them as necessary. This proactive approach will aid in streamlining procedures and optimizing practices in fire cause.

3.4.4 Fire Code Inspection and Enforcement Activity Opportunities

Having a solid inspection and code enforcement plan is crucial for every community in Ontario to prevent fires. In Ontario, the OFM notes that all fire departments should do building inspections upon request or complaint. Data also shows that when residents and the fire department talk more about fire safety there are fewer fires.

The best way to cut risks is to have a program that is more proactive and goes above doing inspections simply based on request and complaint only. Of course, the ability to do more is based on available resources.

To better manage building projects from start to finish, EFD could change its Building By-law by adding a fee for fire inspections to help cover staff related costs.

When it comes to enforcing rules, many departments use an "Order to Comply" after an inspection. It is a way to educate, but also a legal step that helps if someone does not follow the rules. OFM supports this.

EMG suggests that the Township and EFD consider modifying its fire by-law and develop other strategies to enforce compliance of building owners other than simply issuing an "Order to Comply". Other administrative penalties, such as a by-law notice fine, may give EFD more flexibility in dealing with building owners and achieve greater fire and life safety compliance.

Discussions with the Fire Chief indicate concerns with FIREHOUSE®, the fire department's RMS, and the alignment with the RMS used by Fire Dispatch and the Building Department. A complete inventory of public buildings should be maintained in the RMS. A partial list has been provided to EFD, and this indicates there is substantial building stock of a level of complexity that needs to be further documented and would benefit from a proactive fire inspection program. This will allow for better reporting and a better understanding of the risks related to the occupancy type and the types of fire calls EFD responds to annually. If the details of building occupancy type are known, then an education program could be implemented that targets these types of calls and occupancies with the goal of reducing calls moving forward.

The use of Standard Operational Guidelines (SOGs) to describe how EFD fire prevention program should be developed. These guidelines will fit into the existing framework of EFD and be a baseline reference for fire and life safety programs that are offered, allowing for meaningful analysis of their effectiveness. Operational guidelines are essential for fire departments to provide clear, consistent, and standardized procedures for various aspects of their operations. These guidelines serve as a framework that helps organizations achieve their goals, maintain efficiency, and ensure the well-being of the inspectable properties within the community.

3.4.5 Fire Underwriters Inspection Benchmark

The FUS functions as an entity aiding the insurance industry by evaluating communities and assigning a risk score. This score serves as a basis for insurance underwriting companies to gauge the level of risk, influencing the foundational cost of insurance premiums. Subsequently, brokerage firms utilize this assessment in formulating insurance policies for consumers. FUS conducts a comprehensive analysis encompassing various factors such as the community's water supply systems, structure of the fire department, available resources, fire station locations, and staffing.

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 #1: 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. This inspection model is presented as a good starting point when evaluating the Department's present inspection program, and what more can be implemented based on internal resources.

It should be noted that many municipalities are moving away from this prescriptive type of inspection program and to one that is more risk-based. Which means, the higher the risk occupancy in the community, the more resources needed to prevent emergency incidents. This is another option for EFD to look at in relation to its present inspection program.

EFD should continue to work on inventorying the occupancies in the community, assigning risk scores, and developing a proactive inspection program that best suits the Township and the current staffing model.

A robust fire prevention program can be designed for EFD following the principles described in NFPA 1730: *Standard on Organization and Deployment of Fire Prevention Inspection and Code Enforcement, Plan Review, Investigation, and Public Education Operations* and using the risk-based

classification and methodologies in NFPA 1300: *Standard on Community Risk Assessment and Community Risk Reduction Plan Development.*

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 the Township of Essa. 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 FIREHOUSE® 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 digitizing of fire prevention records should be considered. ESO is the parent company that owns FIREHOUSE®, as well other fire software companies, and can streamline the inspection and reporting function. Inspectors equipped with handheld 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 the Township of Essa, these duties fall to the Deputy Chief and a full-time Fire Inspector that is budgeted for 2024; at times this work is also done by volunteer firefighters. Typically, municipal building officials' welcome input from fire department staff to ensure that complex building codes are being properly interpreted and applied in a practical, pragmatic manner. As discussed, EFD should look at a fee for this service to support the resources required.

It is recommended that the EFD revise their fire by-law to allow for cost recovery of fire inspection work and for administrative penalties. EFD should also upgrade their current software used for fire inspections so that better records and reporting is available, and efficiencies are realized in completing inspections.

3.4.6 Pre-Incident Planning

Currently, EFD has a rudimentary pre-incident planning system, whereby staff inventory buildings, provide information, and then save them into a Word or PDF file available on fire apparatus for emergency response. This function should be expanded and formalized. This could be done using existing commercially available pre-incident planning software

The benefits of a more formal program ensure that fire operation staff have the most current information when responding to incidents. By providing resources for the fire prevention and education staff to complete these plans, EFD will have more staff available for emergency response as well as higher reliability of the data. Another benefit is that EFD will be interacting with the buildings/businesses and be able to provide information on fire and life safety at the same time.

3.5 Training Division & Staff Development

With respect to objectives and goals identified in the South Simcoe Master Plan Proposal document, the FMP evaluated current educational programs and identified benchmarks and targets including key deliverables based on the EFD's fire protection delivery model and community needs. This section presents a review and makes recommendations regarding the firefighter training program, including recruit training, firefighter training, and officer training.

Measurable targets and quantifiable areas for ongoing improvement were developed based on EFD levels of service applied against NFPA 1201: *Standard for Providing Fire and Emergency Services to the Public*; NFPA 1041: *Standard for Fire and Emergency Services Instructor Professional Qualifications*; NFPA 1006: *Standard for Technical Rescue Personnel Professional Qualifications*; NFPA 1401: *Recommended Practice for Fire Service Training Reports and Records*; NFPA 1402: *Guide to Building Fire Service Training Centers*; NFPA 1403: *Standard on Live Fire Training Evolutions*; and NFPA 2500: *Standard for Operations and Training for Technical Search and Rescue Incidents and Life Safety Rope and Equipment for Emergency Services*.

The staffing exercise was based on a standard workload flow (SWF) analysis against the training job performance requirements identified in NFPA 1041.

The *Fire Protection and Prevention Act, 1997 (FPPA)* identifies the responsibilities of a municipality vis-à-vis fire protection services:

> *2 (1) Every municipality shall,*
>
> > *(a) establish a program in the municipality which must include public education with respect to fire safety and certain components of fire prevention; and*

(b) provide such other fire protection services as it determines may be necessary in accordance with its needs and circumstances.

To that end, Ontario municipalities adopt an E&R By-law identifying the level of services to be provided based on needs and circumstances. The E&R By-law informs the fire department about the type and level of training required. In the summer of 2022, Ontario Regulation 343/22: Firefighter Certification under the *FPPA, 1997* came into force, identifying that any firefighter performing a fire protection service must be certified, at a minimum, to the corresponding certification standard set out in the regulation:

2 (1) Every municipality, and every fire department in a territory without municipal organization, must ensure that its firefighters perform a fire protection service set out in Column 1 of Table 1 only if, on or after the corresponding day specified in Column 3 of that Table,

(a) the firefighter performing the fire protection service is certified, at a minimum, to the corresponding certification standard set out in Column 2 of that Table.

In addition, Part III of the *OHSA* identifies the duties of employers stating that:

25 (2) Without limiting the strict duty imposed by subsection (1), an employer shall,

(a) provide information, instruction, and supervision to a worker to protect the health or safety of the worker,

(c) when appointing a supervisor, appoint a competent person; and

(h) take every precaution reasonable in the circumstances for the protection of a worker.

Complementing the *OHSA* are the Section 21 Firefighter Guidance Notes that provide best practices for protecting the health and safety of fire service workers in Ontario. Of particular importance to training is Part 7 of the Guidance Notes which focuses on training.

A fire service can only provide adequate levels of protection to its community if it is professionally trained (and equipped) to deliver these services. Firefighters must be prepared to safely apply a diverse and demanding set of skills to meet the needs of a modern fire service. Whether assigned to Operations, Training, Fire Prevention (Community Risk Reduction), or Administration, staff must have the knowledge, skills, and abilities necessary to provide reliable fire protection services.

Regarding training and professional development, *NFPA 1201*: *Providing Fire and Emergency Services to the Public* stipulates:

4.11.1 Purpose. *"The Fire and Emergency Service Organization (FESO) shall have training and education programs and policies to ensure that personnel are trained, and that competency is maintained to effectively, efficiently, and safely execute all responsibilities."*[5]

NFPA 1500*: Standard on Occupational Safety, Health, and Wellness Program* states that:

5.1.1. *"a fire department shall establish and maintain a training, education, and professional development program with a goal of preventing occupational deaths, injuries, and illnesses."*[6]

NFPA 1500 also states that… *"training programs should include but not be limited to the following: community risk reduction (fire prevention, public education, investigation, etc.), health and safety, fire suppression, emergency medical, human resources (leadership, supervision, interpersonal dynamics, equal employment opportunity, etc.), incident management system, hazardous materials, technical rescue, information systems and computer technology, position-specific development (firefighter, company officer, chief officer, telecommunicator, investigator, inspector, driver/operator, etc.)."*[7]

The Commission on Fire Accreditation International (CFAI) has a specific section that evaluates the training component of a fire department. The CFAI states:

"Training and educational resource programs express the organization's philosophy and are central to its mission. Learning resources should include a library; other collections of materials that support teaching and learning; instructional methodologies and technologies; support services; distribution and maintenance systems for equipment and materials; instructional information systems, such as computers and software, telecommunications, other audio-visual media, and facilities to utilize such equipment and services. If the agency does not have these resources available internally, external resources are identified, and the agency has a plan in place to ensure compliance with training and education requirements."

[5] National Fire Protection Association. "NFPA 1201 Standard for Providing Fire and Emergency Services to the Public." Accessed January 23, 2024, https://www.nfpa.org/codes-and-standards/1/2/0/1201?l=64

[6] National Fire Protection Association. "NFPA 1500 Standard on Fire Department Occupational Safety, Health, and Wellness Program." Accessed January 23, 2024, https://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=1500

[7] National Fire Protection Association, "NFPA 1500 Standard on Fire Department Occupational Safety, Health, and Wellness Program." Accessed January 23, 2024, https://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=1500

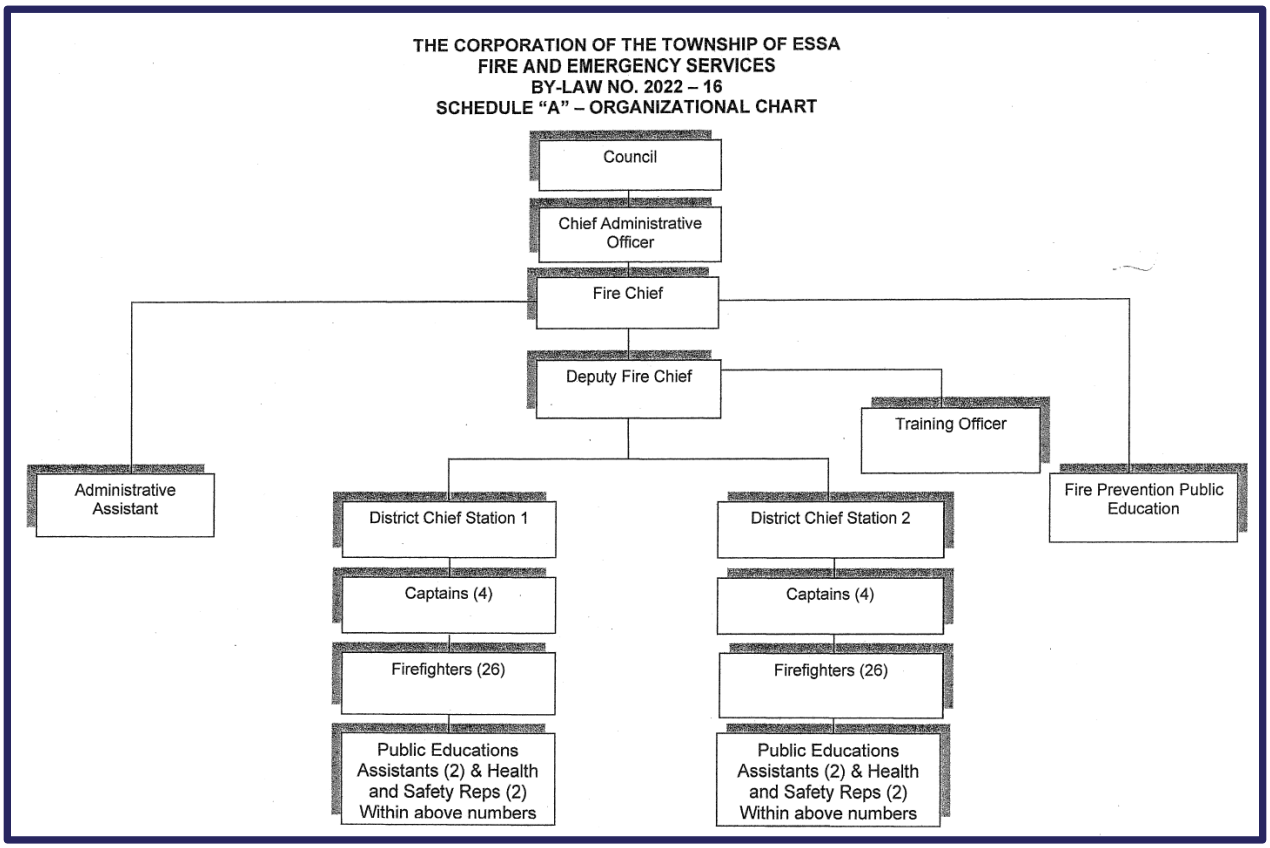
A review of EFD's training identified strengths, weaknesses, opportunities, and threats (SWOT) surrounding organizational structure, staffing, workload, on-shift training, training facilities, divisional training, record keeping, and promotional process. These issues will be addressed separately in the following sections.

3.5.1 Training Division Organizational Structure

As illustrated in the department organizational chart, training is under the tutelage of the Deputy Fire Chief (Figure #4). Although the organizational chart shows a Training Officer, the EFD does not have a dedicated (volunteer or full-time) Training Officer. The Fire Chief and Deputy Chief oversee the training of the department and training is supported in-house through appointed captains who are responsible for planning and scheduling training sessions at each fire hall. Further, there is no dedicated administrative personnel providing clerical support to training. The identified Administrative Assistant provides clerical support for all aspects of the EFD.

The current training model contributes to the concerns expressed by EFD staff in the EMG Staff Survey, where a recurring theme pertained to the need for a full-time Training Officer to alleviate training issues such as lack of training in some areas, some stagnation in training, some disenchantment with the" how" and the "what" programs offered, funding concerns, etc.

FIGURE #4: 2022 ESSA FIRE DEPARTMENT ORGANIZATIONAL CHART



Schedule "B" of By-law 2022-16: Being a By-law to establish and regulate a Fire Department in Essa Township and to repeal By-law No. 2014-27 stipulates:

Objectives of the Essa Fire and Emergency Services

To achieve the goals of the fire department, necessary funding must be in place and the following objectives must be in place:

- Identify and review the fire services department requirements of the municipality.
- Provide an adequate administration process consistent with the needs of the department.
- Ensure that the firefighting equipment and operating personnel are available to provide adequate response within a reasonable length of time.
- Provide department training which will ensure the continuous upgrading of all personnel in the latest techniques of fire prevention, fire fighting and control of emergency situations.
- Provide a maintenance program to ensure all fire protection apparatus and department equipment is ready to respond calls.

Funding, officer training, and emphasis on latest techniques of fire protection services were concerns addressed in the staff survey. The Township of Essa By-law 2022-16 iterates the commitment for necessary funding to achieve the goals of the EFD, including training goals.

Systemic of the fire service is for the Training Division reporting to the Operations Division, due to the suppression-centric culture of the fire service. Unfortunately, this model tends to emphasize and prioritize training needs for the third line of defence – *Emergency Response* – at the expense of the first two lines of defence, including Line 1: *Public fire safety education* and Line 2: *Fire safety standards and enforcement*.

EMG noted that the functions of the EFD Training pertain to training and education needs associated with a firefighter skills maintenance program, a recruit training program, and an officer promotional process. The EFD Training has limited involvement in technical rescue, fire prevention, fire investigation, or public and life safety education; training is facilitated externally under the collaborative coordination from the Fire Chief and Deputy Fire Chief.

EMG recommends that the Township of Essa and the EFD review their funding obligations to ensure adequate financial support to meet the training objective iterated in point four of the "Objectives of the Essa Fire and Emergency Services" section of the Township of Essa By-law 2022-16. This is becoming critical with the adoption of the Firefighter Certification regulation made under the *FPPA*, 1997.

Improving on the current organizational structure, the EFD should consider revising the EFD organizational chart by renaming "Training Officer" to "Training Division". Further, the EFD should consider providing clerical support to the Training Division. One weakness often identified in organizations, especially with the recent introduction of technological tools where staff are more engaged in some form of clerical work, is the elimination of a clerical assistant or administrative support. Clerical expertise brings skills such as organization, communication, and administration required to handle most clerical tasks in an organization. The EFD Training Clerk would allow the management, in this case the Fire Chief and Deputy Chief, to manage and supervise the departmental operations, while recordkeeping and administration as recommended under NFPA 1401: *Recommended Practice for Fire Service Training, Reports, and Records* are duly performed by a dedicated administrative assistant. This would greatly align with training priorities as set in By-law 2022-16, while ensuring long-term sustainability, efficiency, and effectiveness of the EFD training functions.

This administrative support model allows the Training Division to be staffed with personnel with strong administrative, organizational, and communication skills. These skills are imperative in training due to extensive clerical work pertaining to curriculum development; organizational skills required for extensive scheduling needs for various programs being taught; administrative skills required to prioritize workload; and managing extensive record keeping associated with training functions consistent with NFPA 1401 and Section 21 Part 7 recommended practices.

EMG therefore recommends that the EFD hire a full-time training clerk or collaborate with another municipal department and share the administrative support.

3.5.2 Staffing Levels and Workload

There are several core fire protection services identified in the Township of Essa By-law 2022-16 and delivered by the EFD, including structural fire suppression, vehicle fire suppression, wildland fire suppression, medical emergency, HAZMAT, fire prevention including inspections and public and life safety education, and fire investigation. Figure#5 provides a complete list of the core services identified in Schedule "C" of the By-law.

All suppression training organization and scheduling is the responsibility of the EFD Fire Chief in collaboration with the Deputy Fire Chief. Training delivery is the responsibility of appointed captains at each fire hall.

As part of its training program, the EFD also have a recruit training program, a captain promotional program, and a live fire program held at the Honda Training grounds.

FIGURE #5: THE CORPORATION OF THE TOWNSHIP OF ESSA FIRE AND EMERGENCY SERVICES BY-LAW 2022-16 SCHEDULE "C" CORE SERVICES

THE CORPORATION OF THE TOWNSHIP OF ESSA
FIRE AND EMERGENCY SERVICES
By-law 2022 – 16
SCHEDULE "C"
CORE SERVICES

FIRE PREVENTION

1. Conduct fire prevention programs.
2. Enforce compliance with municipal, provincial, and federal legislation, statues, codes and regulations in respect to fire inspections and fire safety.
3. Provide public educational programs and fire safety training.
4. Smoke Alarm program.
5. Public Education, Pre-Fire Plans, In-Service Inspections.

FIRE SUPPRESSION

1. Structural fire suppression
2. Vehicle fire suppression
3. Wildland fire suppression (grass, brush, forestry)
4. Medical (first aid, C.P.R. & defibrillation)
5. Medical Assist (simultaneous dispatch, tiered response)
6. Hazardous Materials Response (awareness level)
7. Vehicle Accidents
8. Vehicle Extrication
9. Water Rescue (shore based)
10. Confined Space (limited to equipment & training)
11. Rescue Operations (limited to equipment and training)
12. Public Assistance, other agencies assistance.
13. Public Education, Pre-Fire Plans, In-Service Inspections
14. Fire Investigation
15. Mutual Aid and Fire Protection Agreement Response
16. Member of special teams (County, Municipal, and Federal)

TRAINING DIVISION FUNCTIONS

1. Training to meet core services
2. Training in administration, fire prevention, suppression
3. Training in Occupational Health & Safety, Municipal Safety Standards, Department Safety and Operating Guidelines & Procedures.
4. Preparation of all training records and reports.
5. Preparation of and conducting examinations of members.
6. Planning and locating external programs and resources to provide training and education of members outside the department.
7. Recruit training and examinations.
8. Firefighter skill evaluations.
9. Projecting training needs.
10. Maintaining training resource library and interactive programs.

When considering all the roles and responsibilities associated with meeting the training goals and objectives of the EFD, EMG conducted an SWF analysis to evaluate appropriate staffing levels. The SWF was based on the NFPA 1041: *Standard for Fire and Emergency Services Instructor Professional Qualifications*.

According to the NFPA 1041, the management of fire service training programs requires a manager, regardless of fire service affiliation or instructor level, who can accomplish the following tasks[8]:

- Budgeting
- Resource management
- Management of personnel
- Management of instruction
- Program evaluation
- Training needs analysis
- Scheduling
- Goal setting
- Networking with other training agencies
- Technical writing
- Effective verbal and written communication

Within the EFD, these tasks are to fall under the responsibility of the EFD Fire Chief and Deputy Fire Chief.

The following chart represents an approximation of the current EFD Training SWF. There are seven training programs, including Suppression maintenance training, Recruit training, Promotional Process for Officers, HAZMAT (Operations Level), Live fire training, First Aid/CPR, and Auto Extrication. Each program has various offerings. For instance, suppression maintenance training involves five training sessions per month; live fire involves a few weekends a year during the summer at the Honda Training facilities; wildland fire involves a yearly refresher program.

Based on EMG's analysis, the estimated number of days to properly plan, develop, implement, and evaluate each of the seven training programs a year would require 150 days/each program (Table #2). Given that one person works on average 227 days a year (based on 52 weeks, 13 Statutory Holidays,

[8] National Fire Protection Association. "NFPA 1041: Standard for Fire and Emergency Services Instructor professional qualifications." 2019 Edition section E2 p.1041-25, https://www.nfpa.org/codes-and-standards/1/0/4/nfpa-1041

and an average of 4 weeks vacation), to properly manage the current training program, the EFD would require six staff (workload divided by one-person work year [1,050 divided by 227 = 4.5 staff]). Given that the EFD Training Division relies on the Fire Chief and the Deputy Fire Chief to plan and develop the programs and on appointed captains to implement and evaluate the programs (delivery and testing of training) the current EFD training model does not adequately meet the EFD training needs; a theme that was clearly identified in the Staff Survey.

A compounding factor contributing to staffing levels for EFD Training is the Ontario Regulation 343/22: Firefighter Certification, made under the *FPPA*, 1997.

TABLE #2: TRAINING STANDARD WORKFLOW (SWF) CALCULATION IN DAYS

Task	Description	Days of Effort
Administration	Include all aspect of managing the program, including budgeting, recordkeeping, and reporting.	20 days
Scheduling	Preparation and posting of annual, weekly, and/or daily schedule	20 days
Direct Delivery	Several programs are the direct responsibility of the training officer to deliver, such as Recruit Orientation	40 days
Marking		10 days
On-Shift Trainer Support	Support to 4 platoons at 4 stations	10 days
Program Evaluation	Review and update of programs to assure currency of learning materials	10 days
Training Needs Analysis	Evaluation of new programs to meet the needs of the FFD	5 days

Task	Description	Days of Effort
Coordination with External Training Providers	Several programs are offered by external training providers and require coordination with external agencies for smooth delivery	5 days
Curriculum Development	Development of lesson plans for all training programs	20 days
Training Facility	Maintenance of training facility to assure constant operational availability	5 days
Equipment and Training Prop Maintenance	Maintenance of equipment in proper working order	5 days

EMG recommends that the EFD creates a full-time Training Officer position to manage training needs for the EFD. Although EMG's analysis suggests that 4.5 staff would be required to adequately support EFD training needs, EMG is of the opinion that a full-time dedicated Training Officer supported by a training clerk responsible for day-to-day administration of records and clerical duties associated with program development, lesson plans, scheduling, etc., would suffice to adequately administer the EFD training needs. The full-time Training Officer would be coordinating and supervising training delivery through appointment of captains as per the current model. A full-time Training Officer would also provide consistency and uniformity in training delivery.

3.5.3 Training Facility

The EFD does not have a dedicated physical training facility or a Training Division. As previously mentioned, the Fire Chief, with the assistance of the Deputy Fire Chief, oversees training that is delivered at each fire hall by appointed captains. The EFD does have a dedicated training trailer stored at Station No. 1 Thornton (Figure #6). During the time of review, no confirmation could be made that the training props comply with the NFPA 1402, *Standard on Facilities for Fire Training and Associated Props*. As such, EMG recommends that the EFD ensure that any training props comply with NFPA 1402 standard.

FIGURE #6: EFD MOBILE FIRE-RESCUE TRAINING UNIT

A classroom is located at each of the two fire stations to assist with scheduled training (figure(s) #7). Currently, appointed captains are responsible for planning and scheduling training sessions. There are five training sessions each month, where one of the sessions is a joint session between both the Thorton and Angus fire halls.

FIGURE(S) #7: EFD CLASSROOMS

Fire Station No. 1 Thornton - Classroom

Fire Station No. 2 Angus – Classroom

The Honda facility accommodates live fire training for both Class "A" and Class "B" fires (Figure #8). EMG applauds the EFD's use of the Honda Emergency Services Training Facility. EMG's review of the Honda training facility suggested that live fire training complied with NFPA 1403: *Standard on Live Fire Training Evolutions*. EMG recommends that the EFD create a Live Fire Training SOG to support their live fire training efforts.

FIGURE(S) #8: HONDA CANADA EMERGENCY SERVICES TRAINING FACILITY

3.5.4 Training Programs

HAZMAT Training

According to the Township of Essa By-law 2022-16, the EFD is a full-service fire department, and the Ontario Regulation 343/22 requires a full-service fire department to train firefighters to the Operations level for HAZMAT Response. Although the EFD meets the requirement through training, the Township of Essa By-law 2022-16 identifies their HAZMAT core service at the Awareness Level. Fortunately, the Township of Essa has entered into a Memorandum of Understanding with the City of Barrie and its fire department to provide HAZMAT migration.

Further, EMG noted that there is limited training to NFPA 1072. The HAZMAT training program is an extension of the NFPA 1001: *Standard for Fire Fighter Professional Qualifications* which include the

requirements defined in Chapter 5 as well as mission-specific competencies in Section 6.2, Personal Protective Equipment, and Section 6.6, Product Control, of NFPA 1072[9].

With the adoption of Ontario Regulation 343/22: Firefighter Certification, it will become incumbent for the EFD to become more engage in personnel testing and certification. For consistency of training, HAZMAT training, testing, and certification, it would be prudent for the EFD to develop, update, and maintain the HAZMAT training program in accordance with NFPA 1072 Operations Level, including the review of learning outcomes to reflect the goals, procedures, and training needs of the EFD, while assuring adequate preparation for successful provincial testing for all staff.

Technical Rescue Training

Currently, the EFD technical rescue core services identified in By-law 2022-16 are Water Rescue, Confined Space, and Rescue Operations. EMG's review of technical rescue training programs indicated that EFD staff are trained at the Awareness Level for all identified technical rescuer programs. First, EMG recommends that the Township of Essa By-law 2022-16 be updated to align technical rescuer core services with wording from Table 1 of the Ontario Regulation 343/22 to avoid misunderstanding as to the adequate level of service provided and to avoid unnecessary training expenses. Secondly, EMG recommends that unless EFD has an automatic aid agreement in place with a fire service that provides Technician Level technical rescuer services, all staff should be trained to the Operations Level for any technical rescuer core service identified in the Township of Esa By-law 2022-16.

In addition, all technical rescuer training program should be monitored to adhere to the NFPA 1006: *Standard for Technical Rescue Personnel Professional Qualifications* and in accordance with Ontario Regulation 343/22: *Firefighter Certification*.

EMG also recommends that the EFD aligns its technical rescuer operations and training to NFPA 2500: *Standard for Operations and Training for Technical Search and Rescue Incidents and Life Safety Rope and Equipment for Emergency Services*. This standard specifies the minimum requirements for the EFD identified levels of functional capability for conducting operations at technical search and rescue incidents while minimizing threats to rescuers.[10]

[9] National Fire Protection Association. "NFPA 1001: Standard for Fire Fighter Professional Qualifications, 2019 Edition." Accessed January 23, 2024. https://www.nfpa.org/codes-and-standards/1/0/0/1001

[10] National Fire Protection Association. "NFPA 2500: Standard for Operations and Training for Technical Search and Rescue Incidents and Life Safety Rope and Equipment for Emergency Services," Section 1.2 (1). Accessed January 23, 2024. https://www.nfpa.org/codes-and-standards/2/5/0/2500

Auto Extrication Training

The current auto extrication curricula do not meet the NFPA 1006 and NFPA 2500 requirements for auto extrication and vehicle search and rescue, respectively. With the adoption of the Ontario Regulation 343/22, certification to the appropriate levels will be required by the 1st of July 2026. Although the EFD is diligently working at addressing their shortcomings pertaining to mandated certification, it is imperative that the EFD assume the responsibilities associated with testing and certification to meet provincial guidelines from the Accreditation, Standards, and Evaluation Section of the OFM.

The" vehicle extrication" wording from the Township of Essa By-law 2022-16 should be updated to reflect wording from Table 1 of the Ontario Regulation 343/22, made under the *FPPA*, 1997. The auto extrication functions should be clearly stated in the By-law 2022-16 to avoid unnecessary conflicts of interest given the adoption of the Fire fighter Certification regulation 343/22.

Recruit Training

The EFD has a well developed and designed Recruit Training Program. The recruit training is the collaborative responsibility of the senior management and a dedicated core group of instructors. The onboarding process occurs throughout the probationary period. The training is supported by the EFD learning management system (LMS), known as FLMS, and the International Fire Service Training Association (IFSTA) Essentials of Firefighting 7th Edition curriculum.

Fire Suppression Training

Firefighting training adheres to NFPA 1001: *Standard for Fire Fighter Professional Qualifications*. The training curriculum follows the IFSTA *Essentials of Firefighting, 7th Edition* manual. This is one of the authoritative training manuals with respect to firefighting training. The EFD is responsible for creating the annual training schedule for skill maintenance. Using the IFSTA training materials, the knowledge and skill requisites are then delivered through their LMS – FLMS and in-house at each fire station.

The appointed captains are responsible to record training completed on the EFD LMS (FLMS).

The EFD has a robust firefighting maintenance training program through a well-established LMS. EMG noted that all EFD captains are certified to NFPA 1041: *Standard for Fire and Emergency Services Instructor Professional Qualifications*. The benefits include improved teaching expertise and experience, improved delivery of program objectives, better trained personnel, as well as benefiting the training resource capacity of the EFD.

Fire Prevention and Fire and Life Safety Education Training

The Inspection and Public Fire and Life Safety Education training delivered to staff is to be managed by the Deputy Fire Chief. Most related training is provided externally, and the EFD's role involves some coordination of the external training, as well as record management.

With respect to Public and Life Safety Education, the Township of Essa By-law 2022-16 addresses the importance of public fire and life safety education, however, training is dependent on availability of external relevant training. The EFD Administrative Assistant is the department's PFLSE. In their functions, the PFLSE is assisted by the EFD uniform personnel. The Administrative Assistant is certified to Level 2 of the NFPA 1035: *Standard on Fire and Life Safety Educator, Public Information Officer, Youth Firesetter Intervention Specialist and Youth Firesetter Program Manager Professional Qualifications*. Some of the EFD staff are certified to Level 1. Consideration should be given to develop internal capacity to train all staff to NFPA 1035: *Standard on Fire and Life Safety Educator, Public Information Officer, Youth Firesetter Intervention Specialist and Youth Firesetter Program Manager Professional Qualifications*.

EMG applauds that public fire and life safety education training aligns with NFPA 1035. However, given the importance of the first two lines of defence, EMG recommends that suppression staff be trained to Fire and Life Safety Educator Level 1 and that the EFD operations Division captains also be trained as Public Information Officer, under the NFPA 1035.

With the adoption of Ontario Regulation 343/22, made under the *FPPA*, 1997, it will become incumbent on the EFD to take a more active role in testing and certification to NFPA 1035. This will require development and maintenance of a robust curriculum to assure a successful certification program for EFD. It is becoming essential for the EFD to evaluate the impact of Ontario Regulation 343/22 on the EFD's training program and current training staff's workload.

Fire inspection has an adequate training program within the EFD. The EFD have a part-time FPO, who is trained and certified to Fire Inspector Level 2 under the NFPA 1031: *Standard for Professional Qualifications for Fire Inspector and Plan Examiner*. However, there is no other EFD staff trained or certified to NFPA 1031. EMG recommends that at least the District Chief at each station should be certified to NFPA 1031 Fire Inspector Level 1. Ideally, both District Chiefs and all captains should be trained and certified to NFPA 1031 Fire Inspector Level 1 to meet the goals set in The Township of Essa By-law 2022-16 pertaining to FIRE PREVENTION – Core Services.

Training development and delivery are like public and life safety education concerning external training and coordination by the EFD Deputy Fire Chief position in collaboration with the part-time FPO. EMG recommends that the EFD Fire Prevention policy addresses training requirements and that the training requirements for Fire Prevention which should be set at Level 2 of NFPA 1031: *Standard for Professional Qualifications for Fire Inspector and Plan Examiner* be added to the program

development and delivery of the EFD. At the very least, EFD Training Division should vet the curriculum and arrange testing and certification to NFPA 1031 and 1035 for the departmental part-time FPO and the PFLSE.

Fire Investigation Training

Like other specialty functions within the EFD, Fire Investigation training relies on external training providers. On a positive note, the current training aligns to the job performance requirements of NFPA 1033: *Standard for Fire investigator Professional Qualifications*. EMG noted that there is no specific training to NFPA 921: *Guide for Fire and Explosion Investigations*. Qualification for NFPA 921 is essential because it is the companion guide to the NFPA 1033.

Although the Ontario Regulation 343/22 sets the fire investigator certification requirements to NFPA 1033, EMG recommends that EFD dedicated fire investigators be concurrently certified to NFPA 1033 and NFPA 921. In addition, EMG recommends that fire investigation operations and training adhere to NFPA 1231: *Standard for Fire Investigation Units* and that the EFD be responsible for monitoring, record keeping, testing, and certification to the said NFPA standards.

Medical and Medical Assist Training Programs

Core services under fire suppression of the Township of Essa By-law 2022-16 identifies the medical response functions of the EFD. EMG noted that the EFD medical assist services are maintained as per the local tiered response agreement with EMS. However, medical training (First Aid, CPR, and DEFIB) is not under the supervision of a local Base Hospital medical director.

Currently, the EFD's First Aid, CPR, and DEFIB training is delivered by the Red Cross.

Wildland Fire Suppression (Grass, Brush, Forestry) Program

The Township of Essa By-law 2022-16 identifies wildland fire suppression as a core service for the EFD. EMG's review of the relevant Wildland Fire Suppression training revealed that the Department conducts a refresher course yearly using best practices as the curriculum. EMG recommends that the EFD incorporate the NFPA 1140: *Standard for Wildland Fire Protection* into the development of their Wildland Firefighting curriculum.

EFD Training Programs

Currently, the EFD training programs involve formal and informal training adhering to NFPA Professional Qualifications standards. Consideration should be given for all training curricula to align with specific knowledge and skill requisites of the specific NFPA Professional Qualifications standard relevant to the EFD identified level of services. The recommended qualifications are summarized in the following table.

TABLE #3: TRAINING PROGRAM RECOMMENDED QUALIFICATIONS

Level of Service	NFPA Pro-Quals Standard	Qualification Level
Firefighting	NFPA 1001	**LEVELS 1 and 2** & O. Reg. 343/22
Technical Rescue	NFPA 1006 and NFPA 2500	**OPERATIONS** Level & O. Reg. 343/22
HAZMAT	NFPA 1072	**Operations Level Responder** & O. Reg. 343/22
Fire Inspection	NFPA 1031	**Level 2** & O. Reg. 343/22
Public and Life Safety Education	NFPA 1035	**Level 1, Level 2, and PIO** & O. Reg. 343/22
Fire Investigation	NFPA 1033 and NFPA 921, as well as NFPA 1321	O. Reg. 343/22
Training	NFPA 1041	**Level 1 and Level 2** & O. Reg. 343/22
Safety Officer	NFPA 1521	O. Reg. 343/22
Officer	NFPA 1021	**Level 1 for captains; Level 2 for district chiefs; Level 3 or 4 for the Fire Chief and Deputy Fire Chief** & O. Reg. 343/22
Pump Operator	NFPA 1002	O. Reg. 343/22

3.5.5 Training Documents and Training Records

EFD training reports and records align with NFPA 1401: *Recommended Practice for Fire Service Training Reports and Records*. EFD captains manually fill a form that is to be submitted to the Deputy Fire Chief for entry into the administrative database called FIREHOUSE®.

3.5.6 Promotional Process

NFPA 1021: *Standard for Fire Officer Professional Qualifications* defines promotion as: "*the advancement of a member from one rank to a higher rank by a method such as election, appointment, merit, or examination*."[11].

EMG interviews with staff and management highlighted the importance given to the promotional process from the point of view of management seeking the best person to promote to supervisory rank and personnel in the context of their career advancement[12]. A formal job description is a first step and an essential component of a successful promotion process. At the very least, the job description should include the necessary skills, the necessary work performance requisites, the necessary qualifications, and who is eligible[13] . EMG suggests that EFD review, update, and, where necessary, add a job description for all positions within the Fire Department.

Another vital component of a robust promotional process is a written SOP. Although the EFD has an established step-by-step promotional process for the identification of a pool of successful candidates for the acting captain's role, EFD does not have a comprehensive SOP for its promotional process.

Further, EMG noted that the EFD are only actively involved in the promotional process for vacant acting captain positions. EMG recommends that the EFD should invest in developing a promotional process for firefighter increments, Captain, and District Chief positions.

There are several types of promotion processes, including by appointment, seniority, résumés, performance evaluations, interviews, assessment centers, and written tests. The best practice in the Human Resources business has been to combine one or more of these promotion processes. In addition, the design of the promotion process should be based on subjective and objective decision-making approaches for best results in selecting candidates.

For instance, pre-screening of résumés against job functions from the job description with a weighted rubric is an excellent example of a subjective and objective decision-making approach. The weighted rubric is measurable and allows for the ranking of scores by candidates. In contrast, the weight

[11] National Fire Protection Association. "NFPA 1021 Standard for Fire Officer Professional Qualifications." Accessed January 23, 2024. https://www.nfpa.org/codes-and-standards/1/0/2/1021

[12] Abraham, Jack. "What is the Best Fire Service Promotional Process?" Fire Rescue 1. Accessed January 23, 2024. https://www.firerescue1.com/fire-products/fire-department-management/articles/what-is-the-best-fire-service-promotion-process-QtgE4bROggmDxwNB/

[13] Abraham, Jack. "What is the Best Fire Service Promotional Process?" Fire Rescue 1. Accessed January 23, 2024. https://www.firerescue1.com/fire-products/fire-department-management/articles/what-is-the-best-fire-service-promotion-process-QtgE4bROggmDxwNB/

attributed to each function is the opinion of management or an advisory committee of subject-matter experts. The EFD utilizes a combination of promotional process systems to evaluate and select successful acting captain candidates.

EMG applauds the initiative of the EFD, who developed a robust process involving training preparation for personnel wishing to be promoted, as well as testing involving a written exam, a practical exam, and an oral examination in front of a senior management team for the acting captain promotion. A similar process should be implemented for personnel wishing to be promoted to captain and/or district chief positions. In the event that the EFD hires a full-time Training Officer, a promotional process should also be devised for that position.

EMG recommends that EFD develop detailed SOPs for each rank on the promotional process system, including Acting Captain, Captain, and District Chief promotional processes.

Concerning the firefighter increment promotional process, EMG suggests that the process be based on a three-year period for completion and that an SOP identify clear and concise objectives and goals for each increment. The SOP should also include details (steps-by-steps) regarding the process.

3.6 Suppression

Until 1955, no organized fire protection existed in the Township of Essa. In 1955, a significant fire in Thornton destroyed McQuay's service and gasoline station and the home of Arther and Bessie McQuay. The Cookstown Fire Department and residents tried in vain to extinguish the fire and save whatever property they could. During this fire, some residents decided it was time to organize a fire department, thus the inception of the Thornton Fire Department, which, in time, became the Essa Fire Department.

The 1955 fire at McQuay's service station initiated the Essa Fire Department. Note the men on the roof of the building next door with pails pouring water on the roof to prevent it from catching fire.

3.6.1 Suppression Overview

The EFD is a volunteer department, except for the Fire Chief and the Deputy Fire Chief positions, which are both full-time. For volunteer fire departments, the NFPA 1720 standard is applicable for this review. It is worth noting that although the NFPA is not a mandated standard, it is a recognized

industry best practice. As such, fire departments should use NFPA standards as goals and guidelines to strive for.

When volunteer/paid-on-call (POC) departments receive a call for service, firefighters are often not in the station when the call comes in. They must drive to their assigned fire station, get into their bunker gear, board the apparatus, and respond; this timeframe is referred to as the 'turnout' time. The NFPA Standard for POC departments does not have a turnout time expectation due to the varied distances the firefighters must travel to arrive at the fire station. EMG uses 4 minutes as the general turnout time (when firefighters arrive at the fire station).

3.6.2 National Fire Protection Association 1720

To provide the fire department with a more precise focus on the ultimate goals for emergency response criteria, the NFPA suggests that response times be a primary performance measure. NFPA 1720 applies to volunteers and POC who typically do not have personnel on duty in stations and instead respond to a page-out from home, work, or elsewhere. This fact of POC response introduces a critical variable. POC cannot guarantee availability like career, on-duty staff can, unless the POC members are in the station when alerted. These standard response goal criteria are very different and are intended to reflect the nature of a volunteer response system.

NOTE: For this report, initially, volunteer firefighters were the ones who did not receive a stipend for the time they spent attending to duties for the fire department, whereas paid on-call do receive compensation. This report shows that POC and volunteers are the same, not full-time firefighters.

3.6.3 Response

When considering a community's response times and needs, the fire response curve (Figure #9) gives the reader a general understanding of how fire can grow within a furnished residential structure over a short period. Depending on many factors, the growth rate can be affected in several ways, based on the building's structure (i.e., wood or metal) and the interior finishes, which can increase or suppress the burn rate through fire control measures within the structure.

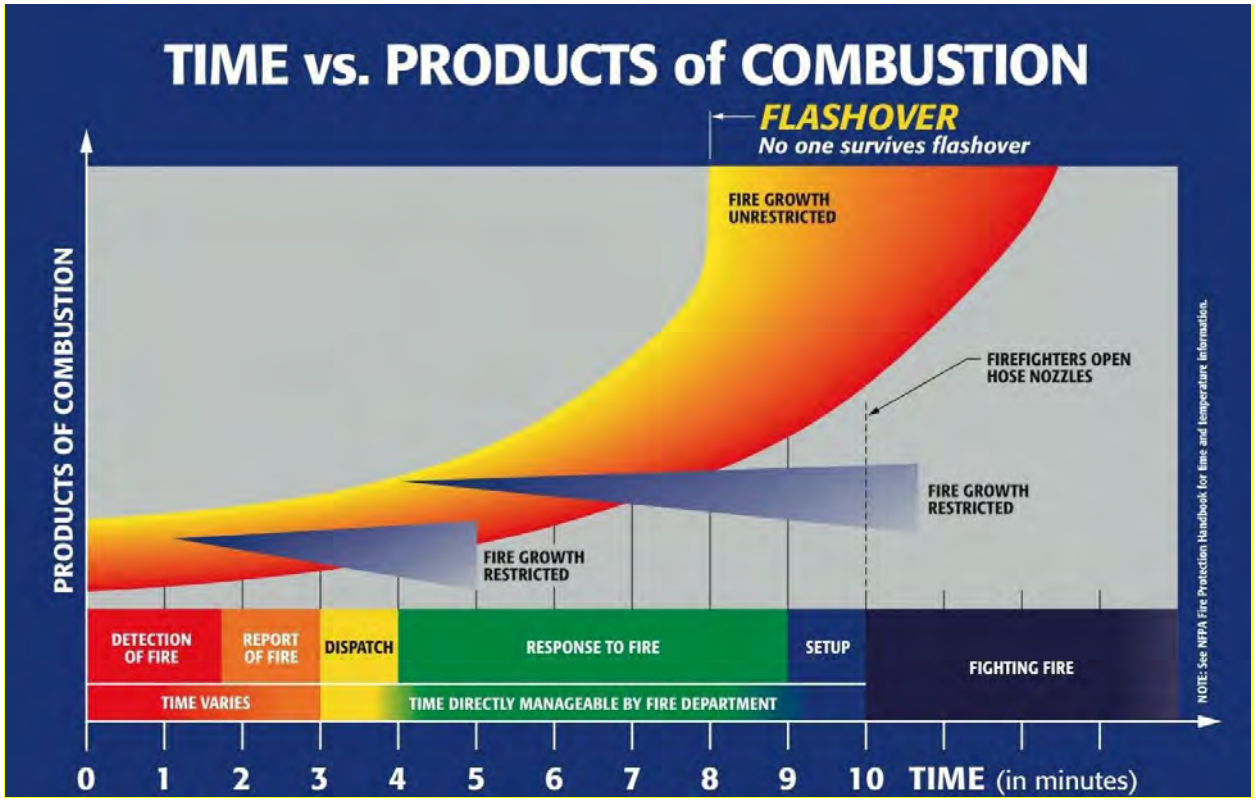
When we review the response time of a fire department, it is a function of various factors including, but not limited to:

- The distance between the fire department and the response location.
- The layout of the community.
- Impediments affecting response such as weather, construction, traffic jams, and lack of direct routes (rural roads).
- Notification time.

- Assembly time – when the number of firefighters meets the prescribed requirement at the fire station and the incident scene.
    - Assembly time includes dispatch time, turnout time to the fire station, and response to the scene.
    - Like response times, assembly time can vary significantly due to weather and road conditions, along with the time of day, as many firefighters are at their full-time jobs and cannot respond to calls during work hours.

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

FIGURE #9: FIRE RESPONSE/ PROPAGATION CURVE



- Detection of Fire – This is when the occupant discovers a fire. 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 calls 9-1-1 for help.
- Dispatch – the dispatcher's time 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 - when the crew advises dispatch that they are responding until they report on the scene.
- Setup Time – the time it takes for the fire crews to get ready to fight the fire.
- Fighting the Fire – actual time to extinguish the fire on scene.

The overall goal of any fire department is to arrive at the fire scene or incident as quickly and effectively as possible. If a fire truck comes on the scene in eight minutes or less, with a recommended crew of four or more firefighters, there is an 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 may be made by the firefighters until sufficient personnel arrive. At least three firefighters and one officer must arrive to make up the initial fire suppression team. This team of four can effectively assess 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, and unload and advance the fire hose in preparation for entry into the structure. A team of four also allows adherence to the recommended “two-in, two-out” rule, referring to two firefighters inside the structure with two outside ready to go in as backup.

The two in/two out rule for firefighters is based on the more general requirement that workers working in hazardous areas must operate according to the “buddy system.” This rule requires each worker to work within sight and sound of another in case they need assistance. The rule does not require the "two-in/two-out" provision if the fire is still incipient and does not prohibit firefighters from fighting the fire outside before sufficient personnel arrive. It also does not prohibit firefighters from entering a burning structure to perform search and rescue operations when there is a reasonable belief that victims may be inside. Only when firefighters are engaged in the interior attack of interior structural firefighting does the "two-in/two-out" requirement apply. The incident commander is responsible for judging whether a fire is an interior structural fire and how crews will attack it.

As stated in NFPA 1500 (2021), *Standard on Fire Department Occupational Health, Safety, and Wellness Program*:

Article 8.8.2 – *In the initial stages of an incident where only one crew is operating in the hazardous area at a working structural fire, a minimum of four individuals shall be required, consisting of two members working as a crew in the hazardous area and two standby members present outside this*

hazardous area available for assistance or rescue at emergency operations where entry into the danger area is required.

The Fire Chief must ensure each station has a complement allowing an initial complete crew response to incidents. When required, a response protocol is in effect. When a station and its firefighters get dispatched to any call where backup may be necessary, another station is dispatched automatically to the same incident. EFD, like many other fire services, has challenges amassing enough firefighters to mitigate emergencies safely during daytime calls. It must dispatch both fire stations to several of the different call types it responds to, not just fires.

3.6.4 Response Data

Turnout times and travel times are not necessarily recognized by NFPA 1720, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Department* as they are in NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Department*.

The Authority Having Jurisdiction (AHJ) may establish a response time to meet the community's needs. NFPA 1720 has set a response time chart as seen in Table #3.

TABLE #4: NFPA 1720 STAFFING AND RESPONSE TIME

Demand Zone	Demographics	Minimum Staffing	Response Time	Meets Objective
Urban Area	>1,000 people/m² (2.6 km²)	15	9	90%
Suburban Area	500-1,000 people/mi² (2.6 km²)	10	10	80%
Rural Area	<500 people/mi² (2.6 km²)	6	14	80%
Remote Area	Travel Distance ≥ 8 mi (12.87 km)	4	Directly dependent on travel distance	90%
Special Risks	Determined by AHJ.	Determined by AHJ based on risk.	Determined by AHJ.	90%

The Standard states that rural areas, such as the Township of Essa, with a population of <500 people /mi² (2.6 km²), should strive to have six firefighters on the scene of a residential structure fire within 14 minutes (80th percentile). The Township's population density is 82.1 / km² (212.64 / mi²) based on 2021 Statistics Canada Data.[14] When reviewing the density of the three urban areas, they would fall under the suburban fire department category.

TABLE #5: POPULATION DENSITIES IN THE TOWNSHIP OF ESSA

Township of Essa[15]		
Area	Population	Population Density
Township of Essa	22,970	82.1 /km²
Urban Areas		
Angus	12,046	1,066 /km²
Baxter	449	876 /km²
Thornton	2,084	952 / km²

When considering the Suburban Area data in built-up areas like Angus, Baxter, and Thornton, the goal of EFD should be to have 10 firefighters on the scene of a residential structure fire within 10 minutes. When observing response times in Figure #10, allowing for four minutes as the time it takes firefighters to respond to the station, Station 1 arrives at the 80th percentile in 00:14:17 minutes. In contrast, Station 2's 80th percentile is 00:11:38 minutes. Both response times are respectable and within the NFPA 1720 guidelines when considering all factors.

There needs to be a review of the community's future growth statistics and demographics to understand the potential needs. The chief officers of the EFD must continually monitor response times. The process is based on the OFM definition, which is from "dispatch time, to time of arrival at

[14] Profile table, Census Profile, 2021 Census of Population - Essa, Township (TP) [Census subdivision], Ontario (statcan.gc.ca), Accessed October 1, 2023, https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/details/page.cfm?Lang=E&SearchText=Essa&DGUIDlist=2021A00053543021&GENDERlist=1,2,3&STATISTIClist=1,4&HEADERlist=0

[15] Profile table, Census Profile, 2021 Census of Population - Essa, Township (TP) [Census subdivision], Ontario (statcan.gc.ca), Accessed October 1, 2023, https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/details/page.cfm?Lang=E&SearchText=Essa&DGUIDlist=2021A00053543021&GENDERlist=1,2,3&STATISTIClist=1,4&HEADERlist=0

the incident"; in other words, from the time the fire station or pager tones activate to when the firefighters get on the fire trucks and arrive at the emergency scene location.

Performance measurements that the fire department could benefit from include monitoring:

- Response Time: the total time from receipt of call (on 9-1-1) to the time the fire vehicle arrives at the incident location.
- Firefighter Turnout Time: time from the page until the first vehicle responds.
- Drive/ Travel Time: Time tracked from when the fire vehicle left the station until arrival at the incident location.
- Staffing Time: time from the page until the appropriate number of firefighters (e.g., 10) are on the scene.

In reviewing the time that it takes to arrive at an incident once leaving a fire station, the apparatus came in less than 14 minutes 80% of the time.

The following series of charts identify a comparison of response types and the response breakdown among the two fire stations.

FIGURE #10: 2022 RESPONSE TIMES

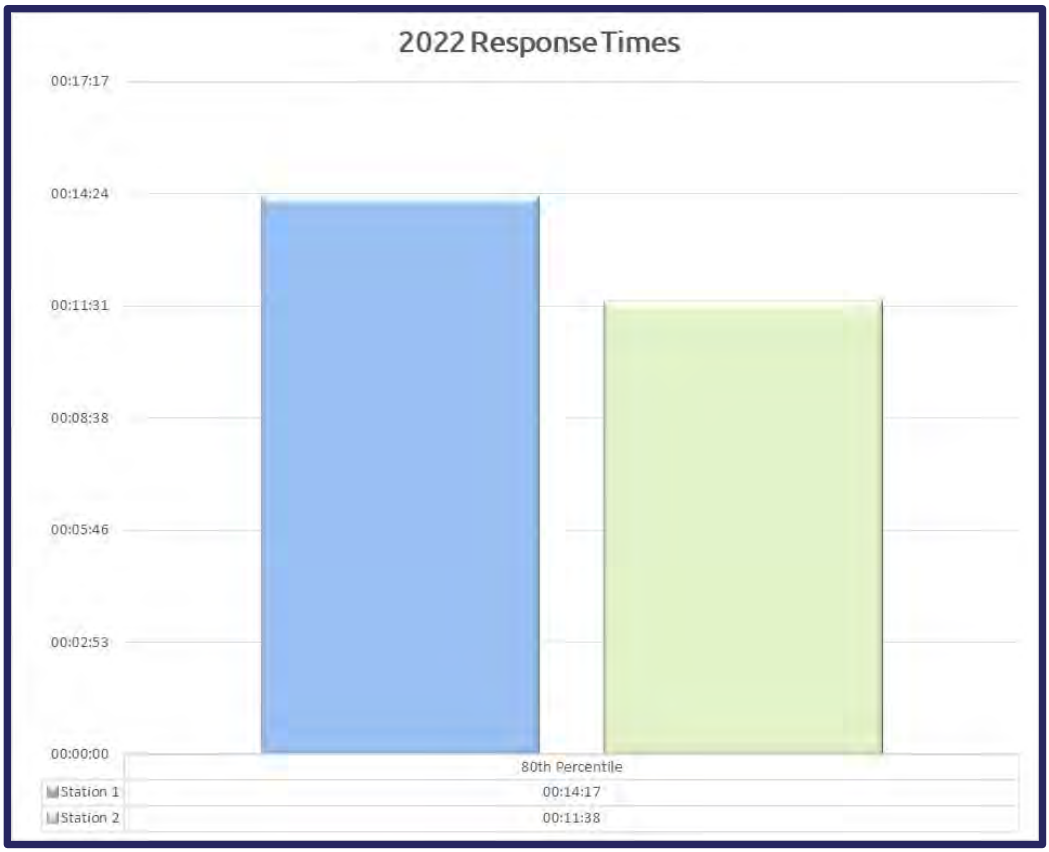
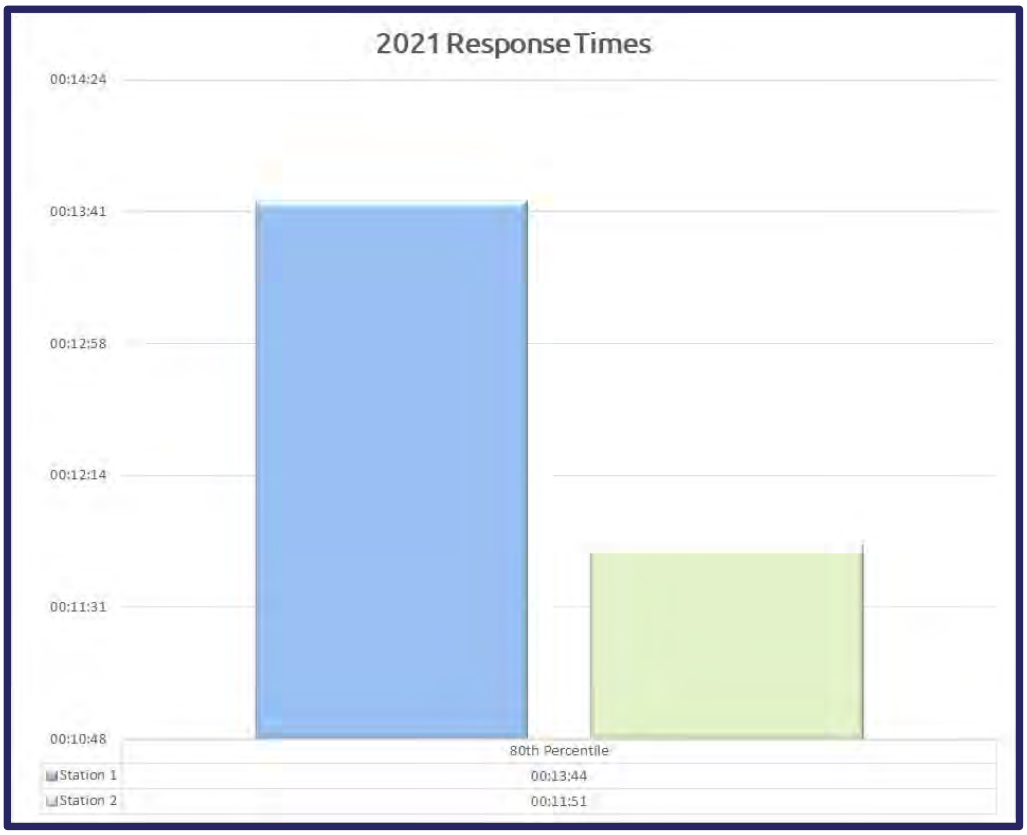


FIGURE #11: 2021 RESPONSE TIMES



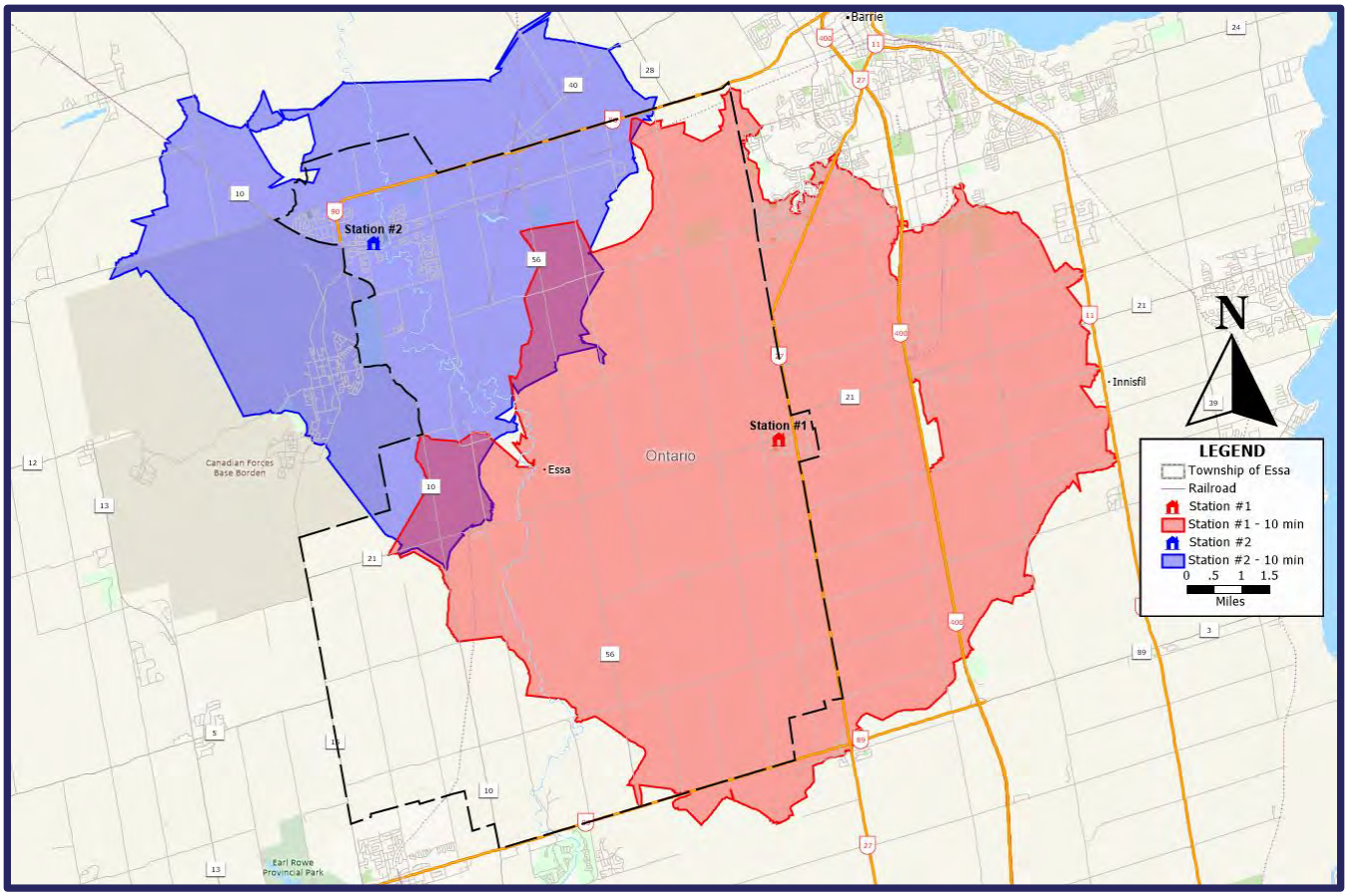
In 2021, the 80th percentile Response Time was 00:13:44 for Station 1 and 00:11:51 for Station 2. Again, these are very respectable and within industry standards.

Note: *In monitoring time measurements, the 80th percentile criterion is the recommended practice that NFPA and* CFAI *endorse. This data is more accurate since it evaluates the times based on 80% of the calls instead of averaging the times at the 50th percentile. For example:*

- *8 out of 10 times, the fire department arrives on the scene in 10 minutes or less, which means that only 20 percent of the time they are above that 10-minute mark.*
- *As opposed to 5 out of 10 times (average), the fire department arrives on the scene in 10 minutes or less, which means that 50% of the time, they are above the 10-minute mark.*

The travel time grids 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 lights. While the posted speed limit is used, understand 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 that 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. The following map indicates the areas where the crews may arrive within a 10-minute drive time.

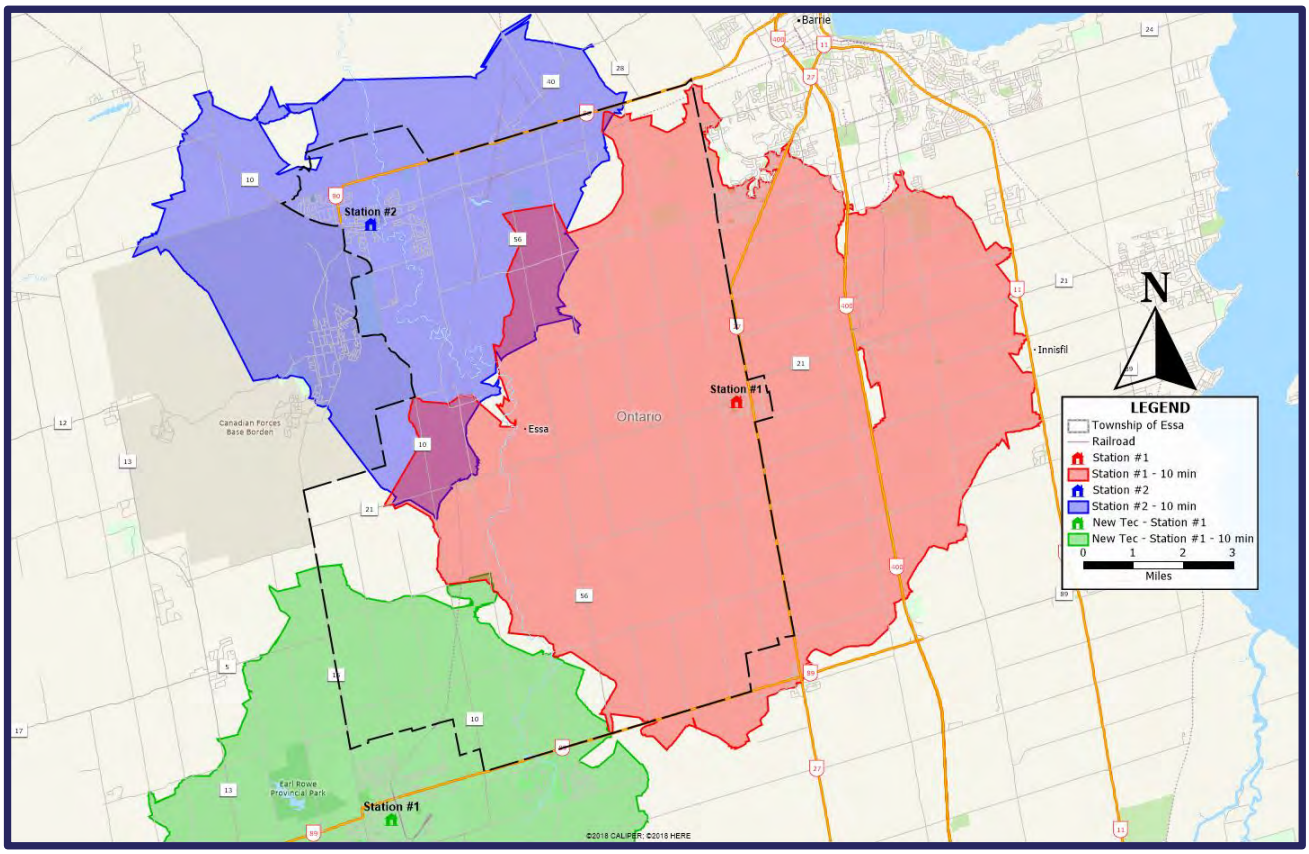
FIGURE #12: 10-MINUTE TRAVEL TIME MAP OF EFD



The response zone map identifies the coverage based on the physical locations of the stations relative to the NFPA-recommended response times. As illustrated, most of the Township is within a 10-minute drive time of at least one fire station. Under automatic Aid Agreements, neighbourhood fire departments protect the Township to the furthest southwest. Unfortunately, New Tecumseth Fire Rescue (NTFR) does not cover areas north of the 5th Sideroad of the Township. The agreement under By-law 2003-66 is dated and needs updating, and when it is, the response zones should be re-aligned to better protect the entire Township within a 10-minute response time.

When comparing the map depicted in Figure #13 that includes New Tecumseth's Station 1's 10-minute response time into the illustration, almost the entire Township is protected. EMG recommends updating this automatic aid agreement and including the expansion of the response zone.

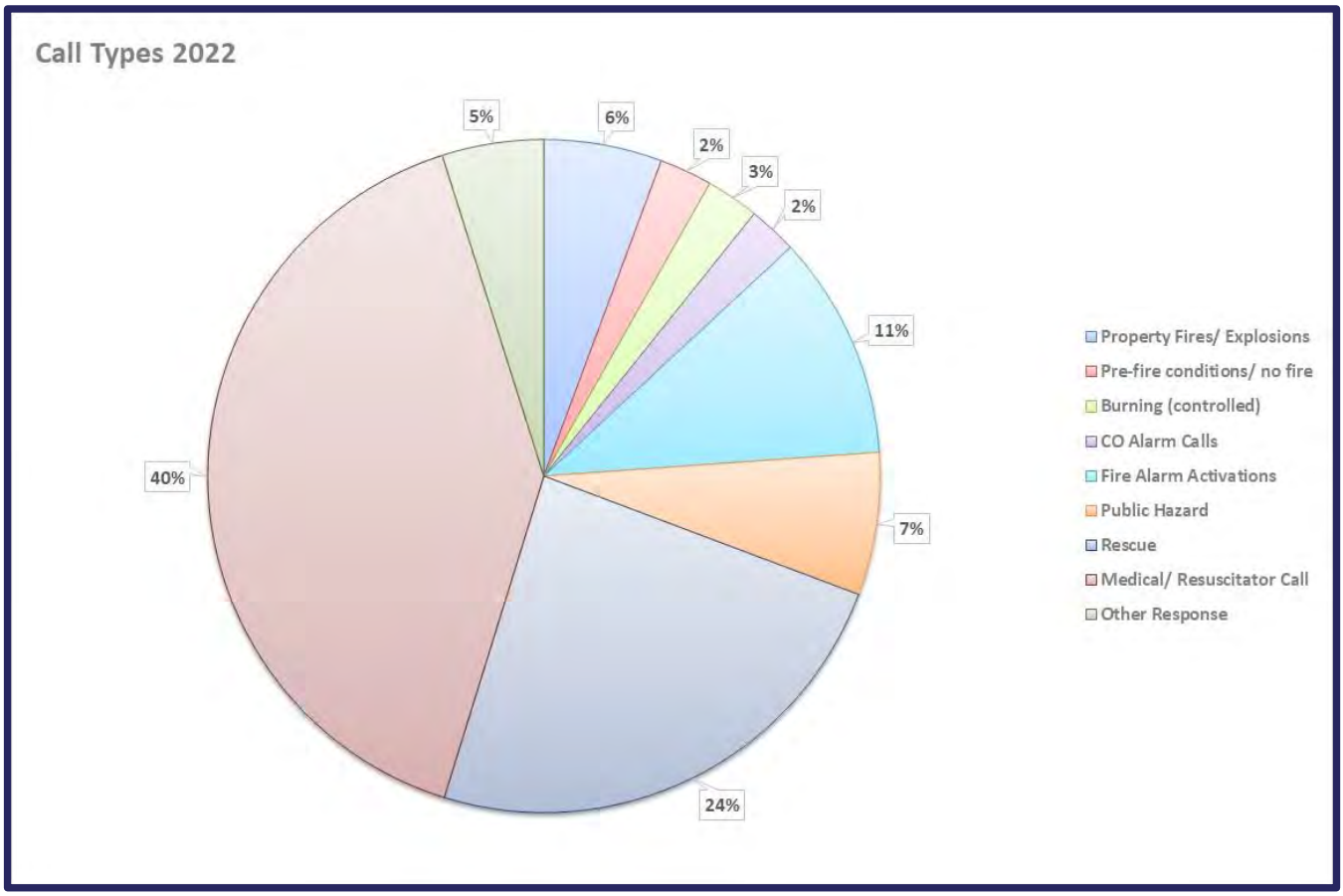
FIGURE #13: 10-MINUTE TRAVEL TIME MAP INCLUDING NTFR STATION 1



The following charts (through the supplied data) help identify the types of calls creating the bulk of response demands and which station(s) get called upon the most for these responses.

Figure #14 illustrates the types of calls responded to by EFD in 2022 and Figure #15 for 2021.

FIGURE #14: 2022 CALL TYPES



As can be seen in the above chart, the top three types of calls that EFD responded to in 2022 were:

1. Medical/resuscitator accounts for 40% of the responses
2. Rescues account for 24% of the responses
3. Fire Alarm Activations each accounted for 11% of the responses

These top three types of calls have varied over the past five years, primarily due to the COVID-19 pandemic.

FIGURE #15: 2021 CALL TYPES

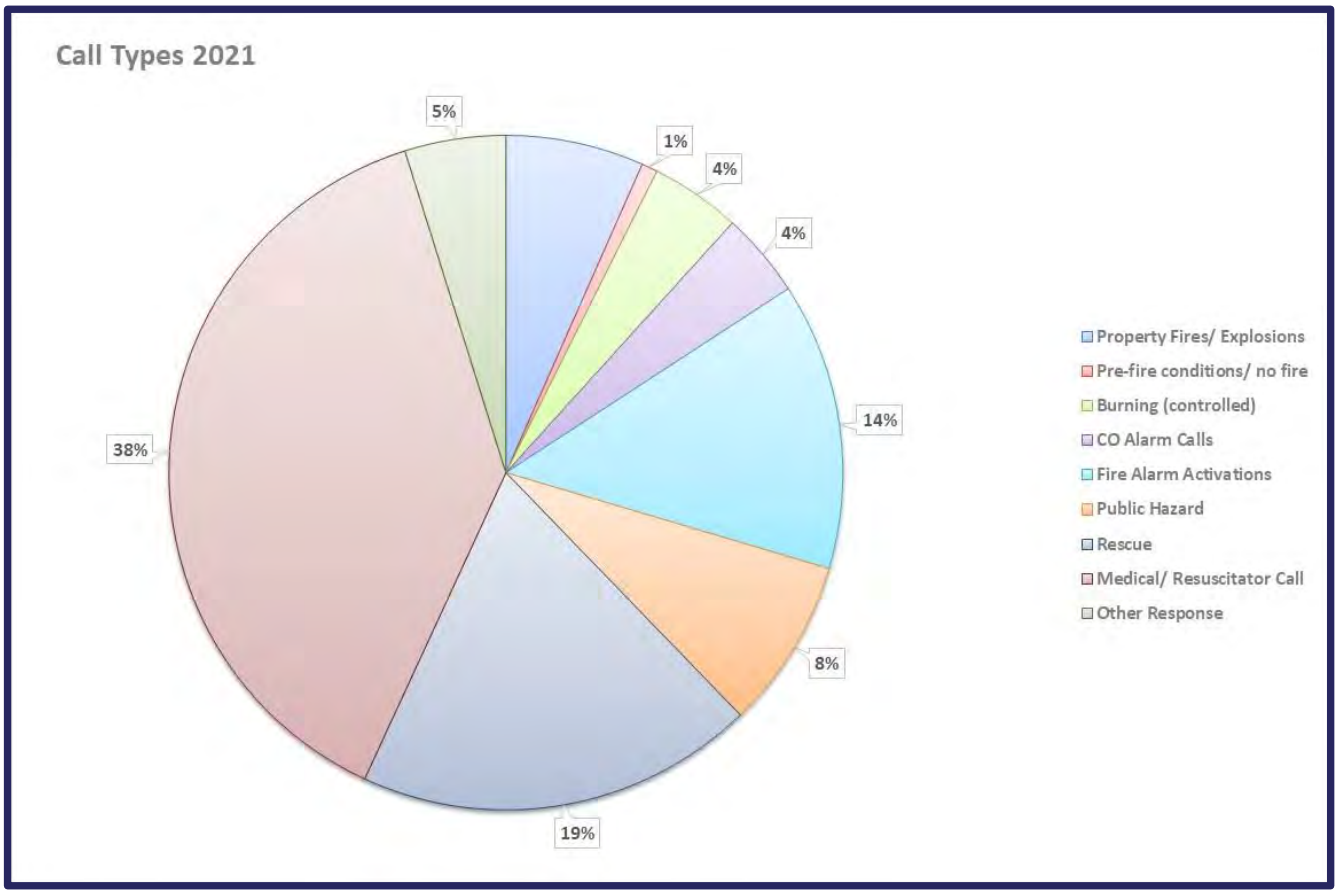


Figure #16 breaks the call types down according to the station responding. As indicated, most call types are medicals and rescues, followed by fire alarm activations.

FIGURE #16: 2022 CALL TYPES BY STATION

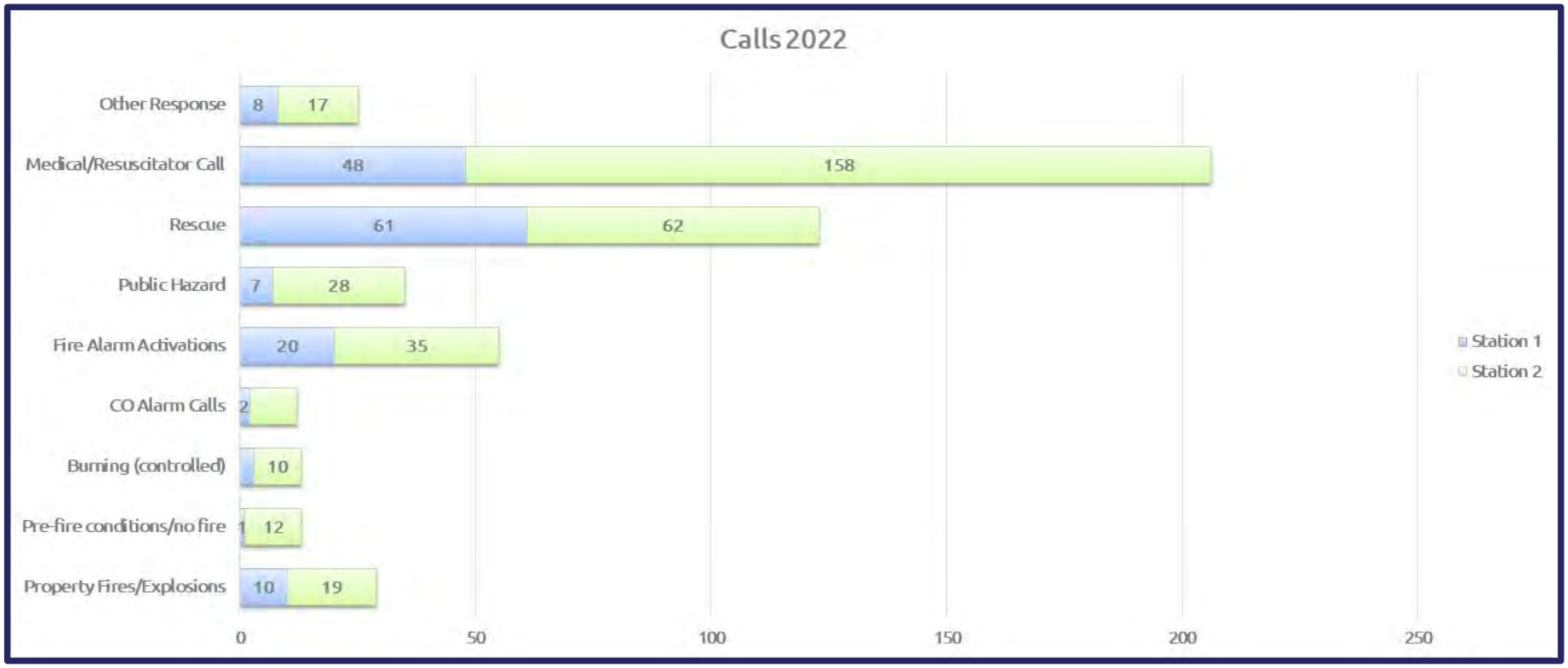


FIGURE #17: 2021 CALL TYPES BY STATION

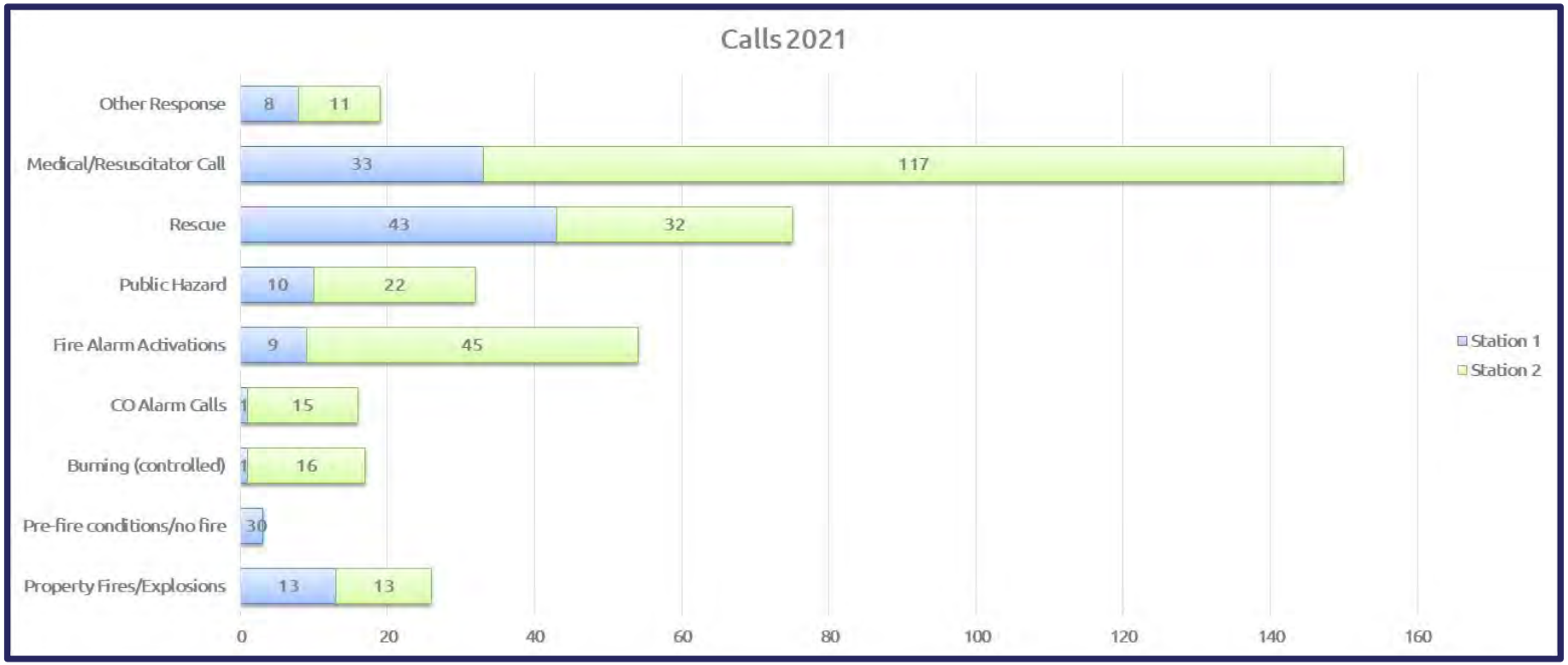


FIGURE #18: 2022 TOTAL CALLS PER STATION

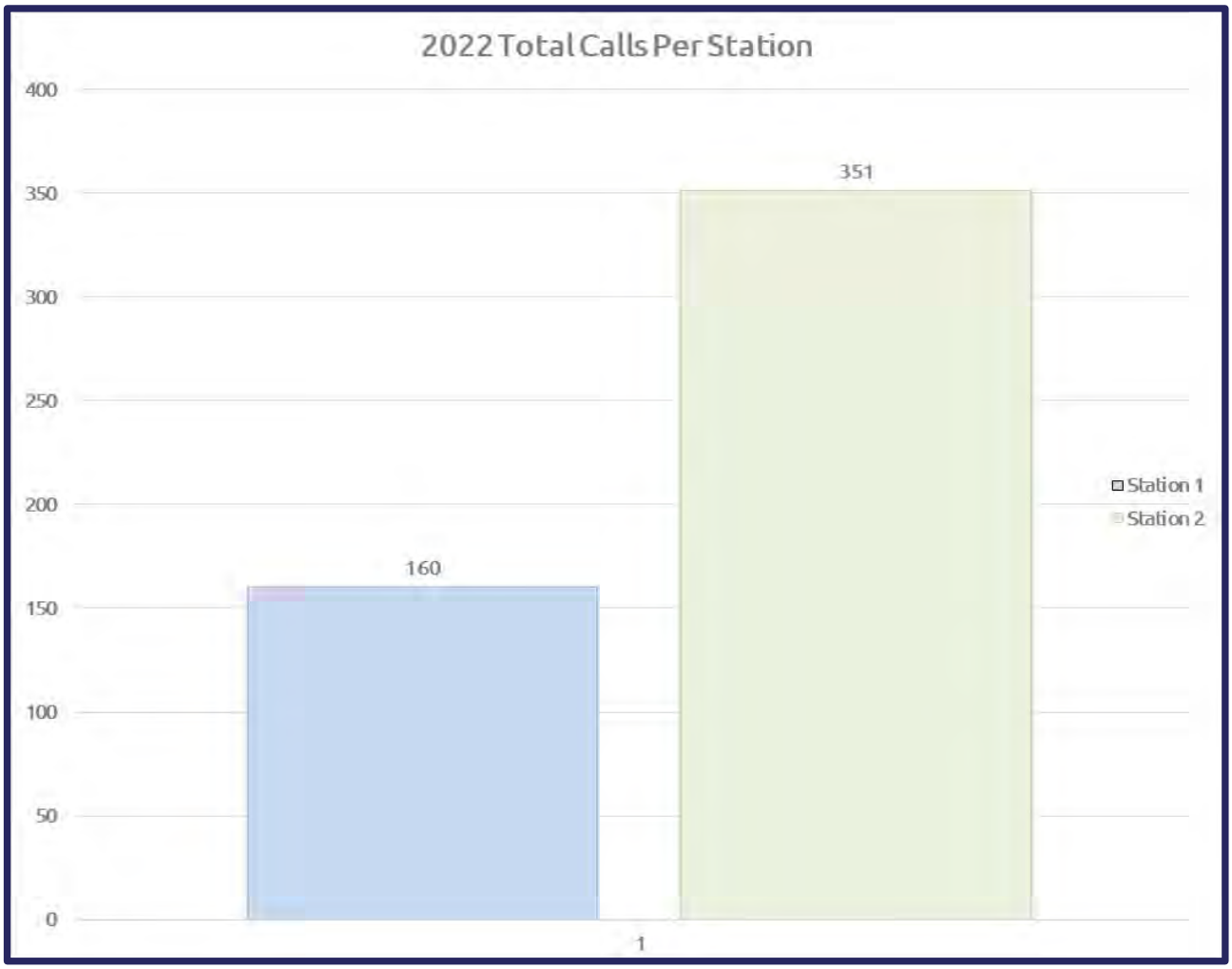
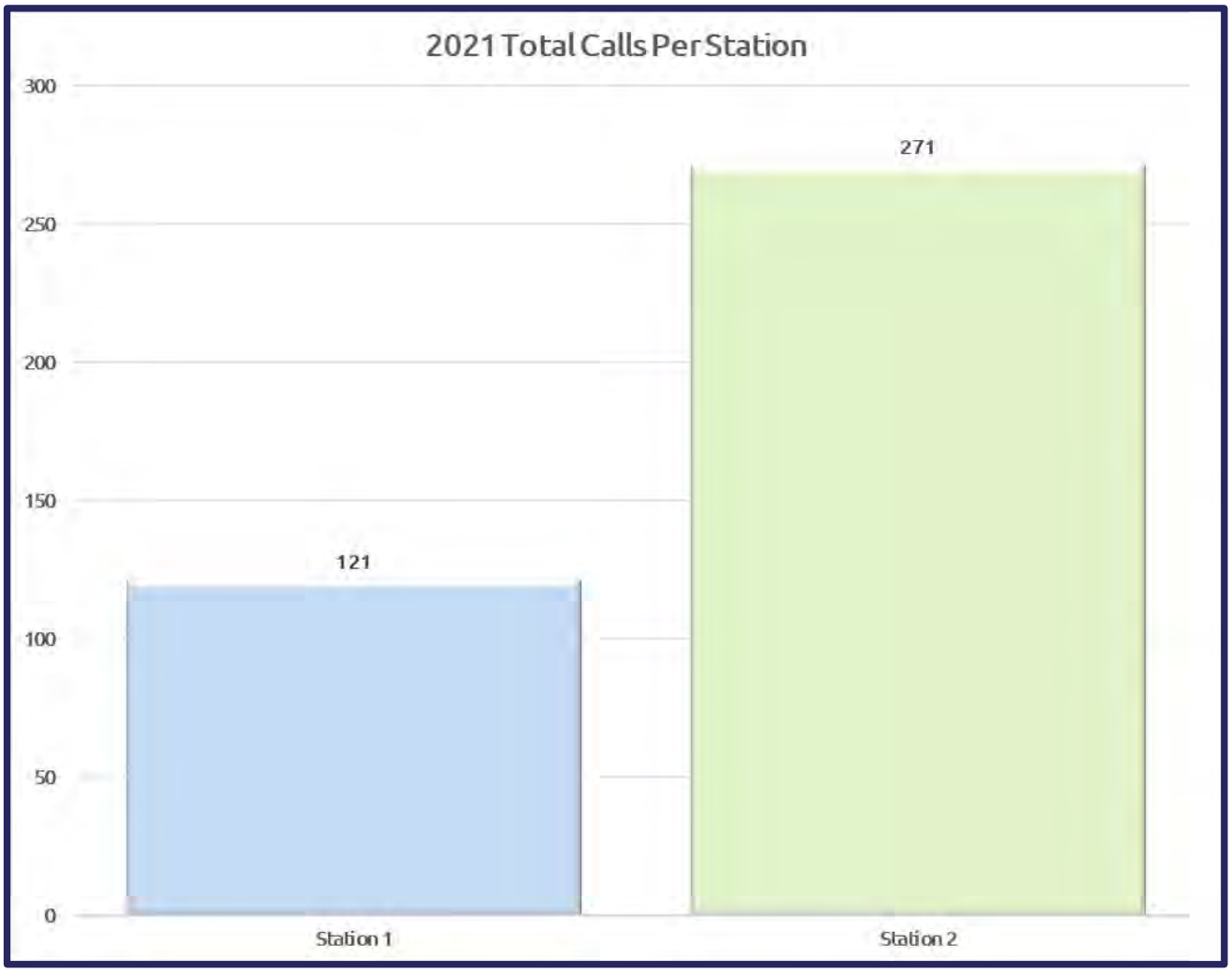
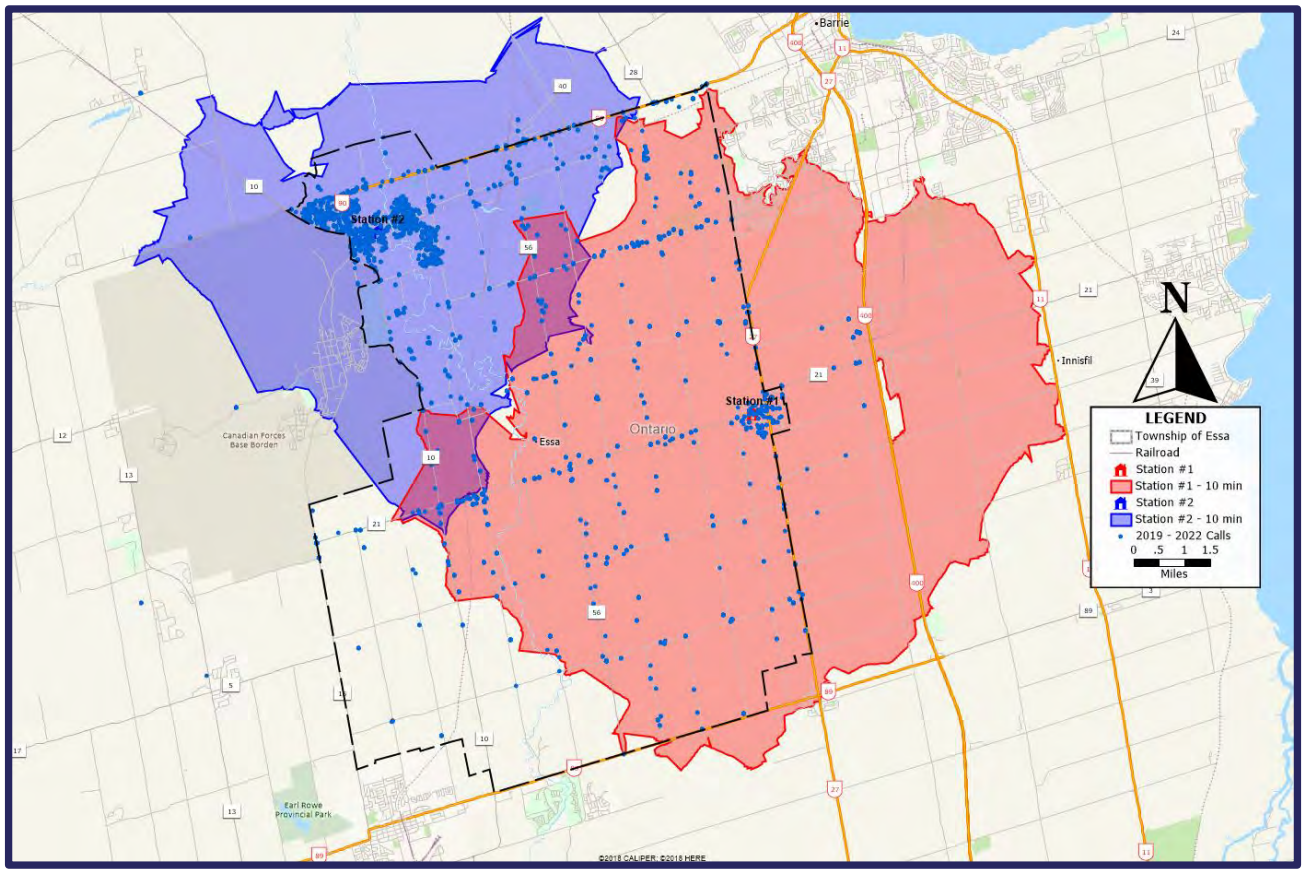


FIGURE #19: 2021 TOTAL CALLS PER STATION



Another valuable tool in measuring fire service response is pinpointing where most emergency responses occur. This clustering of responses will help to identify where the majority of calls are happening, which will indicate if the present fire station locations are located adequately for optimum service or if there was a shift in call locations that would suggest the possible need to relocate a fire station.

FIGURE #20: 2019 TO 2022 CALL CLUSTER MAP



Upon reviewing the call cluster map, it appears that most calls are in the two primary urban areas of the Township – Angus and Thornton.

3.6.5 Tiered Medical Calls

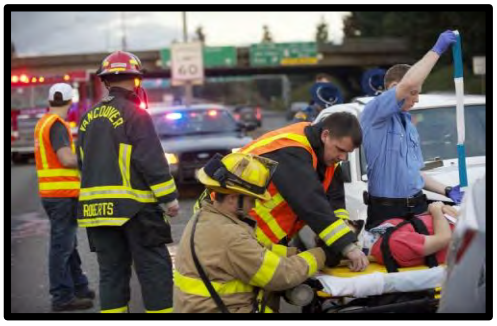
The Township of Essa entered into a Medical Response Agreement with the County of Simcoe, with the most recent document dating back to 2006. The agreement states that the Departments will respond to all types of medical emergencies based on whether they react under Level "A" or "B." Those calls deemed most likely to require an immediate critical intervention to save a life are a Level B response. Other calls where agencies wish to provide a higher level of service are categorized as Level A. Medical aid response will be activated when the call information indicates that the patient meets specified criteria.

The EFD firefighters train in basic life support (BLS), which includes defibrillation, through the Red Cross. The department is exploring the opportunity to take advantage of the Quality Care Program provided by the County of Simcoe Paramedic Service (CSPS), which includes six hours of training annually. This partnership between the two allied agencies works well for fire departments and their

medical response program. The medical director for CSPS monitors the medical activities of member fire departments. The Township is a member municipality of the CSPS Public Access Defibrillator (PAD) Program, which installs defibrillators in public buildings and provides training on their use to the municipality's staff.

There are provisions within the agreement for the equipment exchange, provided it is compatible with items used by CSPS to offset the cost of medical supplies borne by the Township. These items include:

- Defibrillator pads
- Backboards, straps, splints, lifting carrying devices
- Cervical Collars
- Oxygen masks
- Oral airways
- Bag Valve Masks



The Township is responsible for replacing disposable first aid supplies such as bandages and personal protective equipment (PPE).

Some jurisdictions permit their firefighters to administer naloxone and epinephrine (Epi-Pens). EFD has not taken advantage of this opportunity to enhance service levels. Some fire services have reviewed the value of firefighters providing acetylsalicylic acid (ASA) to those with a cardiac emergency and glucose gel to individuals in a diabetic event. EFD has no plans to investigate the benefits of the firefighters administering any of these medications in the future.

The Province's Central Ambulance Communications Centres (CACC) are moving towards the Medical Priority Dispatch System (MPDS), sometimes referred to as the Advanced Medical Priority Dispatch System (AMPDS). It is a unified system to dispatch appropriate aid to medical emergencies, including systematized caller interrogation and pre-arrival instructions. How this dispatch procedural change will impact the County of Simcoe fire services is unknown. It may result in an increase or decrease in call volume.

CACC – Georgian dispatches ambulances in Simcoe County and the York Region. Fortunately, the Ministry of Health and the OFM selected Georgian and Barre Fire and Emergency Services to trial a simultaneous notification system. Meanwhile, the Computer Aided Dispatch (CAD) program automatically downloads the tiered medical call to BFES's Dispatch Centre's CAD for them to call out the particular fire service. Often, the

fire department receives the call before the paramedics are dispatched and usually arrives before them. This rapid notification has increased the lives saved when patients require a defibrillator as their heart has stopped. In these instances, a timely intervention is vital to the survivability of the cardiac event.

The following table outlines the number of medical calls each station had between 2019 and 2022. As the COVID-19 pandemic affected many life factors in 2020, many fire services saw reduced call volumes, especially tiered medical. EFD did experience a significant change in the number of medical-related calls between 2020 and 2022.

TABLE #6: TOTAL TIERED MEDICAL CALLS BY STATION

Station	2019	2020	2021	2022
Station 1 - Thornton	49	38	33	48
Station 2 – Angus	115	125	117	158
Total Medical*	164	163	150	206
Percentage of All Calls	34%	37%	38%	40%

***Note:** The total call data provided by the OFM may not align with the total calls by station.*

Persons suffering from smoke inhalation may have significant breathing impairment. Contaminants may enter the bloodstream, requiring immediate intervention to prevent irreversible damage. In 2016, fire services in the Essex-Windsor area agreed to participate in a unique agreement with the Windsor Regional Hospital.

The agreement outlines how Essex-Windsor Emergency Medical Services District Chiefs will carry cyanide antidote kits to treat smoke inhalation before transporting the patient to a local medical facility for further treatment. The Fire Chiefs of the County of Simcoe and CSPS should enter discussions on the value of the paramedic supervisor carrying cyanide antidote kits onboard their vehicle to be administered to victims of smoke inhalation to reduce the effects sooner. Like a cardiac event, timely intervention is critical to a successful recovery.

3.6.6 Technical Rescue and Hazardous Materials

Technical rescues are complex operations requiring specialized skill sets, equipment, and techniques. Technical rescue programs must adhere to NFPA 1006, *Standard for Technical Rescue Personnel Professional Qualifications.* Fire departments must weigh the frequency of this call type versus the cost and time commitment required to determine the need to enter such programs.

Fire services are being called upon to provide enhanced service, including technical rescues and HAZMAT responses. The Ontario Ministry of Labour, Section 21 committee for fire services develops guidance notes for fire services to follow as best practises and direction from the OFM in these responses.

EFD currently does not mitigate technical rescues such as trench, high-angle rope, and confined spaces. Firefighters must train to the Awareness Level for all technical rescue responses per the Section 21 Guidance Notes and NFPA 1006. The Awareness Level is an introduction to the rescue or HAZMAT incidents but does not allow for the mitigation of the incident.

EFD responds to ice/water rescues at the Awareness Level, which means the firefighter remains on the shore and does not venture onto the ice/water to save someone. There are no levels of service provision for responses to elevators and low/high angle rope rescues. Due to the small number of technical rescues EFD is called upon, it would not be fiscally responsible for training and purchasing the required equipment to respond at the Operations Level in trench, confined space, and low/high-angle rope. The Township has a mitigation strategy for technical rescues, including a Special Operations MOU with the City of Barrie and its fire department. The following identifies the level of response EFD provides:

HAZMAT – EFD is a member department of the HAZMAT Response Program established by the County of Simcoe for training equipment to meet the prerequisites of NFPA 1001, I & II, Standard for Fire Fighter Professional Qualifications. The NFPA 1001 Standard requires firefighters to train to NFPA 472, Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents. During a HAZMAT emergency, EFD has, through an MOU, the ability to request BFES attend to mitigate the incident.

Elevator Rescue – Even though there are few elevators in the Township, EFD needs to train its firefighters to the minimum Awareness Level. Elevator training above Awareness must meet the requirements of the TSSA. EMG recommends that at least two members of EFD be trained to the Operations Level per TSSA Standards. They, in turn, would share their knowledge with the balance of the department.

As mentioned, the Township has entered an MOU with the City of Barrie and its fire service for the mitigation of the following technical rescue disciplines:

- Confined Space Rescue
- Tench Rescue
- Low/High Angle Rope Rescue
- Ice/Water Rescue

EFD does not respond to the Operations Level for any technical rescues.

Marine Emergencies - EFD has a mitigation strategy for handling ice/water rescues, including the Special Operations MOU with the City of Barrie. Some fire services have taken the next step and purchased a marine vessel or implemented a swift water rescue program. The Township has primarily rivers and streams and no large bodies of water. The Township does not operate boat launching or slips. Water levels are high and fast flowing during heavy downpours and the spring thaw, especially in the Nottawasaga River. Individuals risk getting too close and slipping in the fast-flowing water, requiring rescue.

EFD does not operate water vessels for mitigating water rescues, nor does it seem necessary. If EFD were to obtain a motorized craft, it must comply with Transport Canada Regulations regarding commercial vessel operations. In future, if EFD were to consider enhancing its water rescue program, it should analyze the value of advancing the program to include swift water rescue in compliance with NFPA 1006, *Standard for Technical Rescue Personnel Professional Qualifications*.

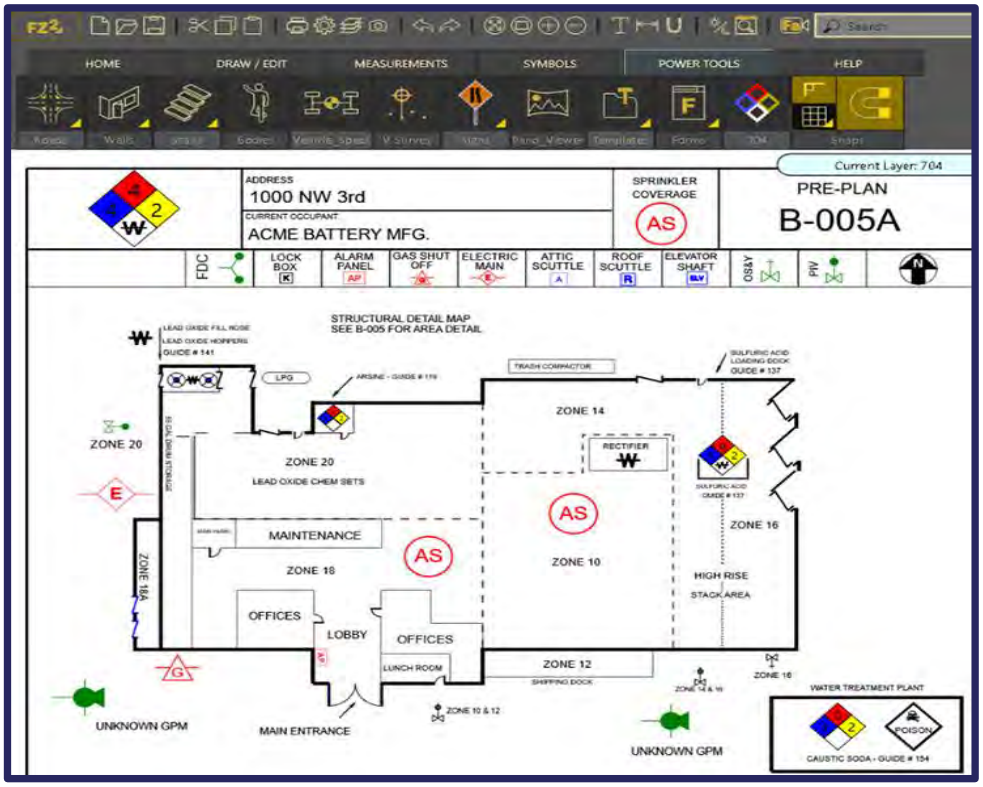
3.6.7 Pre-Incident Plans

EFD does not have an active pre-incident plan program; resources are required to initiate one. Once created, the development of plans may require enhancements to ensure the consistent and current details. The delegation of a program coordinator will aid in ensuring the program continues to enhance and promote its use by the officers.

Other considerations to having an active pre-incident plan program include:

- Ensure plans comply with NFPA 1620 – *Standard for Pre-Incident Planning*, are maintained in the RMS, and are remotely accessible.
- Ensure plans are available on the tablets in the apparatus; communicate with BFES if they could be made available via the CAD at BFES or at least notification that there is a plan using Sinirji.
- Work with IT for consistent connectivity with the program that stores completed plans on the tablet.
- Promote the use of the plans to the officers as part of the Officer Training Program.
- Depending on the location that the plan is for, work collaboratively with the Community Emergency Management Coordinator (CEMC) in its completion, as they may also reference the document during an emergency.

Below is an example of a plan; the inclusion of pictures showing the perimeter of the property and where service turn-offs are is a great feature.



3.7 Technologies in the Fire Service

3.7.1 Tablets Mobile Data Terminals

Many volunteer fire departments in Ontario are now installing tablets or mobile data terminals (MDT) in their apparatus to access information from the municipality's server or internet provider, etc. The information available would include weather for HAZMAT incidents, access to HAZMAT reference material, pre-incident plans, fire prevention files, mapping, and connections to the CAD program. There are other non-suppression uses for tablets in the field, such as completing fire inspections and delivering public education.

To EFD's credit, all frontline apparatuses have tablets installed in them. Over time, evaluate the value of acquiring additional units for the other fire service vehicles. Installing external vehicle antennas ensures constant connectivity with the Township's servers.

3.7.2 Drones

Fire services in North America embraced drones for emergency and non-emergency roles. Using drones in the fire service is a growing trend as a multi-purpose tool that can assist with large-scale assessments of fireground and HAZMAT incidents, enhance search and rescue functions, and aid in pre-incident planning.

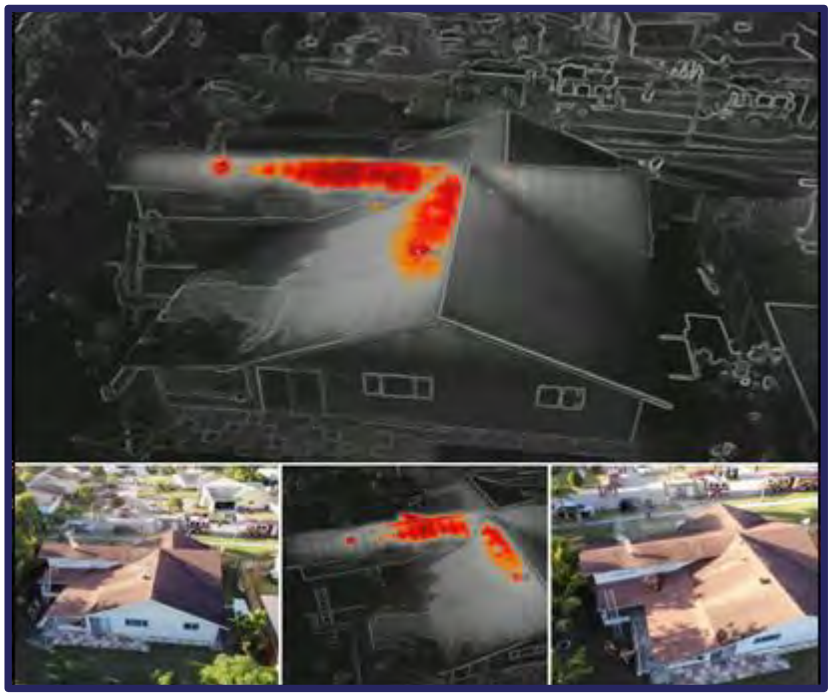
Reducing risk to firefighting personnel is a significant benefit of drone technology and the live view capabilities that provide invaluable information. Drones can cover much ground, thus allowing valuable fire department personnel to be assigned elsewhere. They have proven beneficial for HAZMAT incidents, wildland fires, and large-scale emergencies. The Incident Commander can deploy a drone rapidly, which provides a live view of the incident.

Many fire departments in Canada use drones, from large metro fire departments like the Toronto Fire Services and Winnipeg Fire Paramedic Service to smaller fire departments like the Midland and Penetanguishene Fire Departments (Midland and Penetanguishene acquired theirs as a joint purchase).

Some drones can carry a payload such as warm clothing, first aid supplies, or nourishment. They have value when conducting a marine-related search and rescue operation (i.e., transporting a personal flotation device to the victim).

Drone pilots must follow the Canadian Aviation Regulations (CARs) Part IX-Remotely Piloted Aircraft Systems, which contain the rules for drones up to 25 kg. Advanced operations include flying in controlled airspace, flying over bystanders, or flying within 30 m of bystanders.

A structure fire attended by the Lauderhill Fire Department in Florida is an example of utilizing a thermal imaging-equipped drone to locate the hidden fire that was travelling in the attic space of this residence. [17]



During emergencies in remote areas, the drone will provide prompt information so the Incident Commander can make decisions based on information transmitted back to the command post.

The value of drones in the fire service cannot be overstressed, especially during search operations trying to locate small children lost in corn fields or individuals in forested areas.

While it would be very beneficial for the EFD to own a drone, they must weigh its advantages compared to entering a response agreement with the Town of New Tecumseth or the Township of Clearview to deploy their drone to assist EFD at an incident. When funds are restricted or allocated for more substantial purchases, a response agreement would be fiscally responsible on the part of EFD.

3.7.3 HAAS Alert App

First responders may be involved in an MVC enroute to an incident or at the scene. Once emergency warning systems are activated, approaching vehicles will receive real-time messages. The app advises motorists that the emergency services are responding to an incident and to be prepared to slow down and move to the right.

This app notifies drivers of emergency vehicles responding/attending to calls and traffic delays so they may take alternate routes.[18]

Communications operators can track the location of emergency vehicles to ensure the closest units get dispatched to incidents. As many municipalities have already signed onto it, including some in

[17] Lauderhill Fire Department (2021) Facebook post of February 10, 2021, on the use of their drone to locate a hidden fire in the attic space of the home.

[18] Safety Cloud - Digital Alerting for Connected Roads | HAAS Alert, Accessed October 1, 2023, https://www.haasalert.com/

Simcoe County, the County of Simcoe Emergency Services should establish a committee to review this opportunity. It has proven to reduce the risk of accidents while providing a safer work environment.

3.7.4 Thermal Imaging Cameras

Thermal imaging in Thermal Imaging Cameras (TICs) has been available for the fire service since the mid-1990s. This technology has saved lives, prevented firefighter injuries, and found hot spots in a structure during size-up procedures by the Incident Commander.

As technology advances, TICs are now available for situational awareness and decision-making and have critical roles in the fire service. A situational awareness TIC is a single-purpose unit designed to prevent firefighter disorientation. They are generally smaller in size (can be hand-held, facepiece mounted, or SCBA integrated). They usually have a lower resolution and slower processor refresh rate speed. In contrast, a decision-making TIC is used for size up, search and rescue, and directing hose streams to suppress the fire. A decision-making TIC has higher resolution, a faster refresh rate, an 88.9 mm (3.5") viewfinder or display screen, and a high dynamic range (from zero degrees Fahrenheit to 1,200 degrees Fahrenheit or up to 650 Degrees Celsius).

As technology advances and demand increases, the cost of TICs has decreased and are now reasonably priced compared to when they first entered the fire service in the late 90s. Today, most career and volunteer fire departments have a decision-making TIC as part of their equipment inventory. There is a growing trend for personal, situational awareness TICs for firefighters mounted in the face masks of SCBA.

To get the most benefits from TIC technology, the NFPA 1408, *Standard for Training Fire Service Personnel in the Operation, Care, Use, and Maintenance of Thermal Imagers*, Sections 4.1 and 4.2, should be followed, as stated:

4.1.1 A thermal imaging training program shall be implemented.

4.1.2 Risks to participants during training shall be kept to a minimum.

4.2.1 The authority having jurisdiction (AHJ) shall establish written policies for TIC training that meet the requirements of this Standard.

4.2.2 The policy shall address the training requirements for types of incidents where TICs may be used.

4.2.3 The training policy shall include an annual review of member competence in TIC technology, operation, application, use and limitations, care, and maintenance.

4.2.4 TIC training shall include practical evolutions using a Thermal Imager (TI).

4.3.5 Training and evaluation documentation shall be maintained by the Authority Having Jurisdiction (AHJ).

4.2.6 The training program shall include both individual and crew training.

4.2.7 Members shall be provided with TIC training and education before being permitted to operate TICs per the AHJ.

4.2.8 Before new or unfamiliar TICs are placed into service, training and education relating to those imagers shall be provided for all affected members.

4.2.9 Members shall be provided with classroom education and hands-on familiarization in TIC functions before being permitted to operate TICs in Immediately Dangerous to Life or Health (IDLH) atmospheres.

A training program must exist where members use live fire scenarios to gain confidence and competence in thermal imaging technology. To enhance firefighter safety, the EFD should have situational awareness and decision-making TICs available on the frontline apparatus at each fire station.

3.7.5 Electric Vehicle Technologies

By February 2022, 75,274 electric vehicles were in Ontario.[19] By 2030, one of every three sold will be electric. For the most part, fire services are behind in preparing firefighters for incidents involving electric vehicles. Fire service personnel usually respond to conventional fossil-fueled vehicle fires. Electric vehicles run on high-voltage lithium-ion batteries, which can result in dangerously high temperatures if these cars catch fire. Firefighters are also at risk of electric shock from damaged lithium batteries when handling electric vehicles that catch fire. Firefighters must ensure the vehicle is de-energized during an extrication incident to prevent electrical shock if electrical cabling becomes compromised by accident.

The high-voltage battery is a compilation of many cells tightly packed in a water-tight, fire-resistant box. When a cell fails, it creates high heat of up to 1,200^{o} F in as short as a tenth of a second.[20] A thermal runaway failure is an exothermic chemical reaction that does not require oxygen to sustain

[19] Ontario Making it Easier to Access Electric Vehicle Chargers, (Ontario.ca), Accessed October 1, 2023, https://news.ontario.ca/en/release/1001827/ontario-making-it-easier-to-access-electric-vehicle-chargers

[20] How to extinguish an electric vehicle fire (firerescue1.com), Accessed October1, 2023, https://www.firerescue1.com/electric-vehicles/articles/electric-vehicle-fires-where-the-waiting-game-wins-f934UedqIpVqc1k2/

the burning process. The heat released from one cell transfers to the neighbouring cells, which also causes their failure.

A portable dry chemical fire extinguisher has some success in extinguishing a vehicle fire, provided it is either a Class A or B fire. Flammable metal fires are much more difficult to extinguish due in part to the high temperatures they burn at.

Other notables include:

- An electric vehicle fire could take up to 40 times more water to extinguish than a conventional gas-powered vehicle.[21]
- Lithium batteries, some storing multiple batteries in water-tight fire safety tested, have been known to ignite hours after being involved in an MVC.
- Each fire in an electric vehicle has different characteristics that require some Incident Commanders to call in resources quickly.
- Foam is not an excellent extinguishing agent as it will have difficulty entering a water-tight, fire-resistant box.
- Batteries are not made of solid lithium, making Class D fire extinguishers ineffective. The powder from the extinguisher cannot enter the box where the failed cell(s) are.
- Pancake nozzles are new on the market and are relatively ineffective as there are no means of spraying water inside the box. The water sprayed will only cool the outside of the box and not contact the failing cells.
- Structural firefighting piercing nozzles should never be used to penetrate the box due to the electrocution risk.
- The best action when attending an electric vehicle fire is to let it burn itself out under the supervision of the fire department, as gaining access to the batteries inside the box is nearly impossible. It takes approximately one hour for a battery to burn itself out compared to continually spraying water to cool the box for six to eight hours. Once the battery has burnt out, use water to extinguish the remaining Class A material still burning.
- EFD must ensure that all SOGs, procedures, and training are current when responding to electric vehicle emergencies.

EFD needs to source training courses and acquire specialized equipment for fighting fires in electric vehicles.

[21] Firefighters have to blast 40 times more water at burning Tesla than other cars – The Hill, Accessed October 1, 2023, https://thehill.com/changing-america/enrichment/arts-culture/568255-firefighters-have-to-blast-40-times-more-water-at/

EFD should consider taking the NFPA online training course Alternative Fuel Vehicles Training Program for Emergency Responders and updating the downloaded electrical vehicle information app on the Fire Department tablets. Technologies of electric vehicles are constantly changing, and a suitable means of ensuring EFD members are current is by frequently updating the information on the tablets.

In the third quarter of 2023, the OFM issued Communique 2023-8, mandating that fire departments notify their office of all fires involving lithium batteries. This issuance is in response to the increased number of fires relating to lithium batteries as the cause, some of which resulted in fatalities.

Honda Canada is an excellent resource for learning about electric vehicles, as the plant in Alliston manufactures electric vehicles.

3.7.6 Telemetry Systems Built into SCBA

Several manufacturers of SCBA offer telemetry systems as an option to purchasers. The system provides a precise overview of the status of the wearer of the SCBA. Transmitting this crucial information between entry control and the wearer significantly enhances firefighter safety on the fireground.

The information provided includes the wearer's air level, the ambient temperature, a Personal Alert Safety System (PASS) alarm, and their evacuation status. Some manufacturers of SCBA send a message activating an audible alarm on the individual's SCBA console and flash the light indicators in the heads-up display of the mask. The firefighter then acknowledges the message with a touch of a button. If there is no response, the incident commander knows the individual may need immediate help.

Poor air management is a leading cause of firefighter deaths. This system alerts the Incident Commander when a firefighter's air supply is dangerously low. The Incident Commander can activate an audible alarm warning the affected firefighters so they may leave the building. Advances in technology also provide the Incident Commander with data on the wearer's heart and respiratory rates and their location within a structure. Knowing a firefighter's location allows the Incident Commander to notify their team if conditions are deteriorating so they may expedite their exit from the building. It also provides the Rapid Intervention Team (RIT) advanced knowledge of the location of the firefighter they are to rescue.

3.8 Dispatching Services

3.8.1 Dispatching Agreement with the City of Barrie

The EFD receives its dispatching services from BFES's dispatch centre, known as Barrie Fire Control (BFC). The agreement, which is for a term of five years, was last updated in 2019 and approved

through By-law 2019-74 by Council. Based on the information received and a review of the dispatching data, EFD appears to receive adequate dispatching services. The agreement with the City of Barrie details a fee for services, related infrastructure, and operations activities. The current agreement for call-taking and fire dispatch reflects an effective strategy for the EFD in providing these services.

BFC is also responsible for activating real-time texting (RTT) systems and pagers carried by the firefighters. BFC uses the Sinirji 9-1-1 app as another means of notifying firefighters that there is a fire call. The app identifies the firefighters who are responding to the fire call. A call is initiated for additional resources whenever the number of responding firefighters is low.

Fortunately for the Township, its population does not substantially fluctuate throughout the year. The clause found in Schedule B, Article 1 B that reflects additional costs for additional population would therefore not take effect. The current agreement with BFES for call-taking and fire dispatch reflects an effective strategy for the EFD in providing these services.

The Fire Chief has developed response protocols regarding the types and quantity of apparatus that should respond to the call types established in the CAD at BFC. This response matrix should be reviewed and updated to ensure it meets the needs of the municipality and sufficient resources get dispatched to each call type. Reports of each incident's dispatch log are available to EFD for review for future reference.

Upon conclusion of the call, the CAD data is available in FIREHOUSE® for completion of the OFM's Standard Incident Reports and subsequent submission to the OFM. In 2024, BFES will change its RMS for dispatching as the provider, FIREHOUSE®, will no longer support this function. This change may affect their capital budget; and Fire Chiefs are budgeting between $50,000 and $100,000 for the upgrade. The actual amount depends on the features EFD selects to be in the replacement program. With this changeover, EFD must transfer all historical data to the new RMS. More importantly, however, is the confirmation that the complete transfer of records can occur before selecting a new RMS.

The agreement does not outline that the City of Barrie is working towards meeting the requirements of NFPA 1225 - *Standard for Emergency Services Communications* and NFPA 1061 - *Standard for Public Safety Telecommunications Personnel Professional Qualifications*, used to identify dispatching service criteria. Future agreements need to include clauses specifying these NFPA Standards.

The service cost is per capita and based on permanent and seasonal population levels. The BFES is responsible for determining the population. There needs to be an inclusion in the agreement that both parties agree with the population figures, which would be prudent.

Further, a process for the fire chief to work with municipal partners, including the County of Simcoe, should be established to determine the annual population and 10-year forecast. This process would allow appropriate budgeting for service for current and ongoing years.

3.8.2 Radio System

Radio systems have many technological advancements every year, making it difficult for fire services to maintain current standards. Some of these technologies are:

Simplex vs. Repeater Radio Signals

A simplex radio system is a radio system that talks directly to each other (i.e., radio to radio). Radio signal strength using a simplex system is less than that of a repeater radio system. A repeater system receives a radio message and then rebroadcasts it at a higher frequency, thus providing better coverage. Most fire services operate a repeater system for the enhanced radio signal.

Analogue vs Digital

An analogue signal weakens as it travels further away from the initial signal; a digital radio signal maintains the same strength no matter the distance it travels.

EFD upgraded their mobile and portable radios to the digital platform using repeaters, and the pagers continued operations on the analogue medium. EFD can activate any of the six mobile repeaters available upon poor communication signals.

There are currently three transmitter sites that EFD uses. Two are in the Township, and the third is in Barrie's communications infrastructure, thereby responsible for its operation. Each site has a backup generator when power failures occur. Fortunately, each station's generator will provide the station's base radio with power to ensure operation during power outages.

EFD has interoperability with surrounding fire services; however, there is no interoperability with other emergency services, such as the OPP and the CSPS. EFD will likely not receive this feature, as both systems are under provincial jurisdiction and are strongly regulated.

In the construction of large buildings, significant amounts of steel are necessary. This structural component inhibits radio transmissions. For this reason, large structures such as high-rises and large industrial complexes inhibit radio communications. Bi-directional antennas significantly improve radio communications in facilities with large amounts of steel and concrete. Depending upon the circumstances and building occupancies, the Planning Department may need to be involved with the fire department to have a by-law passed by the Council mandating bi-directional antennas in specific occupancies and circumstances.

Radio terminology for fire services is, for the most part, standard across the country. Specific words/ phrases convey important messages to everyone on the fireground, which in some cases may prevent injuries or the death of a firefighter. Officers and firefighters of all ranks must know and use the proper radio terminology at the incident. Departmental policies and SOGs supported with training would ensure continuity in the radio system operations and the language used.

Radio technologies are continually changing, and to ensure they have the most current technology, all new portable radios should be intrinsically safe and compliant with NFPA 1802, *Standard on Two-Way, Portable RF Voice Communications devices for Use by Emergency Services Personnel in the Hazard Zone*. The Standard outlines the rigorous testing against extreme heat, immersion in water and impact, and being assessed for high battery life standards and remote speaker microphone connections.

In a profession where a routine call can turn into a critical mission in moments, there is no room for error in terms of radio quality.

3.8.3 Next-Generation Communications (NG 9-1-1)

The 9-1-1 Central Emergency Reporting Bureau (CERB) for the Township of Essa is through the OPP at their communications facility in North Bay. Emergency 911 calls are directed to the police service and then to the emergency service required by the caller (i.e., police, ambulance, or fire). The Emergency Management Office of the County of Simcoe coordinates and operates the 9-1-1 system in Simcoe County, including the separated City of Barrie, CFB Borden, and one Indigenous community. The County is not responsible for the separated City of Orilla, Rama First Nation, or the Townships of Ramara, Severn and Oro-Medonte. In those cases, the City of Orilla Fire Department is the CERB.

In June 2017, the Canadian Radio-television and Telecommunications Commission (CRTC) created regulations regarding the next-generation communications for 9-1-1 centers. 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 (NG 9-1-1) 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."[23]

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

[23] Government of Canada, Canadian Radio-television and Telecommunications Commission, "Telecom Regulatory Policy CRTC 2017-182, accessed August 30, 2023, https://crtc.gc.ca/eng/archive/2017/2017-182.htm

Establishment of new deadlines for Canada's transition to Next-Generation 9-1-1[24]

The Commission sets out determinations concerning new deadlines and other matters for implementing and providing next-generation 9-1-1 (NG9-1-1) networks and services in Canada so 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 establishing 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 1 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 for 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.

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 NG9-1-1 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.

Moreover, the Commission directs Northwestel Inc. to inform the Commission, by 22 June 2021, of its intent to either (i) comply with the new NG9-1-1 implementation deadlines as determined in this decision, or (ii) file for the Commission's approval, by 1 October 2021, an updated transition plan including the location of NG9-1-1 points of interconnection and timelines for the

[24] Telecom Decision CRTC 2021-199 | CRTC, Accessed August 30, 2023, https://crtc.gc.ca/eng/archive/2021/2021-199.htm

establishment of an NG9-1-1 network in its incumbent territory, wherever PSAPs have been established.

Finally, the Commission is adjusting the CISC Emergency Services Working Group deadlines to file specific reports.

Current Situation - Next-Generation 9-1-1

As noted in the CRTC excerpt, March 4, 2025, is the deadline to decommission current 9-1-1 network components that will not form part of the NG9-1-1 networks. The Fire Chief must ensure that EFD is a stakeholder at the table through direct involvement or as part of the regional committee for this implementation plan.

Municipalities must understand that there will be significant expenses for the fire dispatch to implement NG 9-1-1. BFES will likely increase fees for all fire departments it dispatches, to cover these additional costs. Currently, there is no firm understanding of the costs incurred with the implementation and annual operating costs of NG 9-1-1. Some fire services with a communications centre have budgeted millions of dollars for the upgrades.

Key concerns shared industry-wide are not only the overall costs of this evolution, but other requirements including municipal responsibilities. What is known is the changes will permit the transmission of text messages by those with hearing impairment, as well as the ability to send videos of what has occurred or is occurring at the scene to the dispatch centres. It has not yet been determined if these videos can be forwarded to first responders.

While the County of Simcoe is responsible for the 9-1-1 network in the County, they should be taking the lead role in coordinating the integration of NG 9-1-1 and its ramifications.. While financial implications have yet to be determined, any future increases will be due to changes and enhancements to the existing 9-1-1 infrastructure at BFC.

3.9 Health, Fitness, & Wellness

The health and wellness of staff is a crucial focus for all municipalities, and the Township of Essa is no exception. POC firefighters maintain a separate primary vocation, potentially contributing to an oversight of personal fitness. The inherent nature of firefighting is both stressful and physically demanding. None of the fire stations have been equipped with fitness equipment, potentially deterring staff from maintaining fitness levels which helps to reduce work-related injuries. The fire department should work towards adding fitness equipment to the stations or providing rebates on membership to fitness centers.

Many fire departments routinely test firefighters to meet occupational fitness tests delivered internally or by a third party. NFPA 1582 details basic expectations placed upon firefighters. EFD is

encouraged to review these and incorporate them into candidate testing and firefighter fitness and functionality. EMG recommends that EFD reviews the physical expectations of a firefighter for use in training and recruiting.

NFPA 1582 *Standard on Comprehensive Occupational Medical Program for Fire Departments* identifies 14 essential job tasks detailing the physical and physiological strains on firefighters. The Standard outlines the requirements for a department medical program, including specific conditions that may pose a risk to firefighting. EFD must understand the expectations they are placing on their personnel as the core determination for the physicality of firefighting. The job tasks listed in the Standard include:

5.1 Essential Job Tasks and Descriptions

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

1. While wearing personal protective ensembles and self-contained breathing apparatus (SCBA), performing firefighting tasks (e.g., hose line operations, extensive crawling, lifting, and carrying heavy objects, ventilating roofs or walls using power or hand tools, forcible entry), rescue operations, and other emergency response actions under stressful conditions, including working in extremely hot or cold environments for prolonged periods.
2. Wearing an SCBA, which includes a demand valve-type positive-pressure facepiece or HEPA filter mask, requires tolerating increased respiratory workloads.
3. Exposure to toxic fumes, irritants, particulates, biological (infectious) and nonbiological hazards, and heated gases, despite using personal protective ensembles and SCBA.
4. Depending on the local jurisdiction, climbing six or more flights of stairs while wearing a fire protective ensemble, including SCBA, weighing at least 50 lb (22.6 kg) or more, carrying equipment/tools weighing an additional 20 to 40 lb (9 to 18 kg).
5. Wearing a fire protection ensemble, including SCBA, that is encapsulating and insulated, which will result in a significant fluid loss that frequently progresses to clinical dehydration and can elevate core temperature to levels exceeding 102.2°F (39°C).
6. While wearing personal protective ensembles and SCBA, searching, finding, and rescue-dragging or carrying victims ranging from newborns to adults weighing over 200 lb (90 kg) to safety despite hazardous conditions and low visibility.
7. While wearing personal protective ensembles and SCBA, advancing water-filled hose lines up to 2 ½ in. (65 mm) in diameter from fire apparatus to occupancy [approximately 150 ft

(50 m)], which can involve negotiating multiple flights of stairs, ladders, and other obstacles.

8. While wearing personal protective ensembles and SCBA, climbing ladders, operating from heights, walking or crawling in the dark along narrow and uneven surfaces that might be wet or icy, and operating in proximity to electrical power lines or other hazards.
9. Unpredictable emergency requirements for prolonged periods of extreme physical exertion without benefit of warm-up, scheduled rest periods, meals, access to medication(s), or hydration.
10. Operating fire apparatus or other vehicles in an emergency mode with emergency lights and sirens.
11. Critical, time-sensitive, complex problem-solving during physical exertion in stressful, hazardous environments, including hot, dark, tightly enclosed spaces, that is further aggravated by fatigue, flashing lights, sirens, and other distractions.
12. Ability to communicate (give and comprehend verbal orders) while wearing personal protective ensembles and SCBA under conditions of high background noise, poor visibility, and drenching from hose lines and or fixed protection systems (sprinklers).
13. Functioning as an integral component of a team, where sudden incapacitation of a member can result in mission failure or in risk of injury or death to civilians or other team members.
14. Working in shifts, including during nighttime, that can extend beyond 12 hours.

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

4.1 Program Overview

4.1.1 The fire department shall establish and provide a health-related fitness program (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 safely performing assigned functions. The HRFP allows members to enhance and maintain their optimum health and fitness levels throughout their tenure with the fire department. Education, one provision of a HRFP, improves 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 wellness need to become a priority within the organization, just as safety is.

Data suggests a correlation between the following:

1) A proactive approach to health and fitness and decreased debilitating occupational injuries.
2) A reduction in worker's compensation claims and a decrease in firefighters' acute and chronic health problems.

Combining the HRFP with a proactive occupational safety and health program provides a fire department with the quality needed for its members.

As part of a more significant commitment to firefighter health and wellness, EFD needs to 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. EFD must consider the ramifications of mandatory testing and if the supportive aspects of offering and providing exercise and wellness equipment and programming suffice during the development and transition of health and wellness programs.

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 incident duration to cleaning and decontamination post-fire, all aspects of prevention are currently under review by all levels of fire service management. Departments are limiting opportunities for cross-contamination and secondary exposure to carcinogens involved in fire scenes.

Some more hazardous carcinogens are benzene, formaldehyde, polychlorinated biphenyls, and asbestos, among many others. Additionally, there are significant chemical hazards, such as carbon monoxide, hydrogen cyanide, and phosphorus, to name a few. The microscopic particles of incomplete combustion are heavily laden in the smoke of all types of fire to which firefighters respond. These known cancer-causing toxins are present in structure fires, car fires, dumpster fires,

wildland fires, and smoke from any fire in general. The risk of absorbing these chemicals through the skin has been shown to occur, even through firefighting PPE.

Cancers found in firefighters include:

- Testicular cancer
- Multiple myeloma
- Non-Hodgkin's lymphoma
- Skin cancer
- Prostate cancer
- Malignant melanoma
- Brain cancer
- Colon cancer
- Leukemia

EFD should review related Section 21 Guidance Notes and include in its cancer prevention program items such as, but not limited to:

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

Both of EFD's fire stations have been equipped with the ceiling style Airmation brand diesel exhaust systems to reduce exposure to vehicle exhaust. Exposure to diesel exhaust over a long duration has contributed to health issues. Having exhaust extraction systems in each station will significantly reduce that health concern. The Ministry of Labour, through its Section 21 Committee, sets out fire service guidance notes. Guidance Note: 3-1 Reducing Exposure to Diesel Exhaust states:

> *Employers must:*
>
> *Make sure the fire station is adequately ventilated by either natural or mechanical means so that the atmosphere does not endanger the health and safety of workers.*

NFPA 1500: *Standard on Fire Department Occupational Safety, Health, and Wellness Program* specifies that fire departments contain all vehicle exhaust emissions to a level of no less than 100 percent effective capture.

The Standard further states:

Article 10.1.3.4 *All existing and new fire department facilities shall have carbon monoxide detectors installed in locations in sleeping and living areas, such that any source of carbon monoxide would be detected before endangering the members.*

Article 10.1.5 *The fire department shall prevent exposure to firefighters and contamination of living and sleeping areas from exhaust emissions through the use of direct or source capture systems.*

The International Building Code (IBC) specifically asks fire departments to invest in a diesel exhaust source capture system that connects directly to the motor vehicle exhaust system. The Government of Canada has dedicated a website specific to control measures for diesel exhaust emissions.[25] Neither exhaust extraction system that EFD has in operation is a source capture system. The system deployed has a ventilation fan that draws air towards it, where built-in filters capture particulates, contaminants, and carcinogens that migrate the building as a vehicle inside the structure.

The company states its units control diesel fumes and soot, smoke odours, noxious gases, volatile organic compounds (VOCs), welding smoke, CO, dust, oil mist, and metal grindings. When introduced into the multi-stage air filtration system, air is reintroduced into the building and not exhausted to the outside atmosphere. During the replacement of Station 2 in Angus, a direct connection at the source exhaust extraction system needs to be incorporated per NFPA and the IBC. Even though the systems presently in use do draw the air into their system for filtration, that takes time, and the risk of carcinogens entering the firefighters' bodies continues to exist as air circulates inside the building until filtered. The suction of the direct at-source system is of a force that little, if any, particulate spreads when a vehicle is idling.

A program that reviews PPE inventories and forecasted replacements is in place to manage budgetary submissions effectively. It is essential to note the NFPA 1851 Standard on *Selection, Care and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting* states in Chapter 10:

> 10.1.2 Structural firefighting 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". To EFD's credit, it

[25] "Control measures for diesel engine exhaust emissions in the work place." Government of Canada. Accessed September 20, 2023, https://www.canada.ca/en/employment-social-development/services/health-safety/reports/control-diesel-emissions.html

has a program whereby the inspection and cleaning of PPE is in-house, and a cache of used gear can accommodate a good portion of the membership. EFD should review options for issuing a second set of bunker gear to each firefighter in the near future. There should be a log that records the history of every piece of bunker gear from the date purchased to its decommissioning, which could be part of the Asset Management Program in the RMS.

An integral part of a bunker gear ensemble is the drag rescue device (DRD) deployed when a firefighter cannot remove themselves from a dangerous environment. In most ensembles, this device is in the upper rear of the jacket. Some manufacturers can also install them in the arms of the jacket and the pant legs. If this device is installed improperly after disassembly of the ensemble for inspection and/or cleaning, it may not deploy as designed when required. For this reason, SOGs and training must be in place to ensure proper reassembly of the ensemble after washing.

The Occupational Health & Safety (OH&S), Section 21 Health & Safety Guidance Note 6-1, Hygiene and Decontamination30, states:

> Employers should:
>
> Develop a program of decontamination, which includes engineering controls (ventilation), decontamination procedures, personal protective equipment (respiratory protection devices, gloves) and hygiene practices, in consultation with the joint health and safety committee.

Cancer prevention can even begin at the scene of a structure fire. The bunker gear becomes laden with contaminants, smoke, and off-gas for some time after a fire. Decontaminating the firefighters at the fire scene so they are not wearing their dirty gear back to the station or transporting it in the truck's cab is another step toward cancer prevention. To continue this endeavour, EFD's investment in on-scene decontamination equipment should include colour-coded clear bags for transporting the bunker gear back to the station.

Once the decontamination equipment is acquired, develop the appropriate policies and SOGs to decontaminate firefighters at the fire scene.

Some on-scene measures to reduce the risk of getting cancer include:

- Always wear full PPE during firefighting activities.
- Use SCBA from the initial attack until the completion of the investigation. Don SCBA mask and go on air before entering any smoke/hazard zone.
- Recognize the need for decontamination.
- Utilize positive pressure decontamination upon exiting an Immediately Dangerous to Life and Health (IDLH) environment.

- Upon leaving the IDLH /smoke atmosphere, do not remove PPE, including the SCBA's mask, until completion of gross decontamination.
- Perform gross field decontamination of PPE with water and dish detergent soap to remove potential carcinogens.
- Utilize hand wipes to remove combustion products from the head, neck, jaw, throat, underarms, and hands immediately while on scene.
- Use nitrile exam-type gloves for cleaning equipment.
- Rinse all hoses, tools, equipment, and SCBAs with water and dish detergent soap before placing them back on the apparatus.

Guidance Note 6-1 also states that soiled equipment should not be:

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

Cancer prevention does not stop at taking off and bagging the bunker gear for cleaning at the fire station; the individual's clothing may also contain cancerous contaminants. The hygiene and decontamination program should also address the firefighter's clothing or uniform worn in the fire. This initiative may necessitate the firefighters having spare clothing at the fire station or in their vehicle, available for them to change into after they shower at the station. As previously stated, firefighters must be careful to wash their clothing at the fire station and not at home.

Back at the station, preventative measures include:

- Use latex gloves when handling any contaminated equipment or PPE.
- Ensure that PPE is laundered and dried as soon as possible after exposure to carcinogens.
- Decontaminate apparatus interior immediately after a fire.
- Open all bay doors or use a mechanical exhaust system when the apparatus is entering or exiting the station to facilitate diesel exhaust removal.
- Perform vehicle and equipment checks outside the station, including running small equipment.
- No vehicle idling in the apparatus bay.

- Keep turnout gear out of living and sleeping space.
- Keep doors between the apparatus floor and living spaces closed and limit traffic through these doors as much as possible.

Document each time a firefighter experiences exposure to combustion products by completing a departmental exposure report and retain the document long-term.

Cancer prevention is not a straight-forward, one-step project. The practices for prevention are as varied as the exposures firefighters encounter at any given incident. Whether motivation comes from the top down or the bottom up, prevention is a long-term and evolving process that must start today. EFD needs to develop a formal health and wellness program that includes all facets of health and wellness discussed in this section.

Having SOGs and policies is the critical step in cancer prevention on the scene, enroute to the station, and while cleaning equipment and bunker gear back at the station. The SOG for on-scene decontamination needs to include:

- Details on dry and wet mitigation of contaminated gear.
- Transporting contaminated gear procedures; including the packaging and the colour of clear plastic bags to distinguish it from other items; obtaining spare gear and documenting the pieces received.

Back at the station, decontamination procedures include:

- The in-depth decontamination procedures for cleaning the equipment, fire boots, helmets, and fire gloves, cleaning and disinfecting of SCBA and facepieces, and personal decontamination, including showering.

An area often missed in the SOG is wearing PPE during the disassembling and cleaning procedures. In the SOG, list the expected protective gear worn during the decontamination procedures and the proper disposal of these items afterward. Some departments have gone the extra step and invested in purchasing twin respirator cartridges worn on their SCBA mask.

The bunker gear extraction machines must comply with NFPA 1851, *Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting*. The room that the machine operates in needs ventilation to the outside to reduce the inhalation of carcinogens. Establish a maintenance program for the extraction machines and decontamination procedures upon completion of bunker gear cleaning, mainly if the same extractor also cleans the clothing worn under the bunker gear. The EFD Station 1 has the bunker gear extraction machine, a dryer, a domestic washing machine, and a dryer. Station 2 Angus does not have the capacity to install either type of washing machine.

One product with a history of causing lung cancer is asbestos. EFD should dedicate a section in the Decontamination SOG that speaks to asbestos

Additional measures that EFD could implement as part of its cancer prevention program include:

- Reference the Province's Firefighter's Cancer Prevention Checklist webpage.[26]
- Develop an SOG and policy to encourage firefighters to participate in a cancer screening program.
- Realizing the limited shower facilities available at the stations, develop SOGs and policies requiring firefighters to shower at the fire station after attending a fire and change into clean clothing before departing for home. Since none of the stations have lockers available, this cancer-preventative measure will require some firefighters to carry spare clothing in their vehicles. This initiative will also include washing their clothes at the fire station if domestic washing equipment is available.
    - Include locker rooms in the design of the new Station 2 in Angus.
    - Once the Administration moves to the new Angus station, renovate Station 1, Thornton, so it has lockers available (these provisions are further discussed in Section 4).
- Conduct information nights for firefighters and their family members, including information pamphlets.
- All new fire apparatus should include clean cab technologies, including compartments for transporting contaminated bunker gear.
- Do not store bunker gear on the apparatus floor but in negative pressure bunker gear storage rooms.
- Document potential exposures by completing exposure reports and incorporating them into the RMS and retention program.

3.9.2 Fire Departments and Substance Abuse

With the legalization of marijuana (also known as cannabis) in Canada, use of products derived from the plant is ever-increasing with varying effects on the body that are often like alcohol. Since the effects of cannabis vary, there is no way to know just how long to wait before it is safe to drive. Roadside tests allow police officers to perform tests to check for impairment. Charges are like those

[26] "Firefighter's cancer prevention checklist." King's Printer for Ontario. Accessed August 23, 23, https://www.ontario.ca/page/firefighters-cancer-prevention-checklist

of alcohol impairment. The Government of Ontario has a website on the dangers of cannabis and driving.[27]

> NFPA 1500 states in Article 11.1.5:
>
> Members who are under the influence of alcohol or drugs shall not participate in any fire department operations or other duties.

EFD needs to ensure SOGs, and policies are in place that cover the use of alcohol and/or drugs and attending fire department operations. The Township may need to speak to their Employee Assistance Program (EAP) provider to ensure drug addiction is also covered.

Several websites are available to educate and aid firefighters with addiction, including:

- Firefighters & Addiction | Substance Abuse & Addiction Among Firefighters (sunshinebehavioralhealth.com), https://www.sunshinebehavioralhealth.com/treatment/firefighters-and-addiction/
- Substance use - Canada.ca, https://www.canada.ca/en/health-canada/services/substance-use.html
- Addiction in First Responders & Firefighters (americanaddictioncenters.org), https://americanaddictioncenters.org/rehab-guide/firefighters-first-responders
- Firefighters and alcohol: What the data says (firerescue1.com), https://www.firerescue1.com/fire-chief/articles/firefighters-and-alcohol-what-the-data-says-EEmQCV9ztxdv60BH/

3.9.3 Sense of Mental Well-Being

Firefighting is one of the most hazardous occupations in the world. Firefighters put themselves at risk to save lives and protect property every day. Members of the fire service face many challenges while protecting our communities. They are well-trained to deal with any emergency they may face. Department personnel respond to diverse calls, including structure and vehicle fires, medical emergencies, technical rescue, and hazardous material incidents. The inherent risks associated with the job also increase the incidence of cancer and physical strain on their bodies. The emotional and psychological cumulative stress increases the risk of post-traumatic stress disorder (PTSD) and death by suicide. As a result of job-related stress, family relationships are also susceptible to strain and devastation. Firefighters and other first responders also face the same challenges and life stress as those in less hazardous lines of work.

[27] "Cannabis and driving." King's Printer for Ontario. Accessed September 20, 2023, https://www.ontario.ca/page/cannabis-and-driving

There are more firefighter suicides than deaths in the line of duty. Studies have brought forward staggering findings regarding suicides in the fire service.

> "One study asked patients hospitalized after a suicide attempt about the time frame between their first suicidal thought and the actual attempt. Almost 50% of them said 10 minutes."
>
> Another showed that 64% of suicide survivors from gunshot wounds reported having a prior conflict with a loved one. [28]

The Township of Essa has included all its fire department staff in the EAP offered through its municipal employee benefits. Members can access treatment for mental challenges through the Homewood Health Centre. This support is an essential piece of employee wellness. EFD should meet with administrative staff from the Township who oversee it to ensure that firefighting personnel are fully aware of what benefits the EAP offers, should they need it.

In 2017, the Ministry of Labour required municipalities and their emergency services organizations to submit a PTSD Prevention Plan after deeming PTSD and Occupational Stress Injuries (OSI) as workplace injuries, compensable through the Workplace Safety & Insurance Board (WSIB). The EFD lacks this program; it should be developed and made available to its members. The document should include a list of available peer support agencies. EFD does provide a level of mental wellness training to its personnel.

Initial awareness training for existing staff and recruits is essential in establishing minimum levels of resiliency. Through their PTSD Prevention Plans, departments are to outline a complete spectrum plan. They are encouraged to address four pillars of managing a PTSD/ OSI event: prevention, peer support, treatment/recovery, and return to work programs. Common types of OSIs include:

- PTSD
- Substance use disorders including excessive use of alcohol or marijuana.
- Anxiety disorders including panic attacks and phobias.
- Mood disorders as a result of depression and anger management.

Not all EAP services include the availability of trained, accredited mental health professionals (psychologists/ psychiatrists), and some only offer limited assistance through counselling and therapy.

Firefighters, like law enforcement, paramedics, and military personnel, are regularly exposed to critical incidents. A critical incident is any of the following:

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[28] White, Stephanie, "Suicide Safety Plans for the Fire Service." Firefighter Engineering. September 20, 2023, https://www.fireengineering.com/health-safety/suicide-safety-plans-for-the-fire-service/

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

Being regularly exposed to horrific events can lead to critical incident stress; this is the body's normal reaction to an abnormal traumatic incident/ event.[29] Exposures to critical incidents can impact firefighters later in life, and it is essential to have a formal record of critical incidents to assist firefighters with claiming a workplace injury (i.e., struggling from PTSD). Some departments have gone to the length of recording the incident and who was in attendance for reference in the future if something does arise.

Mental health is paramount in high-stress, high-risk work settings, such as those in which first responders operate, where their functioning has severe implications for the health, safety, and security of the public they serve.

Municipalities like the Township of Essa have EAPs. Still, these tend to have gaps in long-term mental health injuries because of continued exposure to extraordinary (and horrific) events in a firefighter's career. Being proactive in recognizing the reality of this issue and committing resources to educate members and provide mental health services before a member has PTSD is the best recourse. It is essential not to forget to enroll the family members of fire department members in the municipal EAP.

Firefighters are the greatest asset of any fire service, and the Township of Essa and its Fire Department must continue to support their firefighters and their mental health in a genuine, consistent, and professional manner.

A PTSD Prevention Plan needs to include the following:

[29] "Critical Incident Stress." Lifesaving Society. Accessed January 25, 2024, https://www.lifesavingsociety.com/media/265272/criticalincidentstress-july2017.pdf

- An introduction to the plan
- Education, support, and roles and responsibilities regarding Prevention, Intervention, Recovery, and Return to Work
- Screening and initial intervention
- Signs and Symptoms
- Support, WSIB claims management
- An overview of PTSD risk factors
- Legal requirements of the municipality under the *OH&S Act* of Ontario.
- Organizational PTSD practices (promoting good mental health)
- Organizational anti-stigma practices
- Training on awareness and anti-stigma, recognizing the signs and symptoms and responding to signs of PTSD, post-exposure education and awareness.

EFD should provide an evening training session for members and their partners about the illness, signs and symptoms and what assistance is available to those with PTSD or other forms of mental illness. Provide a brochure that families may reference later at home, including a list of support agencies.

It would be beneficial for EFD to have a fire department Chaplain to call upon for support in the event that mental well-being or family-related issues arise with the members of the Department.

As a resource, EFD should access the following:

- Review and promote services available on the Crisis Services Canada website: https://talksuicide.ca/.
- EFD should ensure peer support members train in Road to Mental Readiness, a training program focused on first responders, which is now known as The Working Mind First Responders.[30]
- It would be helpful if EFD, in cooperation with the other emergency services in the County of Simcoe, developed a small information package that families could take home for resourcing.
- Develop a database of support agencies for the first responders and military families to call to speak with fellow first responders when needed. These groups include Boots on the Ground, which is Ontario-based (Angus), by calling 1-833-677-2668.

[30] "The Working Mind First Responders." Ontario Association of Fire Chiefs. Accessed August 22, 2023, https://www.oafc.on.ca/education-training/working-mind-first-responders

- Access the following website to learn the responsibilities of employers in Ontario concerning mental health in the workplace:
- https://www.ontario.ca/page/mental-health-workplace
- EFD needs to develop a PTSD Prevention Plan by referencing other plans developed by a variety of emergency services in the province on the following website:

  https://www.ontario.ca/page/post-traumatic-stress-disorder-prevention-plans

3.9.4 Rehabilitation

NFPA 1584: *Standard on the Rehabilitation Process for Members During Emergency Operations and Training Exercises* outlines requirements for the safe, effective, and efficient rehabilitation of firefighters following strenuous emergency service delivery (firefighter rehab is not just for fires). The Standard addresses nine elements of rehabilitation that fire departments should seek to include in their related SOGs:

- Responder accountability (who is in rehabilitation?)
- EMS treatment as needed.
- Relief from climatic conditions
- Calorie and electrolyte replacement
- Rehydration (fluid replacement)
- Medical monitoring
- Active and/or passive cooling or warming as needed
- Rest and recovery
- Release procedures (who has left the rehabilitation area, and where did they go?)

Responder Accountability in Firefighter Rehab

A rehab accountability system is a vital tool for ensuring that all personnel:

- Are logged into rehab.
- Receive the required hydration, cooling/heating, and medical monitoring.
- They are logged out of rehab, appropriately transferred to operations, transported to a medical facility for further care, or released from the emergency scene.

The information collected and logged into a rehab accountability system is an essential component for:

- Ensuring continuity of care for those personnel transported to a medical facility for additional care.

- Ensuring compliance with NFPA 1584: *Standard on the Rehabilitation Process for Members During Emergency Operations and Training Exercises*, as well as departmental SOGs for on-scene firefighter rehab
- Continued improvement of those SOGs and training of personnel in rehab practices
- Provide the necessary documentation to reduce the legal risk.

A Personnel Accountability System in rehab provides the required documentation and accountability processes compliant with NFPA 1584. The system should include a workflow-based design, an accurate accountability procedure, and a tag-driven system to help optimize rehab operations. Future accountability systems may become available digitally, including barcode scanning involving the personnel's security cards for entering the fire stations or other municipal buildings. Other features may include:

- Vital sign monitoring includes the associated alarms for when the firefighter's vital signs enter dangerous levels.
- Records the firefighter's intake of food and liquids while in rehab.
- Maintain a history of the firefighter's vital signs while in rehab.
- Provides the documentation that the firefighter's physician would use in the workup of the history of exertion while fighting fires.

New technologies have surfaced that assist in cooling the core temperature of firefighters that include:

- Cooling Towels – that can be activated using a small amount of water. The moist fabric feels cooler than the ambient temperature, remains cool for hours and is easily reactivated by adding water and wringing it out.
- Cooling Vests – A controlled cooling system circulates ice and water through various garments. The garments can be used proactively during operations like hazmat incidents and for active cooling in an on-scene firefighter rehab area.
- Immersion Cooling System – Involves immersing arms or entire bodies into portable units to reduce body heat.
- Misting Fans - Air flows from the fan, releasing an ultra-fine mist in the fan's air stream.

Medical monitoring of firefighters during their sessions in rehab is vital. NFPA 1584 contains specific requirements for the medical monitoring of firefighters in on-scene recovery. The on-scene rehabilitation of firefighters engaged in emergency operations is not a stand-alone activity. Instead, it should be an integral part of a fire department's health and wellness program for its members.

The physiological effects on firefighters working in PPE indicate that firefighters experience significant cardiovascular and thermal strain as measured during rehabilitation following active

firefighting tasks. Historically, upon entering rehab following firefighting tasks, the body's core temperature, heart rate, blood pressure and some blood levels were significantly elevated.

Cardiac monitoring has shown vascular function was significantly affected, reflected in a reduced ability to perfuse heart tissue. These physiological changes may explain why firefighters increasingly suffer cardiac events, including cardiac arrest, hours (even the next day) after engaging in strenuous emergency service activities.

NFPA 1584 also requires an assessment of all firefighters exposed to smoke for possible CO poisoning. The symptoms of CO poisoning are non-specific and easy to miss.

3.10 Recruitment and Retention of Voluneer 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 staff turnover. As with many volunteer fire departments, the daytime hours from Monday to Friday are the most significant challenge for maintaining an adequate response because many volunteer firefighters are either at their primary place of employment, school, or caring for family.

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 must meet the upcoming training/ certification requirements and related timelines noted in the new regulation. Based on this, fire departments must fully evaluate their present training programs and implement necessary improvements to meet the latest training and certification requirements. This increase in training will also add complexities to the recruitment and training of new firefighters and the retention of present volunteer members.

Along with administrative impacts associated with certifications, there is also a financial impact on the budgets as staff will need remuneration for attending training sessions. The recruits of the EFD must travel to other areas to complete the practical portion of certifications. Fortunately for EFD, two training facilities are nearby that may be taken advantage of for the practical exercises each member must meet.

Some of the reasons why people stop volunteering include the following:

- Lack of time to volunteer.
- Conflicts within the organization
- An adverse atmosphere created by organizational leadership.
- Too much training required.
- Attitude of existing personnel toward newcomers.

- Constant criticism received from officers/ older members.
- Lack of camaraderie

Note: The previously listed items do not directly reflect the status of the EFD; they are for consideration in the Department's recruitment and retention initiatives.

Opportunities to increase retention may include:

- Family nights at the fire station including a movie and children's activities.
- Assign a seasoned member to mentor each rookie when they join.
- Conduct firefighter appreciation events (e.g., dinner, BBQ) where recognition takes place by the Council for their long-term, outstanding service, or something exceptional they did at a call.
- The Council should acknowledge the firefighters' primary employers 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 incentive might include paying extra in the form of a 5% to 10% pay increase for every five years they have been in the Department; this would prevent the loss of years of experience.
- Performance incentive for those with high attendance percentages 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. Benefit packages would include basic dental, drug, and eyewear coverage.
- Purchase wellness benefit packages for the firefighters, like mental, financial, and family counselling.
- Engage in treating PTSD.
- Offer an RRSP/pension savings plan with contributions from the municipality after they have been a department member for a predetermined length of time.
- Provide excellent training opportunities to make them want to remain a fire department member. Make the training sessions fun and memorable.
- Provide recognition and support to those who want to attend Ontario Fire College regional courses, which sometimes require firefighters to use their vacation time from their full-time employers.
- Implementing 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. Pay for weekend on-call should range from $90 to $130 / weekend.

- Support life-long learning through education assistance programs to support staff in their professional development with higher learning institutions relevant to their vocation.
- Maintain and improve morale by providing modern trucks, equipment, and stations.
- Encourage that each station designs a logo for the station promoting its region of the municipality or its services. They could include a tasteful mascot character. Print the logos on t-shirts and perhaps decals on the apparatus as a sense of pride.
- Provide strong leadership focusing on the Department's Mission, Vision, and Values while resolving conflict promptly.
- Conduct exit interviews with those who leave the Department to understand their reasons for departing. Exit interviews offer the opportunity to assess the perception of workplace culture, day-to-day processes, management challenges/ solutions, and employee morale. To be impartial, this may require the services of a third party who completes the interviews annually.
- Foster the history of each fire station by creating displays of photographs of past members, events, and apparatus to instill a sense of pride in the Department's growth.

EFD is already implementing some of these suggestions. This list is for the fire chief to review to assist in brainstorming retention efforts. It costs the Township significant money to train and equip new firefighters; Council must develop and support a means to retain its investment.

The Canadian Association of Fire Chiefs (CAFC) published a program – "Answer the Call" – that is available on their website (https://cafc.ca/page/answerthecallpublic). This has a variety of information that can be used by the fire department in its ongoing efforts relating to recruitment and retention of its volunteer/paid-on-call firefighters.

. It has received significant support and does not require considerable time commitment or monetary investment.

A final indicator that there may be challenges with dependence on a volunteer system is through 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, the frequency at which adequate personnel arrive on scene should be recorded and monitored as well as the time of day, and day of the week. The continued review of this data will assist with identifying future fire service staffing requirements. Response times are a significant factor when comparing volunteer to full-time personnel.

The following table provides a few departments to compare firefighter wages.

TABLE #7: VOLUNTEER/PAID-ON-CALL FIREFIGHTER WAGE COMPARISONS

Municipality	Population Served (2021 Census)	Community's Geographical Area	# of Stations	Firefighter Staffing Volunteer and Full-time	Wages/Stipends	Annual Incidents (Including Medical)	Population to Firefighter Ratio
Essa	22,970	279.92 km²	2	60 – POC FF Full-time FC and DC	2023 District Chief - $30.37 Captain - $29.05 Acting Capt. - $27.74 Firefighter - $26.41 Probationary FF - $19.80 Honorarium District Chief - $2,573.94 Training Capt. - $1,930.50 Captain - $1,286.90 Based on 2 hours pay for the first hour followed by hourly rate.	511	370

Municipality	Population Served (2021 Census)	Community's Geographical Area	# of Stations	Firefighter Staffing Volunteer and Full-time	Wages/Stipends	Annual Incidents (Including Medical)	Population to Firefighter Ratio
New Tecumseth	43,948	273.87 km²	3	120 - POC FF 5 – FT Including Fire Chief, Deputy Fire Chiefs (2), Training Officer (1), Fire Prevention/PFLSE Officer (1)	**2023** Probationary FF - $19.88 Firefighters - $22.56 Acting Captains - $23.68 Captains - $24.79 Assistant District Chief - $26.49 District Chief - $28.17 Fire Inspector/PFLSE - $23.68 Secretary - $23.68 H and S Representative - $23.68 Emergency Response Step 1 Step 2 Step 3 Step 4 Step 5	1170	366

Municipality	Population Served (2021 Census)	Community's Geographical Area	# of Stations	Firefighter Staffing Volunteer and Full-time	Wages/Stipends	Annual Incidents (Including Medical)	Population to Firefighter Ratio
					$24.45 $25.44 $26.43 $27.43 $28.42 $25.67 $26.71 $27.75 $28.80 $29.84 $26.90 $28.00 $29.00 $30.00 $31.37 $28.72 $29.07 $30.07 $31.06 $32.05 $30.56 $30.85 $31.85 $32.84 $33.84 Based on 2 hours pay for the first hour followed by hourly rate.		

Municipality	Population Served (2021 Census)	Community's Geographical Area	# of Stations	Firefighter Staffing Volunteer and Full-time	Wages/Stipends	Annual Incidents (Including Medical)	Population to Firefighter Ratio
Clearview	14,814	556.37 km²	5	90	Firefighter: For response or training facilitator: Level 1 - $26.33 Level 2 - $27.72 Level 3 - $29.18 Level 4 - $ 30.71 Firefighter for training, fire prevention, and extra duties: Level 1 - $18.43 Level 2 - $19.40 Level 3 - $20.43 Level 4 - $21.50 Captain: Fore response and training facilitator: Level 1 - $29.96	940	164

Municipality	Population Served (2021 Census)	Community's Geographical Area	# of Stations	Firefighter Staffing Volunteer and Full-time	Wages/Stipends	Annual Incidents (Including Medical)	Population to Firefighter Ratio
					Level 2 - $31.54 Level 3 - $33.20 Level 4 - $34.94 Captain for training, fire prevention and extra duties: Level 1 - $20.97 Level 2 – 22.08 Level 3 - $20.43 Level 4 - $24.46 ***Note:** Officers do not receive an additional stipend.*		

Municipality	Population Served (2021 Census)	Community's Geographical Area	# of Stations	Firefighter Staffing Volunteer and Full-time	Wages/Stipends	Annual Incidents (Including Medical)	Population to Firefighter Ratio
Adjala–Tosorontio	10,989	371.53	2	60 – POC FF Full-time FC	2022 Firefighter 3 - $16.75 Firefighter 2 - $17.79 Firefighter 1 - $18.84 Firefighter 1A - $19.89 Lieutenant - $23.03 Captain - $25.12 Assistant District Chief -$31.40 District Chief - $33.49 **Honorarium** Assistant District Chief - $1,500 District Chief - $2,000 Minimum pay is 1 hr/call.	389	183

Municipality	Population Served (2021 Census)	Community's Geographical Area	# of Stations	Firefighter Staffing Volunteer and Full-time	Wages/Stipends	Annual Incidents (Including Medical)	Population to Firefighter Ratio
The Blue Mountains	9,390	284.65 km²	2	8 FT, 20 vol (Council permits 44 POC FFs)	Recruit - $20.00 Probationary. - $23.00 Step 3 Certified FF-1- $31.64 Step 4 – Certified FF-2 - $33.40 Step 5 Gen Level Certification - $35.16 Weekend on-call - $86.13 /weekend	334	353
Township of Brock	12,567	422.64 km²	3	2 FT, 1 PT 79 VFFs	Min of 2 hrs/call. District Chief - $35.39 Captain - $33.98 Acting Captain - $30.00 1st Class - $28.30 2nd Class - $25.47	335	155

Municipality	Population Served (2021 Census)	Community's Geographical Area	# of Stations	Firefighter Staffing Volunteer and Full-time	Wages/Stipends	Annual Incidents (Including Medical)	Population to Firefighter Ratio
					3rd Class (Prob) - $22.64 Maintenance and Training – All $19.22		
Perth East	12,595	711.93 km²	3	68 VFFs	**Firefighter** - $34.99 **Firefighter** receives $2,479.96 annually to be on call for 13 weekends (6 p.m. Friday to 6 p.m. Saturday). **Captains** are paid $34.99 for responses. They also receive $3,666.17 to be on call for 13 weekends. **Deputy Station Chiefs** are paid $34.99 for responses and a $5,866.17 annual honorarium. **Station Chiefs** are paid $34.99 for	266	185

Municipality	Population Served (2021 Census)	Community's Geographical Area	# of Stations	Firefighter Staffing Volunteer and Full-time	Wages/Stipends	Annual Incidents (Including Medical)	Population to Firefighter Ratio
					responses and receive $9,866.17 annual honorarium. **Training nights** 2 to 3 hrs. – Flat rate of $46.64/night		
Centre Wellington	31,093	409.41 km²	2	4 FT, 60 VFFs		636	485
Strathroy-Caradoc	23,871	270.86 km²	3	78 VFFs,	Point system at $15.90 /point	1,371	306
Scugog	21,581	474.38 km²	2	58 VFFs, 5 FT, 2 PT	2022 rates for emergency response and public education events range from $20.84 - $45.45, with 1st Class rate being $37.88 per hour. (FFs are assigned, classes)	526 (2022)	342

Municipality	Population Served (2021 Census)	Community's Geographical Area	# of Stations	Firefighter Staffing Volunteer and Full-time	Wages/Stipends	Annual Incidents (Including Medical)	Population to Firefighter Ratio
					The 2022 training rate was $24.82 per hour. The summer standby rate was $110.60 per day. Captains and District Chiefs are paid more for their participation in emergency response and public education events. The 2022 rate for a Captain was $41.66, and for a District Chief was $45.45.		

3.11 Transition from Volunteer to Full-Time

There is a tipping point for departments that rely solely on volunteer firefighters for fire suppression services. 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 required. They must consciously decide whether to respond based on various life 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 necessity is essentially lost time; in a significant fire situation, this lost time can be critical in outcomes.

The fire chief should provide a detailed overview of the Department's retention issue in the Department's annual report to the Council. Note whether, 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 EFD.

Each year, between 10 and 15% of the Department resigns. This type of turnover creates a considerable 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 firefighters with protective gear and ensuring they complete all mandatory training.

EMG submits that any increased investment in the fire service is an investment in the residents' well-being and community safety. Based on response data and retention assessments, along with the community's continued growth, EMG recommends recruiting a full-time staff member to serve primarily as an FPO/PFLSE with firefighter duties as a secondary responsibility. The capacity to increase the number of fire inspections and public education events would improve.

This recommendation requires a financial assessment as a full-time FPO/PFLSE/firefighter would cost approximately $120,000 to $130,000 per year, with benefits. A first-class full-time firefighter on a career fire department is $100,000 to $115,000 plus benefits.

Section 3: Recommendations

Rec #	Recommendation	Suggested Timeline	Estimated Cost	Rationale
4	Provide adequate resources such as software and staff time to expand the current pre-incident planning program.	Immediate to Short-term (0 to 3 years)	Staff time	This will improve information when responding to emergencies, work to improve current information in the RMS on building risk, and engage staff.
5	Add the provision to local by-law to provide monetary penalties to non-compliant inspections.	Immediate (0 to 1 year)	Staff time	This will provide a tool to gain compliance of infractions, as well as support the cost of existing resources to carry out these functions.
6	Add, refresh, and revise all fire prevention SOGs to reflect current EFD practices.	Immediate to Short-term (0 to 3 years)	Staff time	Contemporary SOGs that are reflective of industry informed practices guide staff and decrease liability risk to the community.
7	EFD expand its Public Education activities by establishing and funding a Public Education Program and Plan with supporting SOGs.	Short-term (1 to 3 years)	Staff time	Active and engaging Public Education Programming can reduce the incidence of unwanted fires and change unwanted and unhealthy behaviours.

Rec #	Recommendation	Suggested Timeline	Estimated Cost	Rationale
8	Design a career path model for all specialised functions/positions within the EFD.	Immediate (0 to 1 year)	Staff time	Firefighting is a high-risk profession. Training is essential to enable firefighters to respond more efficiently to emergencies, reducing the property damage caused by fire, loss of life, and public hazards, as well as reducing personnel injuries. Although the EFD has a career path model for firefighter maintenance training, recruit firefighters, and officer promotion, there is limited documentation regarding career path modeling for other specialised positions, such as fire prevention officer, fire investigator, public educator, or technical rescuer.
9	Township of Essa and the EFD review their funding obligations to ensure adequate financial support to meet the training objective iterated in point four of the "Objectives of the Essa Fire and Emergency Services" section of The Township of Essa By-law 2022-16.	Immediate (0 to 1 year)	Staff time	This is becoming critical with the adoption of the Firefighter Certification regulation made under the *FPPA*, 1997.

Rec #	Recommendation	Suggested Timeline	Estimated Cost	Rationale
10	EFD create a full-time Training Officer position to manage training needs for the EFD.	Short-term (1 to 3 years)	FTE cost and benefits could be in the amount of approximately $90,000.	Although EMG's analysis suggests that 4.5 staff would be required to adequately support EFD training needs, EMG is of the opinion that a full-time dedicated Training Officer supported by a training clerk would suffice to adequately administer the EFD training needs. The full-time Training Officer would be coordinating and supervising training delivery through appointment of captains as per the current model. A full-time Training Officer would provide consistency and uniformity in training delivery.
11	EFD ensure that any training props comply with NFPA 1402, *Standard on Facilities for Fire Training and Associated Props*.	Immediate (0 to 1 year)	Staff time	NFPA 1402 provides guidance for the planning of fire service training centers, focusing on the main components necessary to accomplish general fire fighter training effectively, efficiently, and safely.

Rec #	Recommendation	Suggested Timeline	Estimated Cost	Rationale
12	EFD create a Live Fire Training SOG to support their live fire training efforts.	Immediate (0 to 1 year)	Staff time	The most frequently cited contributing factors in the National Firefighter Near-Miss Reporting System are situational awareness, followed by decision making. In the live-fire training environment, both skills are crucial to the success of the operation and can be repeatedly practiced and fine-tuned. An SOG will solidify the importance of live-fire training.
13	Township of Essa By-law 2022-16 be updated to align technical rescuer core services with wording from Table 1 of the O. Reg. 343/22. Secondly, EMG recommend that unless EFD. The Township of Essa has an automatic aid agreement Memorandum of Understanding in place with a reputable fire service the City of Barrie who provides technician level technical rescuer services, all staff should be trained to the Operations Level for any technical	Immediate (0 to 1 year)	Staff time	Aligning wording in the By-law with O. Reg. 343/22 will avoid misunderstanding as to the adequate level of service provided and to avoid unnecessary training expenses. This standard specifies the minimum requirements for the EFD identified levels of functional capability for conducting operations at technical search and rescue incidents while minimizing threats to rescuers.

Rec #	Recommendation	Suggested Timeline	Estimated Cost	Rationale
	rescuer core service identified in the Township of Esa By-law 2022-16.Thirdly, all technical rescuer training programs should be monitored to adhere to the NFPA 1006: *Standard for Technical Rescue Personnel Professional Qualifications* and in accordance with O. Reg. 343/22: *Firefighter Certification*. Finally, EMG also recommends that the EFD aligns its technical rescuer operations and training to NFPA 2500: *Standard for Operations and Training for Technical Search and Rescue Incidents and Life Safety Rope and Equipment for Emergency Services*.			
14	Suppression staff be trained to Fire and Life Safety Educator Level 1 and that the EFD operations Division Captains also be trained as Public Information Officer, under the NFPA 1035.	Short-term (1 to 3 year)	Staff time	EMG applauds that public fire and life safety education training aligns with NFPA 1035. However, given the importance of the first two lines of defence, all staff should be trained to NFPA 1035 Level 1.

Rec #	Recommendation	Suggested Timeline	Estimated Cost	Rationale
15	At least the District Chief at each station should be certified to NFPA 1031 Fire Inspector Level 1. Ideally, both district chiefs and all captains should be trained and certified to NFPA 1031 Fire Inspector Level 1.	Short-term (1 to 3 year)	Staff time	Having these extra resourced with help to meet the goals set in The Township of Essa By-law 2022-16 pertaining to FIRE PREVENTION – Core Services.
16	At least two members of EFD train to the Operations Level in elevator rescues per the TSSA Standard for training.	Short term (1 to 3 years)	Staff time, plus training and possibly some hand tools.	Having at least two members trained in this discipline permits EFD to meet its due diligence in ensuring the members of EFD train to the Awareness Level.
17	Implement SOGs, training and specialized equipment to fight fires involving lithium batteries found in vehicles, scooters, and motorbikes.	Short-term (1 to 3 years)	Staff time The cost of training programs and specialized equipment has yet to be determined. Early estimates for the Emergency Plug are USD 1,000.00.	Electric vehicles present a high rate of fires involving lithium-ion batteries with approximately 400 volts. Fires have also occurred in scooters and e-bikes with the same battery type.

Rec #	Recommendation	Suggested Timeline	Estimated Cost	Rationale
18	Include references to NFPA 1225 and 1061 in the Township of Essa's dispatch agreement with the City of Barrie.	Short-term (1 to 3 years)	Staff time	This addition to the agreement will identify expected competencies and service provisions from BFC.
19	Invest in a connection at the source exhaust extraction system when building the replacement fire station in Angus.	Short-term (1 to 3 years)	Costs vary depending on the length of the track, fan size, number of vehicle connections required, etc.	At source exhaust extraction system will reduce the risk more than an internal ventilation system, as less particulate and carcinogens circulate throughout the structure.
20	The Township of Essa needs to develop a formal PTSD Prevention Plan with EFD.	Short-Term (1 to 3 years)	Staff time	While the Township has included members of EFD in its EAP through Homewood Health Services, the requirement still exists that a complete PTSD Prevention Plan be developed.

SECTION 4

Facilities, Vehicles, Equipment & Water Supply

SECTION 4: FACILITIES, VEHICLES, EQUIPMENT & WATER SUPPLY

This section will assess facility needs and station locations, review existing facilities, and provide recommendations for future locations relative to current and future service delivery demands and applicable standards, as well as consider potential needs for relocation or additional stations.

4.1 Fire Stations Overview

Fire stations should be in their community's most efficient and effective response location. Centering them within a determined response zone based solely on timed response is not always the best implementation option. Fire station location depends on many factors, such as key risks within the response zone, future growth of the community, and station staffing (full-time or volunteer firefighters). Another consideration is the community's geographical layout, which can include natural barriers or divides, such as water, making it necessary to have some stations close to each other.

OFM Public Fire Safety Guideline – PFSG 04-87-13 on Fire Station Location states that fire stations should be situated to achieve the most effective and safe emergency responses. Distance and travel time may be a primary consideration; however, if the community's decision makers set a basic expectation of response time, then a more realistic level of service and fire station location criteria may be required.

Fire stations may be considered a community focal point. They have traditionally been located on main roadways in communities to provide quick access and response by the firefighters. The intent is that they last 30 to 40 years, and as such, the planning and design should not solely address the needs of today but those of the department in 20 years and beyond.

EFD's stations are well maintained, tidy, and organized with little clutter and the apparatus is clean and in a state of readiness. In both stations' storage space is lacking; EFD should look for options to enhance its storage space including liquidating what is not used and acquiring outdoor storage containers (provided municipal by-laws permit their use). Current industry standards for designing and constructing a fire station have identified the need for enhancements, amenities, and features a volunteer fire service would require. The following is a partial list of what is necessary when building a fire station for a volunteer fire department:

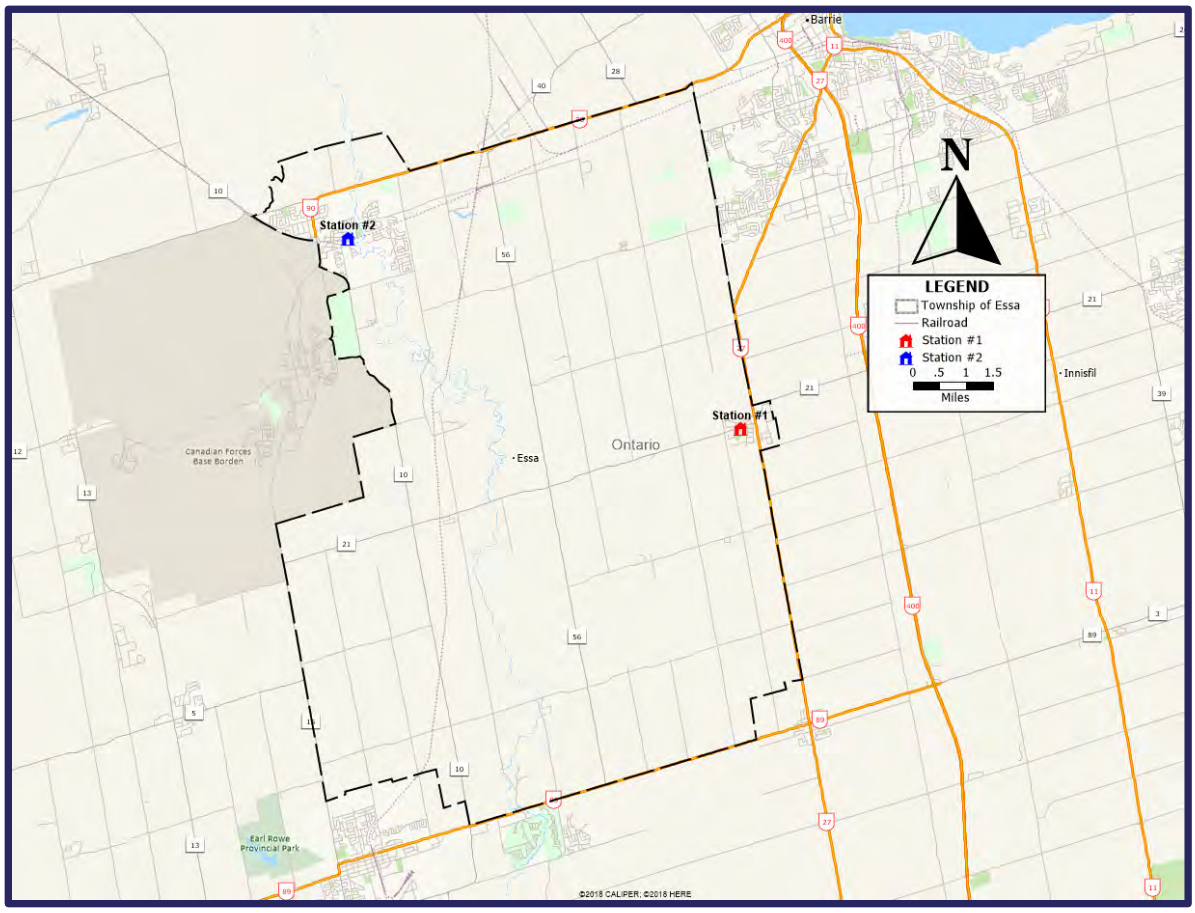
- Post-disaster-engineered structure
- Emergency backup power supply

- Gender-neutral washrooms, locker rooms, showers, and dormitory (for when the fire stations have staff, 24 hours a day)
- Barrier-free, *AODA*-compliant
- Negative pressure bunker gear storeroom
- Vehicle exhaust extraction system
- Water runoff separation tanks in the apparatus floor
- Emergency eye wash and decontamination station
- Offices for the station officer and firefighters
- Study room
- Communications Office (radio system to receive fire calls)
- Technologies room (i.e., phone, computer, radio, etc.)
- Kitchen
- Drive-through apparatus bays
- Lounge
- Fitness room
- Tool/ repair room
- Station supply storeroom
- Clean maintenance room for cleaning/ disinfecting and repairing items such as face masks, SCBA, medical equipment, etc.
- Bunker gear extraction machine and dryer
- Domestic washing machine and clothes dryer
- Training/ meeting room
- Emergency shut-off to cooking equipment.
- Red/green lights installed at the overhead doors to notify the drivers when the overhead door is fully open.
- Sensors at ground level installed on overhead doors to prevent closing if the sensor's beam is blocked, indicating an obstruction in the doorway.
- Smoke and CO alarms and, in some instances, fire sprinklers.
- Safe rooms with a Private Line Automatic Ringdown (PLAR) phone using Voice over Internet Protocol (VoIP) system that rings into the communications centre.

During a review of the EFD's existing facilities, a few of these features are lacking, including some that are health and safety issues. Of particular concern: the bunker gear stored on the apparatus floor near the exhaust of the fire apparatus; dedicated bunker gear storerooms with a negative pressure ventilation system; and the lack of a direct connection at the source exhaust extraction system in the two stations.

Also as with many fire services, cooking facilities at the fire station are used before a meeting or during a special fundraising event. Stations should have an emergency shut-off valve/switch to the cooking equipment. This shut-off may be activated when a call is received to ensure that the power or gas supply to the cooking equipment is off until the members return and deactivate the valve/ switch.

FIGURE #21: LOCATIONS OF CURRENT EFD FIRE STATIONS



4.2 Facilities Review

The EFD has two fire stations; EMG does not see the necessity for additional stations at this time. The following is an assessment of each station.

Note: There was no destructive testing conducted at either of the structures.

The Township of Essa has not attained a third party to appraise the condition of either fire station. An appraisal entails a consultant reviewing all aspects of the structure and the mechanical systems to review their efficiencies or lack thereof.

At one time, fire stations were intended to last 30 to 40 years. Today, that expectation has risen to 50 to 60 years, possibly resulting in extensive renovations. In some cases, it may even be more cost-effective to replace the structure.

4.2.1 Fire Station #1 – Thornton

The original EFD Station 1 was built in 1957, just down the street from its current location. It was large enough to store two trucks and had no amenities of a modern fire station. It was built on volunteer labour for $2,000 and remained in service for 23 years. The present facility was built in 1980 and is in good condition and is well-maintained. Over the years, it has undergone one major and a few minor renovations, one involving detailed structural changes that saw the addition of a library and an expanded office area. When full-time firefighters start operating from this station, significant modifications will be needed, including considering a new station, but that is many years away.

Fire Station 1 – Thornton with the attached Thornton Library

Training Room

Kitchen

Fire Chief's Office

Deputy Fire Chief's Office

Radio Room

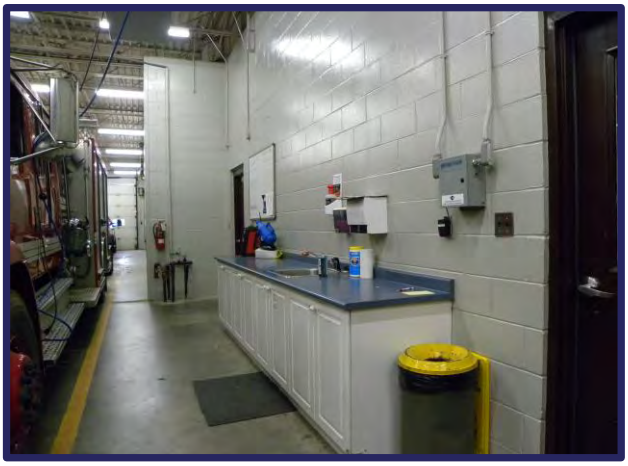
SCBA Bottle Refill Station Maintenance

Tank 1 (Note SCBA Refill Station)

Apparatus Floor / Tank 3

Bunker Gear Stored on Apparatus Floor

Bunker Gear Extractor



Equipment/ SCBA Mask Wash Station

Pump 1

Rescue 1

RTV 1

Standby generators

Rear of Station 1

Station Concerns

- Each overhead door requires sensors. In addition, installing red/green lights will advise the driver when the overhead door is fully open and safe to drive out. The sensors detect when something or somebody blocks its beam, and the door remains open. The lack of these should be considered a health and safety concern.
- The SCBA refill station and maintenance bench should be in a dedicated room, not on the apparatus floor where exhaust particulates are present.

The station does have a ceiling diesel exhaust system; however, since it not an at-source diesel exhaust system, firefighter bunker gear should still be moved away from possible direct exhaust contamination.

4.2.2 Station 2 – Angus

The Angus area first received fire protection from Camp Borden's 13-X (the building's identification number), which was one of three locations with a fire truck on the base. The building was also an ammunition depot stored and shipped high explosive ordinances. In 1958, the building blew up, killing seven people. The challenge with having 13-X protect the area was when there was a fire, only two people came with the truck, which led to the formation of the Angus Volunteer Firefighters.

The arrangement with 13-X was terminated in 1971, and in 1972, the Township built a new two-bay wide, two-bay deep fire station on King Street, where it remains to this day. Since then, it has undergone renovations and upgrades. It is in deteriorating condition and lacks space.

While EFD has done an excellent job at maintaining this station, it is aging. Planning for its replacement has commenced by obtaining a property of 1.5 hectares (3.5 acres) that once belonged to the Province of Ontario as part of the former seed plant. In 2022, a groundbreaking ceremony took place, and at that time, replacing this station would range between $4 and $4.5 million, depending on its design and amenities. Since then, building prices have increased immensely, exposing the municipality to delegate more funds for the proposed structure. Construction was to begin late in 2023 but was deferred with anticipation that construction would start in 2024 with occupancy in 2025. The cost of this station in 2023 dollars is now $8 to $9.5 million.

Since the COVID-19 pandemic began, shortages and costs have significantly increased across North America. Labour shortages, particularly of trained construction workers, have resulted in delays in most station projects. In 2022, the construction cost in Ontario for a Health Care Centre – Ambulatory rose from a minimum of $6,750 to a maximum of $7,610 per sq meter and a warehouse from $1,470 to $1,780.[31]

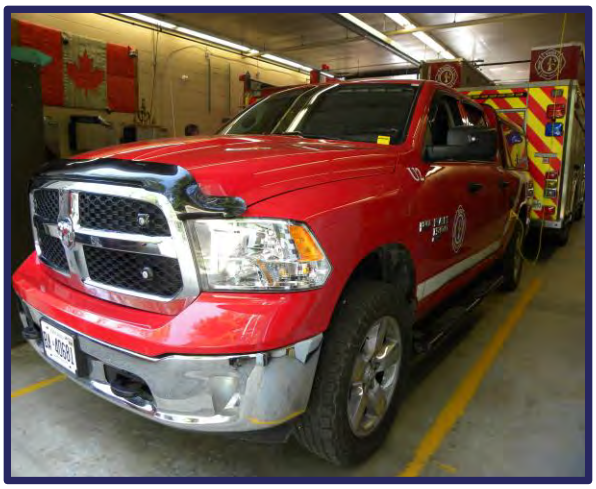
EMG recommends that the Township of Essa approve building a new Fire Station 2 in 2024. Postponing this project any longer will result in higher prices, and unfortunately, some amenities that EFD desperately requires may be removed from the project to keep the costs in line.

[31] "Construction costs of buildings in Ontario, Canada in 2022, by select building type." Statista. Accessed October 4, 2023, https://www.statista.com/statistics/972912/-building-costs-ontario-canada-by-type/

Pump 2

Ladder 4

Rescue 2 - close to the overhead doors

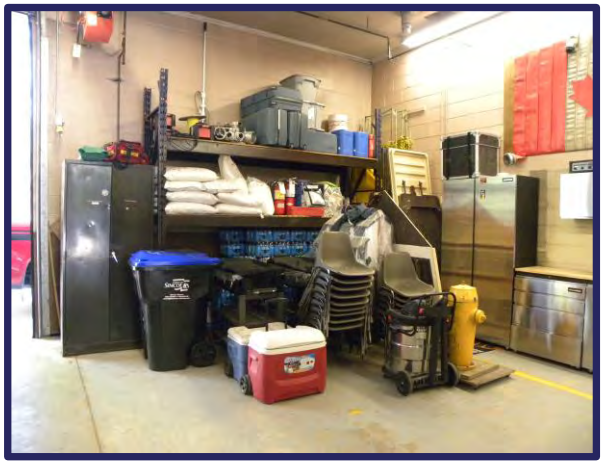


Utility 2

Storage for hose and bunker gear. Note the SCBA Refill Station behind the hose.

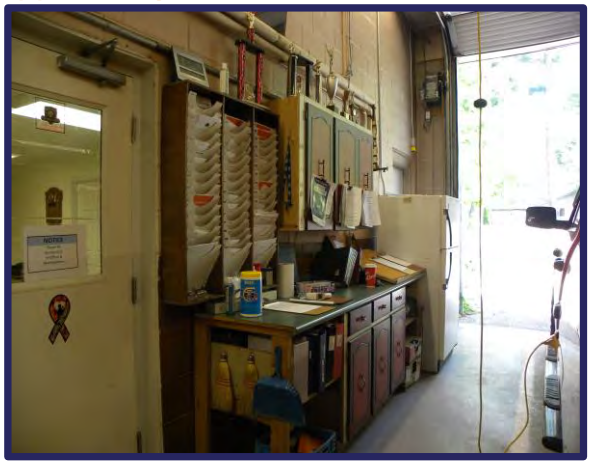
Tank 2

Rescue 2



Storage area at the rear of the station apparatus gets washed.

Electrical panel on the apparatus floor where



Apparatus Bay

Training Room

Offices


Kitchen

Back of the station

Station Concerns

- Like Station 1, this station requires sensors and red/green lights on its overhead doors. As storage space has reached capacity, decluttering would be in order, including removing items no longer serving a purpose and redundancies.
- The station does have a ceiling diesel exhaust system; however, since it not an at-source diesel exhaust system, firefighter bunker gear should still be moved away from possible direct exhaust contamination.

4.3 Fire Station Options

Traditionally, emergency response stations have been stand-alone structures. Municipalities, including the Township of Essa, have been shifting to integrating services into shared-use buildings, with emergency service response stations built into community centres, libraries, public works buildings, etc.

It is common across Canada to have different emergency services co-located, including fire and police; fire and paramedics; or all three in the same building, like the Emergency Services Hubs in the City of Barrie and the Township of Clearview. These stations typically have separate quarters within the same building, with separate entrances and facilities. This arrangement permits each service to operate independently of each other while taking advantage of the efficiencies of a single structure.

Municipalities seek opportunities to create more efficient use of space and financial resources and integrate municipal services within the community. Several models are in different jurisdictions, including public/private partnerships, partnerships with non-profit organizations, and leasing available commercial space.

As technology, community demographics, and operational requirements evolve, maintaining flexibility 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 allowing the municipality the flexibility to move, should there be a change in community development.

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

While the City of Vancouver funded the fire station, the YWCA housing portion of the building received funding from the municipal, provincial, and federal governments, and the YWCA, which launched a capital fundraising campaign. Integrating the two services provides safety and security for single mothers and their children.

In Calgary, a unique fire station includes a two-storey podium building with two high-rise towers. The 11-storey east tower contains 88 affordable housing units, while the 18-storey west tower contains 132 market housing units. The fire hall is at the base of the building, composing two storeys. This initiative is a very successful public/ private partnership.[32]

[32] "838 – 4th Avenue SW," ITC Construction Group, Accessed August 24, 2023, https://www.itc-group.com/project/solaire-louise-station

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

4.4 Apparatus

This section assesses the general state of the Department's apparatus, vehicles, and equipment— reviewing existing vehicles and equipment conditions, maintenance programs, capital replacement schedules, and plans relative to existing and expected service demands.

1928 Gotfredson Bickle model fire truck that was the Thornton Fire Department's (in 1965, it became the Township of Essa Fire Department) inaugural fire apparatus. It was in service with the Cookstown and District Fire Department (CDFD) until 1955 when CDFD received a new 1954 model GMC Bickle. At the wheel is Fire Chief Earl Cunningham, who was Chief for over 40 years. The truck was purchased for $100 and remained in service from 1958 until 1963.

4.4.1 New and Replacement Schedules

When assessing a fire department's ability to respond and meet the community's needs, the FUS considers the age of a fire truck as one of its guidelines. EFD endeavours to keep fire vehicles on a 20 to 25-year replacement cycle to keep them in line with the FUS recommendations and create a benchmark for forecasting fire truck replacements. The pumpers and tankers get replaced every 20 years, while the ladder truck is 25 years, which is

within industry standards. The chief officer's vehicles are on a 15-year cycle, which may be excessive based on the high mileage the vehicles will have at that point and the extensive repairs they may require.

When ordering a new apparatus, it should include all the required ancillary equipment, which helps ensure this equipment also follows a regular replacement schedule. Further, it should remain fully equipped when the apparatus becomes a reserve unit. Whenever an apparatus is no longer in service, its ancillary equipment becomes stored as spare or liquidated.

It is becoming common in fire services to standardize fleet and ancillary equipment. By doing so, the department may realize savings in training hours and repairs as the variety of repair parts is lessened and reduces the time to train firefighters on its use. Additionally, the firefighters could operate any apparatus in the fleet if they have the same chassis and pump.

Ancillary equipment such as hoses, nozzles, chainsaws, circular saws, extrication tools, SCBA, ventilation fans, foam equipment, etc., could also be standardized. Again, this allows savings in repairs and time required for training.

For the most part, the EFD is well-equipped with pumper trucks, rescues, and tankers. It also appears that there is a sufficient level of apparatus and equipment to meet the general needs of the Department. A good practice is the identification of replacement schedules in the capital forecast for the fire trucks.

FUS – Vehicle Replacement Recommendations

The *Medium-Sized Cities or Communities Where Risk is Significant* section (highlighted in blue) is the recommended schedule for vehicle replacement for a township the size of the Township of Essa. This schedule allows up to a 20-year replacement cycle, in which the fire vehicle can be a second-line response status. Due to the population density outlined in Table #8, when compared to the FUS recommended replacement schedule, EMG recommends that all first-line units be replaced by a new or younger apparatus when it reaches 20 years of age and, dependent on its condition and whether it is needed, become a spare for the next five years.

TABLE #8: FUS VEHICLE REPLACEMENT CHART[33]

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

[1] All listed fire apparatus 20 years of age and older are required to be service tested by a recognized testing agency on an annual basis to be eligible for grading recognition (NFPA 1071).

[2] Exceptions to age status may be considered in small to medium-sized communities and rural centres conditionally when the apparatus condition is acceptable, and the 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

[33] "Insurance Grading Recognition of Used or Rebuilt Fire Apparatus," Fire Underwriters Survey, Accessed August 25, 2023, https://www.fireunderwriters.ca/assets/img/FUS%20Technical%20Bulletin%20-%20Insurance%20Grading%20Recognition%20of%20Used%20or%20Rebuilt%20Fire%20Apparatus.pdf

Apparatus Age	Major Cities [3]	Medium Sized Cities [4] or Communities Where Risk is Significant	Small Communities [5] and Rural Centres

- a total population of 1,000 or greater.

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

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

FUS definition of first line, second line, and reserve is:

- First-line is the first fire truck utilized for response at the fire station.
- The second line is the next truck to use if the first line unit is at a call.
- Reserve is the vehicle kept in the fleet to be put into service if a first-line or second-line vehicle is out of service.

FUS assigns ratings, and reviewing population densities is part of the process. The Township's population densities based on the 2021 Statistics Canada data identify the following information outlined in Table #8.

TABLE #9: POPULATION DENSITY OF URBAN CENTRES OF THE TOWNSHIP OF ESSA

Township of Essa[34]		
Area	**Population**	**Population Density**
Township of Essa	22,970	82.1 / km²
Urban Areas		
Angus	12,046	1,066 / km²
Baxter	449	876 / km²
Thornton	2,084	952 / km²

While the Township's overall population density is less than 1,00 person / km², the EFD should reference the *Medium Sized Cities or Communities* column as a guide as the three urban areas are either just under 1,000 / km² densities or are over.

Insurance companies study FUS reviews before setting their insurance rates. Provided the department adheres to the recommended replacement timelines through an approved capital replacement schedule, it will retain its fire rating for vehicle replacement.

By replacing vehicles on schedule, the Township is demonstrating due diligence toward ensuring a dependable response fleet for EFD and the community it serves. This measure will keep the community's fire rating in good standing, which can also reflect on commercial and residential insurance rates.

Some fire services are no longer operating stand-alone rescue apparatus but instead using more versatile Pumper-Rescues or a smaller Rapid Response type of apparatus. A rapid response vehicle is similar in design to an urban interface wildland apparatus. Rapid response apparatus is versatile and cost-effective; some models can carry up to five firefighters. It is worth

[34] Profile table, Census Profile, 2021 Census of Population - Essa, Township (TP) [Census subdivision], Ontario (statcan.gc.ca), Accessed October 1, 2023, https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/details/page.cfm?Lang=E&SearchText=Essa&DGUIDlist=2021A00053543021&GENDERlist=1,2,3&STATISTICList=1,4&HEADERlist=0

considering that when it comes time to replace Rescue 2, the department does so with a Pumper-Rescue-Tanker with a water tank of at least 4,550 litres (1,000 imp. gallons) instead of a dedicated Rescue with no pump or water on board. Due to the lack of space in either fire station, a smaller rescue style is impractical.

It would be appropriate to liquidate the apparatus well before its end of life to ensure a better market value price. Funds acquired from the sale of the old truck can then be put towards the cost of a new apparatus. To be considered a tanker, an apparatus must have a tank capacity of 3,785 litres (1,000 US gallons).

NFPA – Vehicle Replacement Recommendations

The NFPA 1911 *Standard for Inspection, Maintenance, Testing, and Retirement of In-Service Automotive Fire Apparatus* is a standard that supports a regular replacement schedule of fire vehicle*s*. Like the FUS recommendations, this standard includes guidance on retirement criteria for fire apparatus. This standard recommends replacing all front-run vehicles on a 15- to 20-year cycle, depending on the community size. These replacement recommendations are for fire vehicles with pumps. Most communities refer to their municipality's vehicle replacement policies for general-purpose fire department vehicles.

Although no national standard legally mandates the replacement of emergency vehicles, remember that it is critical to replace these and other apparatus before they become unreliable. Delaying the replacement is inadvisable as it will add to the apparatus's overall maintenance costs and can adversely affect insurance costs based on the fire department's FUS rating.

EFD operates well-equipped pumpers, an aerial ladder, rescues, and tankers. There also appears to be enough support vehicles and equipment to meet the general needs of the Department. The Council of the Township of Essa has supported EFD and its apparatus needs. Replacement schedules are in the capital forecast for the fire trucks.

Concerning vehicle replacement and refurbishment, the industry standard for the design and replacement of vehicles is the NFPA 1901; in Canada, departments also use ULC S-515-12. EFD endeavours to meet these and other related NFPA standards for vehicle design, replacement, and refurbishing.

Further, it remains fully equipped when the apparatus becomes a reserve unit. Permanently removed apparatus could have its ancillary equipment replaced with other equipment or liquidated. Many fire services donate decommissioned apparatus equipment to First Nations fire departments or organizations for distribution to third-world countries. EFD has one spare fire apparatus available - a pumper. When replacing a tanker, it could remain an extra unit, but this would be difficult to achieve due to the lack of space to store it.

TABLE #10: LIST OF APPARATUS OPERATED BY EFD

Apparatus Identification	Type of Apparatus	Make	Year In Service	Pump Size Tank Size Foam Capacity	Cab /Chassis Style	Replacement Year
Pump 1	Pumper	Spartan/Crimson	2008	6,000 l/min (1,200 GPM) pump, 3,800 litres (1,000 US gallons) tank	Custom	2028
Pump 2	Pumper	Spartan/Smeal	2021	6,000 l/min (1,200 GPM) pump, 3,800 litres (1,000 US gallons) tank	Custom	2041
Pump 3	Pumper	Freightliner/American Lafrance	2001	5,000 l/min (1,050 GPM) pump, 3,800 litres (1,000 US gallons) tank	Conventional	2026
Ladder 4	Ladder (23 m/75 feet)	Pierce	2011	6,000 l/min (1,200 GPM) pump, 1,900 litres (500 US gallons) tank	Custom	2036
Rescue 1	Pumper - Rescue	Spartan/Dependable	2016	6,000 l/min (1,200 GPM) pump, 3,800 litres (1,000 US gallons) tank	Custom	2036
Rescue 2	Rescue	HME	2019	N/A	Custom	2039
Tank 1	Pumper - Tanker	Amthor/International	2012	2,000 l/min (500 GPM) pump, 7,600 litres (2,000 US gallons) tank	Conventional	2032

Apparatus Identification	Type of Apparatus	Make	Year In Service	Pump Size Tank Size Foam Capacity	Cab /Chassis Style	Replacement Year
Tank 2	Pumper - Tanker	Freightliner/Dependable	2014	4,000 l/min (840 GPM) pump, 13,638 litres (3,000 imp. gallons) tank	Conventional	2034
Tank 3	Pumper- - Tanker	Kentworth/HME	2020	2,000 l/min (500 GPM) pump, 7,600 litres (2,000 US gallons) tank	Conventional	2040
Utility 1	F350 Pick-up	Ford	2019	189 l/min (50 GPM), 90 litres (200 gallons) tank	Conventional	2034
Utility 2	1,500 Pick-up	Dodge	2019	Medical Equipment	Conventional	2034
ETV 1	UTV	Kubota	2022	189 l/min (50 GPM High-pressure), 90 litres (200 gallons) tank	Off-Road	No designated timeline
Car 1	Pick-up	Chev Silverado	2022	N/A	Conventional	2037
Car 2	Pick-up	Chev Silverado	2022	N/A	Conventional	2037

While drawing the specifications of a new apparatus, an Apparatus Committee (the Committee) should be organized, including establishing its Terms of Reference. Members of the Committee should include the Deputy Chief, the District Chief of the stations receiving the new apparatus, a captain, and firefighters who may have a vested interest in the specifications. By having a committee, all aspects of the specifications will be considered, including the purpose and function of the apparatus, the power plant, pump size, compartment sizes, ancillary equipment, hose loads, chassis safety features including airbags, and health and safety concerns such as clean cab technologies and enhanced chassis stabilization to lessen the risk of a rollover.

4.4.2 Multi-Purpose Unit

EFD does not have a dedicated Command Centre for use at fire scenes as a command post. The Department should review the value of obtaining a multi-purpose unit that could incorporate the following functions:

- Command Centre
- Air bottle refilling
- Scene lighting on a large scale
- Firefighter decontamination
- Firefighter rest and rehabilitation (rest inside or outdoors)

The apparatus should include an exterior decontamination shower, internal showers, hand washing, microwave, kitchenette, hot/cold running water, washroom, seating, A/C, onboard generator, air compressor for refilling SCBA bottles, and spare air bottles for SCBA.

This FMP addresses firefighter wellness and how having a rehabilitation zone must be considered at fire scenes. Fighting fires may be very taxing on the health of firefighters, and a physical break at the location is warranted. Most rehab units have air conditioning, heaters, showers, washroom facilities, and a sink to wash their hands before ingesting fluids or food. Removal of the firefighter's bunker gear aids in preventing the absorption of chemicals and the by-products of combustion. During the hot summer season, the core of a firefighter's body needs to cool down to prevent illnesses such as heat exhaustion or heat stroke.

An onboard generator would need the capacity to power the offices, elevated lighting system, air compressor, air conditioning/heating, and refrigeration.

Should EFD choose, in the future, to invest in acquiring a multi-purpose vehicle that will fill the role of multiple vehicles in one unit, it could be offered to other fire services to use during significant events for a fee. Since it is a specialized piece of equipment and the requesting

department would not have something similar, it would not fall under mutual aid as the requesting department could not reciprocate.

Not many fire services have an air, light, and command apparatus, nor do they have a proper rehab vehicle. This vehicle would be a significant asset to the County of Simcoe Fire Services.

As a potential method of saving funds on the cost of the rehab unit, the Department might be able to repurpose the chassis from a pumper or tanker (provided the wheelbase is sufficient), or review opportunities of purchasing a used conventional chassis with a wheelbase and gross vehicle weight ratio to accommodate the associated compartments, generator, air bottle refill station, etc.

A viable means of paying for the unit is a joint purchase with other fire services in the immediate area. Due to its infrequent need and initial cost, this would be a great way to show the purchasing power of multiple agencies going in on one purchase and reduce the financial exposure to the taxpayers of each municipality.

4.4.3 Damage of Salt Brine

Municipalities use salt brine on the roads in the winter to reduce the adhesion of snow and ice to road surfaces. This mixture causes significant damage to the fire apparatus, advancing rust of the vehicle's body. Once the frame rail of the apparatus's chassis begins eroding, it may eventually split, creating costly repairs, and sometimes making the vehicle un-roadworthy. EFD should spray the body with an anti-rusting agent annually to slow the rusting process and reduce the repair costs associated with this issue.

At the same time, clean electrical connections on the pump panel and apply corrosion inhibitor.

4.5 Equipment and Maintenance

During the review, a program was in place for small equipment testing and evaluation. All equipment, such as ladders, breathing apparatus, small engines, ropes, and hoses, are tested annually, or based on manufacturers' recommendations.

- NFPA 1932 Standard identifies the type and frequency of testing for ground ladders.
- NFPA 1983 outlines the testing process for life safety rope.
- NFPA 1914 outlines testing for aerial devices.
- The *Health and Safety Act* Section 21 guidance notes indicate that all equipment used by workers must be in good condition.

EFD does an excellent job of ensuring that testing, inspections, and maintenance are carried out for the safety of personnel while ensuring the equipment is in a state of readiness through scheduled crew checks of the vehicles.

Tracking the completion of annual testing in the asset management program should be a fire department's priority to ensure equipment functionality for the front lines. Tracking allows the fire department to confirm that apparatus and equipment testing schedules get completed while minimizing the unavailability of frontline apparatus.

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*.

Foam Concentrate

An essential tool in fighting fires that involve alcohol-based products is foam. Foam develops a covering layer over the burning product and assists in smothering the flames. The Federal Government recently banned forever chemicals in foam concentrate, such as fluorinated aqueous film foams, to suppress flammable liquid-type fires to fluorine-free foams. The reason for this is that the forever chemicals are carcinogens. EFD must ensure none of its foam concentrates contain these forever chemicals. EFD lacks a cache of spare foam in each station, as all the pails are on the trucks. The department should be a member of the local co-op of fire departments with access to the foam stored at Clearview Fire and Emergency Services.

Respiratory Program

While EFD has SOGs concerning SCBA and FIT testing, it lacks a dedicated Respiratory Protection Program compliant with Section 21, Guidance Note 4-9, Respiratory Protection Program. The SCBA is in good condition and was replaced in 2015 and is using Scott™ AP 75 units. Consider interoperability with fire service partners while procuring new SCBA, such as neighbouring fire services (each firefighter is assigned a face mask). This practice ensures a more hygienic and proper fit.

FIT testing is performed per the regulations by a Springwater Fire & Emergency Services member for a fee. From a cost and liability viewpoint, contracting this requirement is a wise decision for EFD.

When developing a Respiratory Program, consider including the following:

- Mention that bi-annual FIT testing is mandatory, and failing to complete it will prevent the firefighter from wearing respiratory equipment until completion of the test.

- Include the requirement for air sampling of each compressor every six months, posting the results on the side of each compressor, and inserting them into the respiratory program document.
- Include an inventory list of all SCBA, all air bottles (including those on the cascade systems), their hydrostatic test dates and retirement dates, a list of all SCBA masks with an identification number, who they are assigned to.
- SCBA requires annual bench testing, and these records should also be in the document.
- Include a record of when the air in every SCBA bottle is changed, which must occur every three months. Compressed air becomes stale over time.
- Include only respirators in service with EFD in the document.
- Reference NFPA 1852, *Standard of Selection, Care and Maintenance of Open Circuit Self-Contained Breathing Apparatus (SCBA), 2019 Edition*.
- Record keeping is paramount when performing any repairs to the SCBA; this should be done in compliance with NFPA 1852 and should identify the individual who maintains it.
- A few firefighters at each station with a cascade system should be responsible for documenting FIT testing, air monitoring, and air changes.
- The document needs to reference CAN/CSA Z94.4-18.
- The document should reference the new CSA Z-94.4.1:21 *Standard for Filtering Respirators in Canada.*[35]
    - This standard mirrors NIOSH requirements and addresses specific needs that arose during COVID-19.
    - It excluded gas/vapour and CBRN filtering respirators, such as:[36]
        - SCBA
        - Gas masks
        - Chemical cartridge respirators
        - Special use respirators

[35] CSA Z94.4.1:21, Performance of filtering respirators". CSA Group, Accessed August 27, 2023, https://www.csagroup.org/store/product/2429470/

[36] Burtney, Matt. "What's a CA-N95? Understanding the new CSA Z94.4.1:21 standard for respirators in Canada." Levitt-Safety. Accessed August 27, 2023, https://www.levitt-safety.com/blog/can95-respirator

- Closed-circuit escape respirators

4.5.1 Asset Management Program

Fire Administration has an established asset management program and a master equipment life-cycle plan to ensure that equipment replacement is occurring where applicable. It is a common practice to tie this equipment to the parent apparatus. EFD, like many other departments dispatched by BFES, uses the FIREHOUSE® record management program with an asset management section.

Many pieces of equipment have a predetermined life span as established in the NFPA Standards and/or the OH&S Sections 21 Guidance Notes. When it comes to an end-of-life span, the items must be decommissioned, replaced with new, and then disposed of to ensure any other outside interests could not use them for liability reasons. The asset management program should operate to trigger notifications when an item is approaching the end-of-life span, and plans should be in place for replacement (i.e., identified in the budget). Some systems do not notify the department when maintenance or testing is required.

4.6 Water Supply

4.6.1 Hydrants

The Township supplies water to the populated areas of Angus, Baxter, and Thornton and has installed approximately 476 fire hydrants. There are 13 private hydrants, several cisterns, and many dry hydrants, some of which become wet hydrants with the flip of a switch. EFD must include checking any private hydrants on-site during fire inspections to ensure they are operational.

All fire hydrants should be inspected and tested as required in Articles 6.6.5.2. through 6.6.5.7. of Ontario Regulation 213/07 of the *Ontario Fire Code.*[37] NFPA 24, *Standard for the Installation of Private Fire Service Mains Their Appurtenances,* and NFPA 291, *Recommended Practises of Fire Flow Testing and Marking of Hydrants,* are followed. The Township should ensure hydrants are flushed at least every other year and correctly identified per their flow rate. The failure of a hydrant to operate as required may present catastrophic results and expose the Township to the risk of litigation.

[37] "O. Reg. 213/07: Fire Code." King's Printer for Ontario. Accessed August 26, 2023, https://www.ontario.ca/laws/regulation/070213

The Township operates nine water reservoirs, all inground. The minimum water main size permitted in the Township of Essa is 150 mm (6 inches). Water comes via one of the five wells, the Nottawasaga River, or the Collingwood to New Tecumseth water line.

When a fire hydrant is out of service, the Ontario Clean Water Agency (OCWA) must complete repairs expeditiously, notifying the fire department of the disruption, and indicate the anticipated time to complete the required repairs.

During winter, some hydrants will have markers installed for ease of location amongst snowbanks. Having reflectors installed on the 65 mm ports, that match the colour-code of the flow rate, would aid firefighters in locating the hydrant year-round.

Couplings and Hose

Modern fire hydrants have three ports for attaching a fire hose when required. The two ports on the side are 65 mm (2.5 inches) in diameter, and the large steamer port on the front may vary from 100 mm to 150 mm (4 inches to 6 inches). Usually, the large steamer port has threads on it, in which fire services attach large diameter water supply hoses ranging in size from 100 mm to 150 mm. The water supply hoses do not have threads but Storz couplings or lug locks to attach the hoses. Attaching a hose with these couplings to a hydrant requires the fire service to use an adaptor to allow the hose to be connected.

Many municipalities, including the Township of Essa, are now ordering new or replacement fire hydrants with Storz couplings on the large steamer ports, eliminating the need for an adaptor. If an adaptor is unavailable on the hydrants, the firefighters cannot attach the hose to the steamer port and may have to find a smaller adaptor and connect it to the 65 mm (2.5 inches) port.

It should be the Township's policy that any new hydrant installations include steamer ports and have the Storz connection on them. The Township should explore upgrading the older hydrants with threads on the steamer port to having Storz lugs. This Township can achieve this change by installing an adaptor onto the steamer port with Storz lugs at a fraction of the cost of replacing an entire hydrant, which would be cost-prohibitive and outweigh the benefits. Rather than changing all the ports in one year, prioritize zones according to level of risks. Schedule this program over a five-to-seven-year time frame to control the costs.

4.6.2 Superior Tanker Shuttle Accreditation

Many fire services have attained their Superior Tanker Shuttle Accreditation. In doing so, Fire Protection Survey Services (FPPS) reduces insurance rates within the community, representing small savings to the residents. The Accreditation demonstrates that the fire department can

aggressively attack rural fires, maintaining a consistently large volume of water flow in areas without fire hydrants. Part of the process is ensuring tankers have adequate, nearby locations to refill using regular hydrants, dry hydrants, cisterns, streams, or the lake (preferably with a dry hydrant).

Achievement of this accreditation is the equivalent of having hydrants for water supply. EFD's fire stations achieved this milestone (which is noteworthy to begin with) and they recertified in August of 2023, which is in effect until 2028. To EFD's credit, they achieved their Superior Tanker Shuttle Accreditation by providing a constant water flow of 1,909 litres/minute (420 imperial gallons per minute). In 2028, EFD should begin preparation for its re-certification that year.

The EFD should reference NFPA 1231, *Standard on Water Supplies for Suburban and Rural Fire Fighting,* to see what enhancements they can achieve in their operations.

Section 4: Recommendations

Rec #	Recommendation	Suggested Implementation Timeline	Estimated Cost	Rationale
21	The Township of Essa, include in their 2024 budget deliberations, funds to build a new Fire Station 2.	Short term (1 to 3 years)	$8 to $9.5 million.	Station 2 is at the end of its life span. Several amenities lacking in the present station would be advantageous to have, including some to address the risk of contracting cancer. Further delays will reflect in higher construction costs.
22	Develop a Respiratory Program.	Short-term (1 - 3 years) ongoing	Staff time	This program is an industry standard and best practice. It also aids in ensuring the health and safety of firefighters when wearing respiratory protection devices.

Rec #	Recommendation	Suggested Implementation Timeline	Estimated Cost	Rationale
23	Inspect all fire hydrants and test as required in Section 6.6 of the *Ontario Fire Code* and NFPA 291, *Recommended Practises of Fire Flow Testing and Marking of Hydrants*. Further, EFD should works with the Water Department to convert the steamer ports to Storz couplings and make Storz connections the new standard for hydrants in the Township.	Short-term (1 to 3 years)	Staff time and costs	This ensures compliance with the Ontario Fire Code. The conversion of the hydrants from threaded steamer ports to Storz lugs need not be completed in one year. This retrofit could be managed over several years.

SECTION 5

Emergency Management

SECTION 5: EMERGENCY MANAGEMENT

5.1 An Emergency Planning Overview

Disaster planning in Ontario is well-rooted in the varied experiences of the many communities throughout this province that have endured disaster after disaster over the last several decades. Yet, despite the havoc that these events created, these same communities have continued to thrive and grow. In the face of the ever-looming and all-present threat of adversity, community resilience and recovery can be directly tied to one critical element – planning.

Ontario has had robust legislation in place for more than three decades concerning the level of emergency preparedness communities must undertake to prepare for natural and man-made disasters such as severe weather, train derailments, and so on. The *Emergency Management and Civil Protection Act (EMCPA)* is currently the foundational legislative component mandating emergency preparedness programming in all Ontario communities.

Emergency Management in Ontario reflects the five equal and overlapping components of sound emergency planning – prevention, mitigation, preparedness, response, and recovery[38].

These five components form the basis of community safety in terms of disaster resilience. The Province of Ontario has provided a solid framework for communities – large and small alike – to scale their individual programming to the needs of their stakeholders with the guidance of Emergency Management Ontario. In addition to the *Act*, Ontario Regulation 380/4 made under the *Act*, sets out further clarifying requirements for various stakeholders.

The following is an overview of the *EMCPA* and its implications for municipalities[39]:

[38] "A Safe, Practiced and Prepared Ontario, Provincial Emergency Management Strategy and Action Plan". Emergency Management Ontario. February 2, 2024, https://files.ontario.ca/tbs-pemsap-a-safe-and-prepared-ontario-report-en-2023-02-03.pdf.

[39] "Emergency Management and Civil Protection Act, EMPCA, R.S.O. 1990, c. E. 9". King's Printer for Ontario. Accessed January 26, 2024. https://www.ontario.ca/laws/statute/90e09.

- Purpose and Scope: The *EMCPA* aims to enhance public safety and protect property during emergencies or disasters. It establishes a framework for coordinating emergency management efforts across the province, ensuring a consistent and coordinated approach to emergency response.
- Emergency Management Structure: The *Act* establishes the Provincial Emergency Management Organization (EMO) as the coordinating body responsible for emergency management in Ontario. It provides oversight, guidance, and support to municipalities during emergencies.
- Municipal Emergency Management: Municipalities in Ontario are required to develop and implement emergency management programs in accordance with the *EMCPA*. These programs should include comprehensive emergency plans, identification of emergency management coordinators, and provision for public education and awareness.
- Municipal Emergency Plans: Municipalities must create emergency plans that outline strategies and procedures for responding to various types of emergencies. These plans should address preparedness, mitigation, response, and recovery efforts. The plans must be reviewed, tested, and updated regularly to ensure their effectiveness.
- Emergency Declarations: The *Act* empowers the Premier of Ontario, the Lieutenant Governor, or a municipal head to declare an emergency if they believe it is necessary to protect public safety or property. Emergency declarations trigger the implementation of emergency response measures and the activation of emergency operations centers.
- Municipal Emergency Operations Centers (EOCs): Municipalities are required to establish and maintain EOCs to coordinate emergency response activities within their jurisdiction. EOCs serve as central command centers where key personnel from various agencies can work together to manage and coordinate resources during emergencies.
- Emergency Powers: The *EMCPA* grants municipalities certain emergency powers, allowing them to take actions necessary for public safety and the protection of property during emergencies. These powers include the authority to control or limit access to certain areas, evacuate residents, and procure resources.
- Provincial Support and Assistance: The EMO provides municipalities with guidance, training, and resources to enhance their emergency management capabilities. It may also provide financial assistance for emergency response and recovery efforts, subject to certain conditions and criteria.
- Accountability and Reporting: Municipalities are required to report to the EMO on their emergency management activities, including updates on emergency plans, training, exercises, and actual emergency responses. This ensures transparency, accountability, and the sharing of best practices.

Under the *Act*, municipalities are required to conduct and report on several mandatory program elements on an annual basis. These program elements ensure municipalities are actively engaged in emergency management and preparedness efforts. The specific mandatory program elements include:

- Emergency Management Program Review: Municipalities must conduct an annual review of their emergency management program. This review involves assessing the effectiveness of the program, identifying any gaps or areas for improvement, and updating the program as necessary.
- Emergency Plan Review: Municipalities must review their emergency plans annually. This review includes evaluating the plan's contents, procedures, and strategies for different types of emergencies. Any required updates or revisions to the emergency plan should be made based on the findings of the review.
- Training and Exercise Program: Municipalities are required to maintain an ongoing training and exercise program. This program ensures that emergency management personnel and relevant stakeholders receive appropriate training and that emergency response capabilities are regularly tested and evaluated. The municipality must report on the training and exercises conducted during the year.
- Public Education and Awareness: Municipalities are responsible for educating and raising awareness among the public about emergency preparedness. This includes disseminating information on emergency plans, procedures, and safety measures through various channels. Municipalities must report on their public education and awareness initiatives undertaken throughout the year.
- Emergency Management Resources: Municipalities must maintain an inventory of emergency management resources available within their jurisdiction. This includes identifying and cataloging resources such as emergency response equipment, facilities, and supplies. The municipality must report on the status and availability of these resources.
- Emergency Management Coordinator Designation: Each municipality is required to designate a CEMC. The CEMC is responsible for overseeing the municipality's emergency management activities and acting as the primary contact for the EMO. The municipality must report on the designation and role of the CEMC.
- Incident Notification: Municipalities must notify the EMO of any significant or potential emergency within their jurisdiction. This requirement ensures that the EMO is aware of ongoing or potential emergencies and can provide necessary support and coordination. The municipality must report on incidents and notifications made during the year.
- Mutual Aid and Assistance: Municipalities are encouraged to participate in mutual aid agreements and arrangements with neighbouring municipalities or other organizations to

enhance their emergency response capabilities. The municipality must report on any mutual aid activities undertaken during the year.

These mandatory program elements ensure that municipalities maintain an active and effective emergency management program, are prepared to respond to emergencies, and regularly review and improve their plans and capabilities. Reporting on these elements allows for accountability, evaluation, and continuous improvement of emergency management efforts within Ontario municipalities.

5.2 Township of Essa – Emergency Planning Documents Current State

EMG has completed a thorough evaluation of the emergency planning program in place in the Township of Essa, including a review of the following documents:

- By-law 2022-59 (Emergency Management Program)
- By-law 2012-07 (Mutual Aid including DND)
- the emergency plan developed for the community
- the "Hazard Identification and Risk Analysis" (HIRA) document
- the Critical Infrastructure Inventory" (CII)
- the "annual compliance" submission for each of the past five years
- the response from the Ministry to these submissions
- training activities conducted, including annual exercises
- the ongoing supporting activities being undertaken by Township staff.

The Fire Chief is designated as the CEMC, and the Deputy Chief is designated as the Alternate CEMC. Together, they form part of the community's program committee responsible for directing the community's emergency planning efforts. Other program committee members include the Mayor, the CAO, the managers of Public Works, Planning and Development, Legislative Services/Clerk, Parks and Recreation, the Treasurer, a representative of the Ontario Provincial Police, and the CAO's Administrative Assistant.

Currently, the committee meets on an ad-hoc basis, usually once a year. EMG recommends that these meetings be more frequent (at least twice annually), and that the committee establish a formal work plan to ensure that the annual compliance requirements of the legislation are fulfilled.

Annual compliance with the legislation includes the necessity of exercising the Township's emergency plan, and the Township of Essa has done so by conducting the following training exercises:

- 2018 – Tabletop exercise focused on a snowstorm/blizzard event.

- 2019 – Tabletop exercise focused on IMS documentation, note-taking, and communications.
- 2020 - Exemption due to pandemic emergency-related activities.
- 2021 - Tabletop exercise focused on continuing pandemic-related issues.
- 2022 – Tabletop exercise focused on a rail-related emergency.

Typically, the compliance exercises have been facilitated by a third party, and EMG understands this arrangement works to the expectations of the Township.

Importantly, Emergency Management Ontario has acknowledged that the program being conducted here meets all the requirements of the *Act*, so EMG extends our compliments to all staff involved in the ongoing emergency planning activities for completing their duties while balancing heavy workloads in their primary roles in the community.

5.3 Actual Incidents and Looming Threat Profile

Looking to the past for examples of actual disasters that have been declared as emergencies within the Township, the recent COVID-19 Pandemic in 2020 and the tornado of June 2014 figure prominently in the Township's history.

In 2014, approximately 100 homes were damaged or destroyed by a tornado, leaving 300 people without a home to return to after the E1 tornado struck on the afternoon of June 18, 2014.[40]

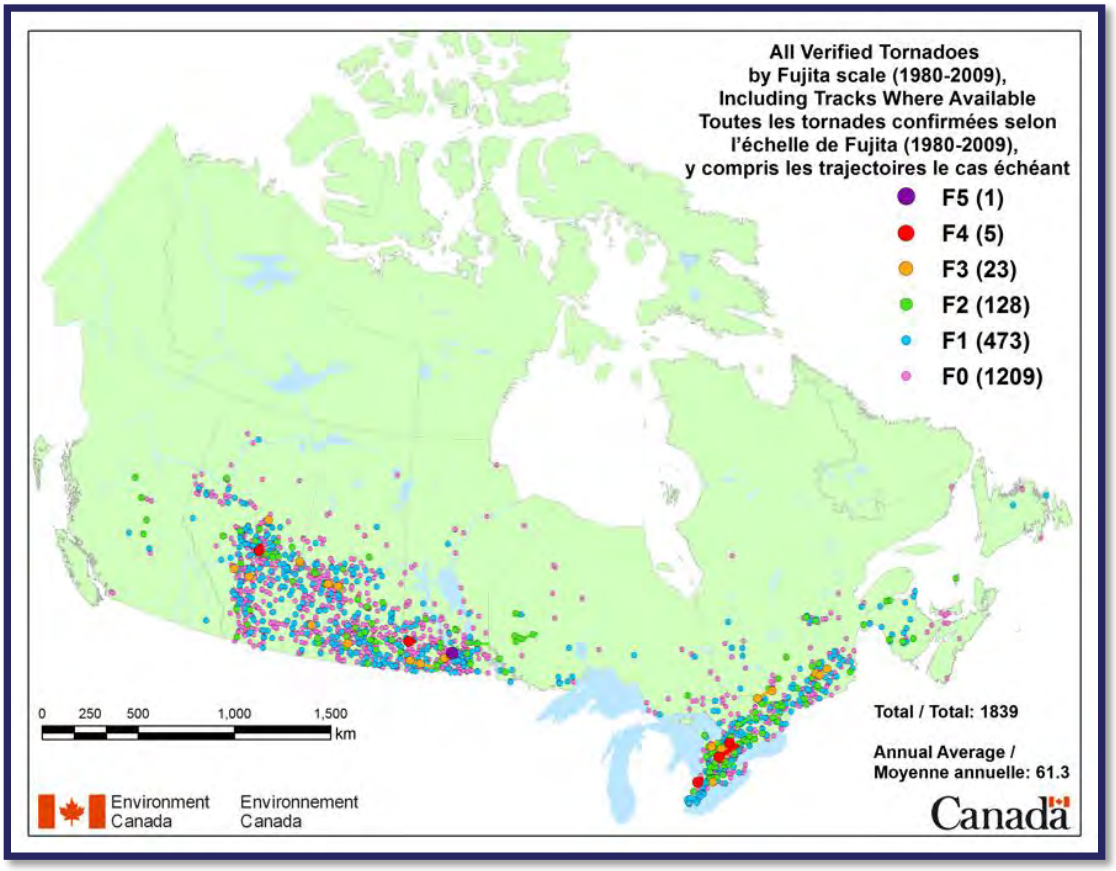
Aftermath of the 2014 tornado

[40] Nursall, Kim. "Tornado damages 100 homes in Essa Township, thousands still without power". Toronto Star. Accessed August 8, 2023. https://www.thestar.com/news/gta/tornado-damages-100-homes-in-essa-township-thousands-still-without-power/article_2107add3-a69a-51bf-8318-5f205608cc3b.html

According to media reports, there were no injuries, and the neighbourhood that bore the brunt of the storm's intensity has since recovered.

Central Ontario has long been in an area referred to as a "Tornado Alley," as reflected in the following illustration. A tornado remains prominent among the top eight risks facing the Township.

FIGURE #22: ENVIRONMENT CANADA'S ILLUSTRATION OF TORNADO ALLEY



While tornadoes in Ontario might not be as frequent or intense as those in well-known tornado-prone areas like Tornado Alley in the United States, they can still have economic impacts. The extent of these impacts depends on various factors, including the intensity of the tornado, the areas it affects, and the vulnerability of the infrastructure and communities. Tornadoes can cause damage to buildings, vehicles, crops, and other property. They can disrupt transportation and power infrastructure, leading to business interruptions and economic losses.

In terms of frequency, fires present a significant threat to the community. While these cause less widespread damage due in part to the efficiency of Essa's fire service, they present an ongoing risk to the community.

$6 million fire that occurred in the Township

The Critical Infrastructure Inventory and Hazard Identification and Risk Assessment documents that are required under the *Act* have been reviewed for completeness by the CEMCs and program committee on several occasions, and these continue to reflect the risk profile accurately. Reference should be made to the CRA recently completed for a slightly broader perspective of risks to the community.

Illustration of other risks to the Community

5.4 Large-Scale Incidents - The 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 on 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 for a common purpose to improve resource and interagency communications. In the Province of Ontario, the ICS is known as the Incident Management System (IMS), and it has been adopted

as the management system to be utilized during emergencies in accordance with Emergency Management Ontario guidelines.

During some emergencies, there is a likelihood of the IMS being expanded into a Unified Command. The type of incident, complexity, and location of an incident may require a Unified Command structure. The Unified Command "is a management structure that brings together the 'Incident Commanders' of all major agencies and organizations involved in the incident to coordinate an effective response while at the same time carrying out their own jurisdictional or functional responsibilities."[41]

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

A prominent multi-agency emergency response that illustrates the importance of the IMS occurred on May 1, 2016, when a wildfire seven kilometers outside of Fort McMurray grew and became the worst wildfire incident in Canadian history, with losses and economic impacts to the community of close to $9 billion[42].

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

[42] "A look back: 5 years after the Fort McMurray wildfire". CTV News, Accessed January 26, 2024, https://edmonton.ctvnews.ca/a-look-back-5-years-after-the-fort-mcmurray-wildfire-1.5411861

2016 Fort McMurray Wildfire Incident

There are four different levels of Incident Management training prescribed by Emergency Management Ontario:

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

Many emergency incidents are managed routinely within the Township without activating the EOC. It should be noted that the EOC is activated only when an event is expected to expand in complexity and duration, requiring efficient coordination among departments or responding agencies.

5.5 Emergency Planning Training and Exercises

Being an active participant in an EOC activation and utilizing the IMS are skills that need to be exercised regularly. Several training options are identified as follows to assist the municipality to plan and exercise an emergency plan activation annually.

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

Discussion-Based Exercise**:** In Discussion-Based Exercises, the primary intent is to have dialogue regarding the emergency plan, procedures, by-laws, and any policies that could impact an emergency. The discussion sessions are low-key, low-pressure, and are a great tool for familiarization with plans, procedures, by-laws, and policies. The secondary intent of discussion-based exercises is to build confidence through familiarization amongst team players in the application of the plan. These discussion-based exercises are great tools to facilitate the learning process for the staff designated as alternates expected to fill a role in the EOC. Discussion-based training is a great way to orient new or existing staff who have not had a real opportunity to familiarize themselves with the emergency plan or organizational plans, by-laws, procedures, and policies.

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

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

> Drills – These are exercises that are intended to evaluate a specific operation. For example, the fire department, along with the paramedic service, may conduct a drill on a carbon monoxide leak in a long-term care home.

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

Full-scale Exercises: A complex exercise that tests multiple agencies in a single scenario at multiple sites. These exercises are in real-time, highly realistic, and usually stressful for agency personnel participating in the exercise. A full-scale exercise can take from 6-10 months to prepare for and require a significant investment in resources and funds. Several facilitators are required to ensure safety and compliance with the storyline of the exercise. A full-scale exercise is developed with clear objectives to test multiple agencies. Upon completion of the exercise, a hot wash is conducted, which is a formal discussion of the involved agency's performance during the exercise. An After-Action Report and a formal Improvement Plan that identifies actions required to address and improve performance are prepared and distributed.

Though functional and full-scale exercises require more detailed planning and are staff-intensive, EMG recommends that the Township of Essa move to this next level of exercise as a logical "next step" in local program development. EMG notes that the Township does not have a dedicated budget line for Emergency Planning and recommends establishing a modest but dedicated budget.

5.6 The Impact of Climate and Land Use

There can be little doubt regarding the impact of climate on the world around us as we watch mainstream news reports about heat events throughout different parts of the world in the summer (flooding, drought, and wildfires) and in the winter (polar vortexes, torrential rain, increased hurricane activity and severity). It is easy for the onslaught of this news to numb our sensitivity to these issues here at home.

In terms of emergency planning, the community watchdogs need to monitor the weather every day; relative humidity and dewpoints are the waypoints for safeguarding local impacts. Open-air burning has long been regulated to some degree by the weather forecast. The early summer of 2023 saw fire bans in place for much of Central and Northern Ontario for a period that cannot be called "normal". Exceedingly dry conditions throughout June and July finally gave way to some moderating influences in August, but the weather was not normal in the context of recent experience.

EMG believes that this trend is a cautionary tale of things to come. Daily proactive weather monitoring is now part of every emergency manager's routine, and program committees need to be more agile than ever to adapt to changes that occur around us in real-time.

The recent wildfires that ravaged a small community in Hawaii also illustrate the impact that changing land use can have on a community.

Images from the Maui wildfires, August 2023

Early indications point to the discontinued use of hundreds of hectares of land, formerly active for agricultural use, that have been left to "naturalize," creating a wildland-urban interface left to grow fallow as one of the more significant contributing factors to this incident.

5.7 Future Considerations

Though not a formal recommendation for changes respecting the work being undertaken currently, EMG offers the following point for consideration as the community continues to grow and flourish.

Program Development and Diversification - The Fire Department currently has carriage of the bulk of the duties ascribed to the municipality under the *Emergency Measures Protection Act.* The Fire Chief currently serves as the CEMC, and the Deputy Fire Chief is currently designated at the Alternate CEMC. Their expertise in command and control of emergencies is finely tuned and honed continually by virtue of their response to all manner of "small" emergencies within the Township and their intimate involvement with their mutual aid partners in the fire sector. This same direct involvement, however, means that they will be among the first to respond to any larger emergency that might fall under the definition of a community emergency, such as a train derailment.

When this occurs, it will be extremely difficult to extricate themselves from the direct mitigation duties associated with that particular response and fall back to their role as CEMC within the emergency control group. Additionally, individuals gain experience and expertise in a role by performing it. Therefore, it may be advantageous for the Township to consider appointing another senior staff member as the CEMC. Rotating this position also serves to develop staff individually and create a more extensive roster of trained persons who can step into this role when the need arises, thereby creating redundancies which can prove advantageous in the long-term.

Section 5: Recommendations

Rec #	Recommendation	Suggested Timeline	Estimated Cost	Rationale
24	Establish a budget line specifically for "Community Emergency Planning Initiatives" within the annual operating budget.	Short-term (1 to 3 years)	To be determined.	To allow broader community education efforts and establish a funding pool for exercise design and implementation.

SECTION 6

Mutual Aid, Automatic Aid & Fire Service Agreements

SECTION 6: MUTUAL AID, AUTOMATIC AID, & FIRE SERVICE AGREEMENTS

6.1 Mutual Aid Plan & Fire Service Agreements

In fire and emergency services, mutual aid is an agreement among emergency responders to lend assistance across jurisdictional boundaries. This response typically occurs due to an emergency that exceeds local resources, such as a disaster or a multiple-alarm fire. Mutual aid may be an unplanned request when such an emergency occurs. It may also be a continuous formal standing agreement or cooperative emergency agreement that ensures resources are dispatched from the nearest fire station, regardless of which side of the jurisdictional boundary the incident is on. Agreements that send the closest resources are regularly called *automatic aid agreements*.

Mutual aid, automatic aid, and fire protection agreements are programs used to:

- Support a community's fire department at times when local resources are exhausted.
- Offer quicker response coverage to areas closer to a bordering fire department's response area than the host department.
- Create an automatic response by bordering fire departments to properties closer to their fire stations than the host fire department.
- Mutual aid is intended to be reciprocal and not meant to supplement shortages in day-to-day operations.

An automatic and mutual aid plan and program provides the framework by which assistance can be legally provided by all parties identified within the plan. The Township of Essa is a member fire department of the County Simcoe Automatic and Mutual Aid Plan and Program. It has entered into various service agreements with the following partners:

- By-law No. 2003-66 – Automatic Aid Agreement with the Town of New Tecumseth to provide fire services into the Township of Essa.
- By-law No. 2004-24 – Automatic Aid Agreement with the Township of Essa providing fire services into the Township of Springwater.
- By-law No. 2006-31 - By-law permits the Essa Fire Department to be a member department of the County of Simcoe Automatic and Mutual Aid Plan and Program.
- By-law No. 2012-07 – Mutual Aid Agreement between Canadian Forces Base Borden to

reciprocate fire services with the Township of Essa.

It is best practice to review all Automatic Aid and Response Agreements annually to ensure they remain current and are adjusted accordingly to meet the ever-changing needs of the municipality.

6.2 Mutual Aid

The Provincial Automatic and Mutual Aid Plans and Program is a borderless and reciprocal agreement allowing fire departments to assist other fire departments who have overstretched their local resources in dealing with emergencies. Under this plan, assistance is at no direct cost to the department requesting the assistance. Section 7 of the *FPPA*, 1997, S.O. 1997, c. 4 provides the authority for the Fire Marshal to appoint Fire Coordinators who establish and maintain the Mutual Aid Plan. The local Mutual Aid Plan has been established within the County of Simcoe and is known as the County of Simcoe Automatic and Mutual Aid Plan and Program. The Township of Essa's Council has approved EFD's participation in the Mutual Aid Plan and Program through By-law 2006-31. This by-law, while active, is 17 years old and needs to be reviewed and updated for Council's approval.

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

The intent behind a mutual aid agreement is that it be reciprocal. When one fire department calls upon a neighbouring fire department for tankers to assist at a large fire, the receiving department would have tankers available when their neighbour calls upon them for assistance. When a fire department requires a specialized piece of equipment that a neighbouring fire department has in service, such as an aerial device or marine vessel, but they do not have one, it should not be considered mutual aid as the request cannot be reciprocal. In these instances, having a response agreement between the two municipalities and their fire departments would be appropriate. Doing so will eliminate any delays in responding and will eliminate the need for any questions about its legitimacy.

During this review, EMG noted that EFD has positive working relationships with the other fire departments in the surrounding jurisdictions. As such, mutual aid and other required agreements, while still in force, need updating to ensure they meet the needs of the residents of the Township of Essa.

The County of Simcoe fire services are reviewing their existing Automatic and Mutual Aid Plan and Program. A draft document should be circulated in 2024 to the County Fire Chiefs for consideration. The Fire Chiefs should have this document finalized in Q-4 of 2023 or Q-1 of 2024.

6.3 Automatic Aid and Fire Protection Agreements

Automatic aid and fire protection agreements exist between fire departments and communities when time and resources are factors in responding to an emergency. These agreements often identify the personnel and equipment that will be dispatched automatically in certain conditions. These agreements usually identify the geographic areas where the responding resources provide fire protection.

These agreements are like the Mutual Aid Plan and Program but differ as there is an expectation that a call for service will occur regularly. The expected level of service provision is typically in these agreements. Some examples are strictly for structure fires, whereas others may be an all-encompassing service. The municipality's Council typically finalizes these written agreements through a by-law.

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

EMG has reviewed the numerous agreements and observed that while they are still in force, all require updating. The Council for the Town of Innisfil repealed their automatic aid agreement with the Township of Essa for fire protection in the Thornton area and vice-versa in the southern portion of the Township of Essa.

The effort to maintain these relationships benefits the citizens served, protects lives, homes, and infrastructure, and keeps firefighters safe. Each agreement should cover services each fire department provides in providing fire protection for areas of the other's municipality.

The standard review process seeks to identify considerations for improvements that support and strengthen the provision of fire protection services. That said, all parties generally achieve

greater clarity by following a standard template around wording and structure for the various agreements.

All agreements should state that matters of Fire Prevention and Public Education are the responsibility of the AHJ. In this instance, the contracts should define the AHJ as:

"AHJ means the municipality responsible for providing services to its residents."

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

Another benefit of the mutual training session is the identification of gaps in equipment, communications, or training before a real emergency. When the current agreements are revised and updated, a defined commitment includes that regular training will take place and designates the position accountable for completing this task. In addition, the agreements should lay out a commitment to ongoing meetings with senior fire department leadership. These mutual aid/automatic aid meetings allow fire chiefs and chief officers from the participating departments to discuss issues or gaps in response protocols and to identify a collaborative path forward that enhances fire protection for all participating agencies and communities.

6.4 Wildland Firefighting Agreement

The County of Simcoe owns 150 forest properties spanning 33,000 acres.[43] Unique to the County of Simcoe is a Wildland Firefighting Agreement between many municipalities, and the County of Simcoe is to be either a participating or host municipality. The difference is that hosting municipalities store a cache of wildland firefighting specialized equipment available to any of the participating partners. The deal includes the County putting a small amount of funds toward training firefighters in SP 103, a forest firefighting course. The closest cache of wildland firefighting equipment for EFD's use is in the Town of New Tecumseth.

[43] "Recreational Use – Forestry.", County of Simcoe. Accessed August 17, 2023, https://www.simcoe.ca/dpt/fbl/recreation

The County pays for responding fire departments to assist at a wildland fire in any forestry tract at the Ministry of Transportation rate for each apparatus. These rates are the same as paid for fire departments attending emergencies on any King's highway in the province.

Tree needles and other vegetation lying on the forest floor create a fast-burning fuel if ignited. Due to the many layers of vegetation and sediment, deep-seated burning may occur. With deep-seated burning, the fire exists below the surface, making it difficult to locate.

Some forests have unmapped trails and roadways that meander throughout the bush for miles. These conditions make navigating the forest difficult for firefighters, especially if smoke obscures their vision. A fire may burn for some time before it is discovered, and a poor road system and unmarked trails may hamper the firefighters' ability to get resources into the fire.

EFD should complete a pre-incident plan for each forest tract in their response zones, including trail maps. It would be a proactive move if CFB Borden provided some mapping of the significant forested portions of the Base. If the Base experienced a wildland fire in any of those areas, there is a good possibility they will require the assistance of EFD under the Mutual Aid Agreement they have in place.

Fortunately, many fire departments, like EFD, have acquired Utility Terrain Vehicles (UTVs) with fire fighting and patient transport capabilities. These units have tracks, not wheels, for better traction, making it a year-round apparatus. Another piece of technology that would greatly assist fire departments in observing the fire's location and progression is a drone. The aerial pictures would provide an all-encompassing vantage point for the Incident Commander to view firefighting operations and direct resources as required.

6.5 Special Operations Services

The cost of providing every technical rescue service and mitigation of HAZMAT incidents can be daunting to municipalities and their fire departments. The high administration, training, and equipment prices fail to collate with the times each discipline may be called upon during a year. It is challenging for firefighters to maintain their skill sets when they do not use them in actual incidents. Another problem is staff turnover. With the turnover of firefighters in volunteer departments being as high as it is, the department cannot meet the training needs to ensure competency in each discipline.

To EFD's advantage, BFES will respond to technical rescue and HAZMAT calls outside the City's boundary to assist other municipalities. BFES assesses a stand-by fee for each discipline, and the municipality chooses which ones they wish to have BFES respond to. The call types include:

- Low/high angle rescue

- Confined space rescue
- Trench rescue
- Ice/water rescue
- HAZMAT

When BFES responds, they will invoice the municipality for the total response cost, including staff time, apparatus, and disposable equipment. It is imperative that the municipality receiving this service have an inclusion in its Fees and Charges By-law that covers these call types and that they are at full cost recovery for services. In the Township of Essa's case, Fire Marquee Inc. would look after the cost recovery for EFD.

This MOU is for five years through By-law 2023-17. Utilizing this service from BFES is fiscally responsible on EFD's part. Even though EFD will no longer be a participant on the response side of the County of Simcoe's HAZMAT Response Program, the Program's training props remain available for EFD's use when certifying the firefighters to NFPA 1001, which requires certification to NFPA 472, *Standard of Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*.

Section 6: Recommendations

Rec #	Recommendation	Suggested Implementation Timeline	Estimated Costs	Rationale
25	EFD needs to review and update, as necessary, all response and automatic aid agreements annually.	Short-term (1 to 3 years)	Staff time	Maintaining an up-to-date agreement will ensure the communities receive fire service protection that meets current and future circumstances.
26	The EFD must review and prepare the Mutual Aid Participation By-law 2006-31 for the Council's Approval.	Short-term (1 to 3 years)	Staff time	By-laws and Agreements need reviewing and updating annually to ensure they are current and meet the community's needs.
27	Include in the Fees and Charges By-law responding to and mitigating technical rescues at full cost recovery.	Short-term (1 to 3 years)	Staff time	Including this charge in the by-law ensures that local taxpayers do not bear the cost of mitigating technical rescues, which can cost thousands of dollars.

SECTION 7

Finance, Budgeting, Fees, and Cost Recovery Mechanisms

SECTION 7: FINANCE, BUDGETING, FEES, & COST RECOVERY MECHANISMS

7.1 Finance

EMG reviewed several documents in preparation for reviewing finances related to the operation and function of the EFD. These documents included the BMA - Municipal Study 2022, the Nottawasaga Community Safety and Well-Being Plan 2021-2025, the Township of Essa Strategic Plan 2019-2022 (updated February 23, 2021), the Township of Essa 2020 Asset Management Plan, the Township of Essa 2023 Approved Budget (Operating and Capital), By-law 2020-59 and Set Fines, By-law 2023-01 with Schedule "A", By-law 2018-54, and various operating and capital budget documents that were made available for review.

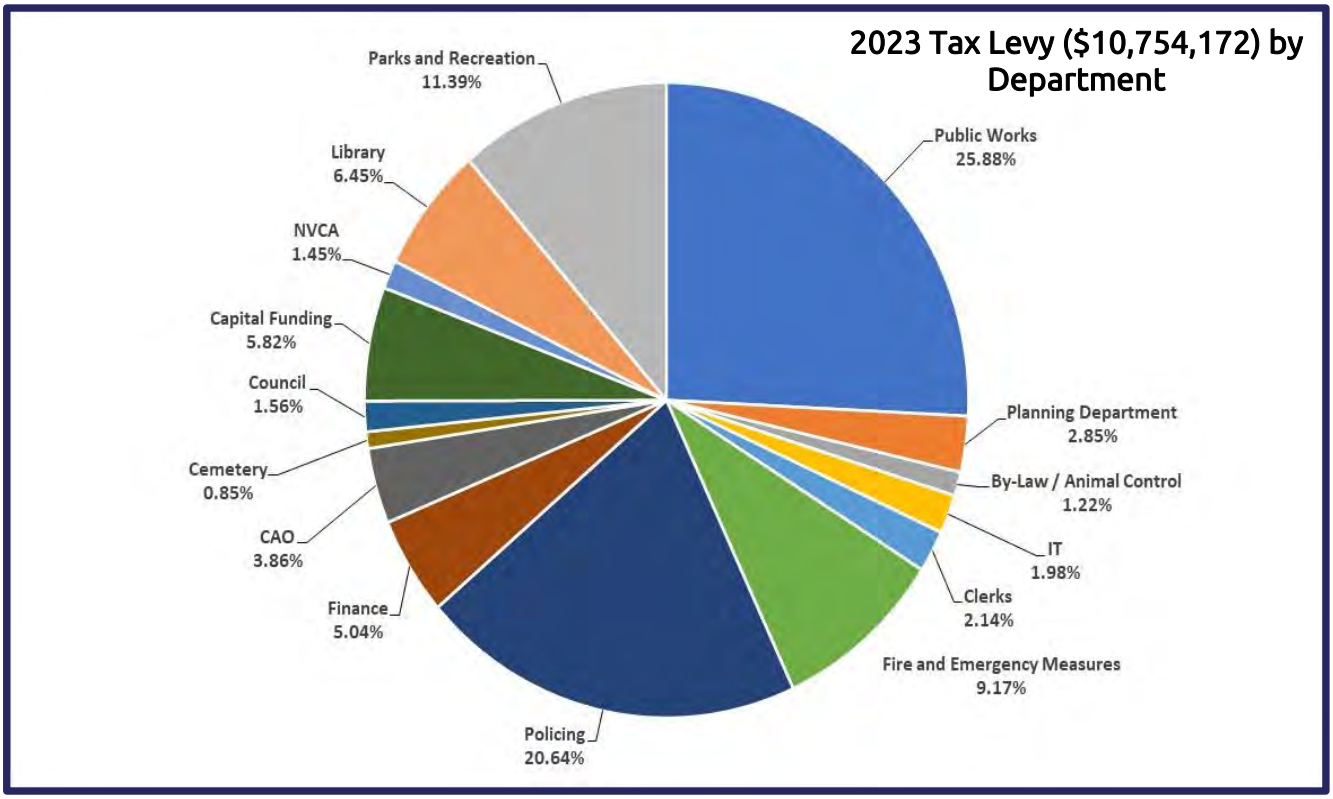
The current methodology of establishing budgets for the EFD follows a pattern like that of many other Ontario municipalities wherein successive budgets are based on existing budgets with changes proposed based on various factors, primarily Consumer Price Index (CPI)/inflation rate fluctuations.

According to some industry experts, the fire apparatus cost has risen over 20% over the last two years in the fire services sector. A global economy is driving these costs, increasing 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.

7.1.1 Operating Budget

The 2023 operating budget for the department was established at $1.5 million compared to $1.48 million in 2022, which is an increase of $27,000 or 1.84%. From the Township of Essa Approved 2023 Budget, the percentage of tax levy for fire protection services for 2023 is 8.8%.

FIGURE #23: 2023 TAX LEVY BY DEPARTMENT



A review of the budget allocation for the EFD for the past two years shows an increase of 1.84% from 2022 to 2023 budget year.

TABLE #11: BUDGET FLUCTUATIONS 2022- 2023

	2023	2022
Budgeted	1,503,362	1,476,230
% Increase	1.84%	----------

Salaries and wages (including benefits/WSIB/etc.) for EFD in 2023 accounted for approximately 50% 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 salaries and wages costs in the 90% range due to notably higher salary costs.

Data analysis of five-year actuals can help determine future budget allocations. However, the impact of COVID-driven pricing on cost forecasting is complicated when supply chain issues,

delivery costs, and generally higher-than-expected municipal price index increases are considered.

A complete financial analysis of the performance of all cost centers is more appropriate within the realm of Corporate Services staff other than to suggest that continued improvements in service provision by the EFD are sure to have an impact on tax rates.

Virtually no other municipal entity uses volunteer or paid-on-call employees to deliver core services to the same extent and effectiveness as a fire department.

The need for introducing a limited number of career-based firefighters to support the volunteer-based component of EFD 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."

7.1.2 Capital Budget

The 2023 Capital Budget forecast for the fire department is well laid out in that it addresses apparatus and equipment needs.

During our review of the forecast, EMG paid particular attention to the ten-year horizon from Appendix "A" of the Asset Management Program prepared by "psdcitywide". EMG noted that the capital requirements suggested to meet projected capital requirements and maintain the current level of service for fire protection services are conservatively underestimated:

- There are no forecasted expense costs for fire buildings between 2020 and 2028, and forecasted expenses are $43,864 in 2029. However, the 2023 Capital Budget has $250,000 allocated for the Angus Station and $50,000 for station 1 and 2 office expansion.
- Allocation in the capital budget exists for equipment replacement and machinery, both of which are hard assets with definitive life cycles for the most part and depreciative values over their lifespan. EMG recommends that equipment with definitive lifecycles be part of the Township of Essa Lifecycle Management Strategy, as it currently is not.
- Forecasted expenses for Protection Vehicles are underestimated; they should be revised to account for the recent increase in production costs.

7.2 Revenue Opportunities

New construction and redevelopment of buildings attract more people to live and work in the Township of Essa. 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 monies the Township collects from development charges for the new construction pay 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 that could help to fund that, 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

The 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 Township 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 often been said that new development should pay for itself, but this is seldom the case. The taxpayer is left to underwrite the new costs placed on municipalities due to development, especially when development charges are less than adequate.

7.2.1 Development Charge By-law 2018-54

EMG reviewed the Township of Essa Development Charge By-law 2018-54. "Fire Services" is a designated municipal service under Schedule "A" to By-law 2018-54. Schedule "B' breaks down monies collected by unit types, such as Single Residential Unit, Multiple Residential Unit, and Apartment Unit. For instance, for the "Single or Semis" unit type, the EFD is currently allocated $2,209 out of the $13,925 collected for single and semi-detached residence.

Furthermore, per section 10 of the By-law 2018-54, the monies collected for the residential charge by unit type are set in the fire service reserve fund.

The Fire Services Reserve Fund is recorded in the EFD Budget under the *REVENUES* heading as "Development Charges Earned." The revenues generated are applied directly to the EFD annual

budget allocations. Therefore, revenue generation must be carefully monitored to ensure a sustainable operating budget for the EFD.

The Fire Reserve Fund is not as clearly identified in the Fire Operating and Capital budget, and EMG suggests that the EFD collaborate with the Treasurer to identify the current Fire Reserve Fund and respective performance more clearly in the Operating and Capital budget.

With revenue generation in mind, during the next Development Charge review process, EMG recommends a review of the EFD-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).

7.2.2 Fees and Charges By-law 2023-01

EMG also reviewed the Township of Essa Fees and Charges By-law 2023-01 and noted the following comments:

- Schedule "C" – Fire Department Fees of the By-law 2023-01 has a good list of items where fees can be recovered. The list could be updated to include Fire Investigation Report Requests.
- Fees collected in Schedule "C" are not clearly accounted for in the Fire Operating Budget. EFD should work with the Treasurer to align the revenue code with the Schedule "C" list to ensure that revenues are not missed. An alignment would allow the EFD to monitor fees to optimize fees for service.
- If the By-law 2022-121 is not amended, there should be a clause confirming that the "BURN PERMIT" related fees would be applied to the REVENUES of the EFD annual budget.
- The burn permit-related fees should also reflect the clerical support cost incurred by the EFD for the licensing management.

With respect to the Emergency Services Fees and Charges Amendment NO.3 By-law 2014-038, the list of fees and charges is extensive and comprehensive. EMG noted the following:

- The fees should be reviewed to align with current costs to deliver the services listed. The EFD should compare fees and charges for emergency services with surrounding municipalities to leverage their fees and charges to industry standards and best practices.
- The inspection-related fees and charges list should be reviewed and expanded to include A, D, E, and F occupancies, re-inspections, etc.

In addition to the Township of Essa's fees and charges By-laws, EMG noted that the EFD also generates revenues from the recovery of fire protection response costs from insurance companies by Fire Marquee Inc. These revenues are captured under revenue code 4674: "FIRE CALLS – INSURANCE REIMBUR" revenue code. EMG again applauds the innovative approach from the Township of Essa pertaining to revenue generation possibilities.

EMG notes and commends the Town of Essa's initiative, where the revenue generated from fire protection recovery costs is applied directly to and benefits the EFD.

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

7.3 Reserves

The Township of Essa currently maintains two fire-department-specific reserve accounts; one for major expenses for fire equipment, vehicles, and training, and one Protection – Fire reserve fund account, receiving all fire department funds allocated through the collection of Development Charges. Given the recent new provincial regulations regarding CRAs and firefighter certification, managing the reserve to maintain the current fire protection level of service, EMG suggests that EFD works closely with the Treasurer to monitor the reserves and reserve fund performance.

Section 7: Recommendations

Rec #	Recommendation	Suggested Timeline	Estimated Cost	Rationale
28	Equipment with definitive lifecycles should be part of the Township of Essa Lifecycle Management Strategy.	Immediate to short term (1 to 3 years)	Staff time only	Currently, fire protection services identifiable equipment with a definitive lifecycle are not outlined in the Township's lifecycle management strategy.
29	Review the EFD 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).	Immediate to short term (1 to 3 years)	Staff time only	With revenue generation in mind, during the next Development Charge review process, the Township of Essa's anticipated growth and its impact on emergency services should be factored into the formula applied for fees and charges.

Section 8

Review of 2013 FMP Recommendations & 2018 FUS Report

SECTION 8: REVIEW OF THE 2013 FMP RECOMMENDATIONS & 2018 FUS REPORT

8.1 Essa Fire Department Master Plan 2014

An FMP was completed in 2014 by a third party. Like this plan, it mapped the direction EFD should strive towards, and, in most cases, the recommendations were achieved. Recommendations are either Strategic or Operational. Strategic recommendations usually have a cost that may require the Council's approval. Operational recommendations are ones that the fire chief could implement with little or no cost and do not require the council's consent unless there was a significant change in the department's operations that could impact the E&R By-law.

The 2014 recommendations are in the following table for reference; beside each is the current status of them. While some recommendations have begun, others have not. Most of the ones in question have been brought forward again within this FMP. Many operational recommendations were implemented to the credit of the current and past Chief Officers.

One recommendation that still has not been implemented is hiring a full-time deputy fire chief for fire prevention.

8.1.1 2014 Fire Master Plan's Recommendations

Rec #	Recommendation	Current Status
By-laws and Agreements		
1	Recommend that the current Fire Department Establishing and Regulating By-law be updated to reflect the changes recommended.	E&R By-law has been updated as of 2022

Rec #	Recommendation	Current Status
Administration		
1	The position of full-time "*Deputy Fire Chief – Fire Prevention"* be created to reflect Council's commitment to optimizing the first two lines of defence and delivery of the fire prevention service levels identified within the FMP.	Deputy Chief position created but not specifically for fire prevention as well.
2	The Fire Chief with assistance from the administrative assistant be directed to prepare an annual summary report including an annual update of the Community Risk Profile to inform Council on the performance of the department and to identify where new trends may be evolving, or new programs may be required to reflect best practices in sustaining a responsive and effective level of fire protection services for the community.	Annual submission for emergency management was completed but not directly to reported to council.
3	Subject to the consideration and approval of this Fire Master Plan by Council an updated Fire Department Establishing and Regulating By-law be prepared and presented to Council for approval.	E&R By-law can be reviewed and updated if FMP is accepted by council.
4	The Essa Fire Department consider the elements of a comprehensive succession plan for the department and in consultation with corporate human resource professionals, develop a strategy for implementation.	No specific succession plan or program in place at this point in time.
5	The agreement and services provided by the City of Barrie for the provision of fire dispatching be sustained, and that the agreement be revised to include performance measures (e.g. NFPA 1221).	This is in place and has been renewed for another five years as of 2024.
6	The fire department designate one of the two stations as the Department's Headquarters.	Station 1 has been designated.

Rec #	Recommendation	Current Status
7	The fire department consider opportunities for additional office and storage space for administrative purposes.	Some improvements but additional space still required.
8	The role of primary CEMC be assigned to a municipal senior manager or the Deputy Fire Chief position to relieve the Fire Chief from these duties and designated as the alternate CEMC.	Remains with Fire Chief position and deputy as alternate. Based on operation, these would be better assigned to another individual within organization.
9	The Fire Chief incorporates budget considerations for specialized service agreements on an annual basis.	Complete
Fire Prevention/Public Education Division		
1	Utilizing the first two lines of defence across the community and prioritizing the programs to address areas of the community identified by the Community Risk Profile be considered a strategic priority.	Not specifically based on staffing and capabilities.
2	On-going tracking and monitoring of the inspections completed, compared to the targets and performance measures be used to determined resources and to update the measures / targets for continuous improvement.	Tracking of inspections as part of RMS (Firehouse) but no comparison data. No FPO so inspections as required.
3	The Fire Chief review OFM Technical Guideline OFM-TG-01-2012 “Fire Safety Inspections and Enforcement” and where required revise or develop new Standard Operating Guidelines for the department.	No new SOGs in this area based on no FPO and meeting minimum requirements only.

Rec #	Recommendation	Current Status
4	The fire department consider geographic areas in which there is a long response time and specifically residential occupancies containing vulnerable demographics a high priority for the department's fire safety education programs.	Follow the OFM requirements for vulnerable occupancies which covers these types based on longer response.
5	The fire department implement a thorough process of tracking and monitoring the delivery of the "Alarmed for Life" program as another key performance measure.	Not operating with the Alarm for Life program at this point.
6	Consideration be given to creating a dedicated fire prevention office with additional file cabinet / storage space for records and other resources.	Shared office right now but with new station hoped to be dedicated office/space.
7	The *Deputy Chief – Fire Prevention* position be added to the department to provide additional staff resource capacity in supporting the implementation of the proposed fire inspection performance measures.	Deputy Chief position created and filled. Deputy has some limited fire prevention capabilities.
8	A qualified alternate fire investigator be assigned within the fire department (e.g. *Deputy Chief – Fire Prevention* position).	Both Chief and Deputy have had training but not NFPA certified.
9	The Fire Chief review all fees for service and revise where necessary on an on-going basis to ensure that they accurately represent the fiscal realities of the services.	Fees by-law is reviewed annually, and changes recommend subject to council authorization

Rec #	Recommendation	Current Status
10	As the Township grows, consideration be given to developing a dedicated Fire Prevention Division and hiring a full-time Fire Prevention Officer to support the sustainability of the volunteer suppression model used by Essa.	The position of FPO has been filled.
Training Division		
1	The Township of Essa Fire Department endorse the Ontario Firefighters Standard and Company Officer Standard as the core curriculum for firefighter training within the Essa Fire Department.	EFD is following NFPA standards as per Provincial mandates.
2	The department develop a comprehensive annual training program to include specialized training based on the service levels approved by Council for specialized emergency responses.	Annual training schedules/plans created and are living documents that can be altered as needed.
3	The fire department continue to investigate opportunities for implementing a web-based online training program to enhance the efficiency of training delivery and access and broaden the topic material available to all staff. This will require consideration for the funding and implementation of these training resources.	Limited capability here. Have done some online training during COVID-19 pandemic created in house and issued to personal emails for completion and credit. Can be improved.
4	That the Essa Fire Department seek out opportunities for partnerships, automatic aid agreements or contract out the specialized services to provide for Rope/High Angle Rescue, Confined Space Rescue, Trench Rescue, Water Recue and Hazardous Materials responses.	Five-year agreement with BFES renewed 2023 for this.

Rec #	Recommendation	Current Status
5	Consider increasing firefighter training to every two weeks, rather than two nights a month and consider the possibility of offering a Saturday "catch-up" training session, to increase the level of training for all firefighters from basic to more advanced.	Done. Training every two weeks with a third session each month. Weekends used for special training (i.e. live fire).
6	That live fire training be integrated into the annual training program and that live fire training facility opportunities and partnerships be investigated and pursued within the County, including potential partnerships with neighbouring municipalities or industries.	Partnership with New Tecumseth Fire Rescue in place and live fire is now offered to personnel on an annual basis.
7	Consider the elements of a comprehensive succession plan for the department and develop a strategy for implementation.	Based on workload and current staff levels this is difficult to do right now.
Fire Suppression Division		
1	EFD review automatic aid considerations within and outside of the Township of Essa with the fire service management teams of the surrounding municipalities. Beyond improving emergency response within Essa, providing automatic aid outside of Essa could potentially generate revenue for the Township.	In place in both directions noting that Innisfil opted out of the established agreement several years ago. New Tecumseth and Springwater work together.
2	The Township of Essa considers an increase in the complement of 58 volunteer firefighters currently approved by Council. We are recommending an increase of six volunteer firefighters to achieve an overall complement of 64 volunteer firefighters.	E&R By-law reflects 62 volunteer staff augmented by full-time Chief and Deputy for total of 64 personnel.

Rec #	Recommendation	Current Status
3	The Essa Fire Department aim to achieve sufficient firefighters arriving on-scene simultaneously to provide and initial response including water tanker capability and that a depth of response of 14 firefighters be assembled, as travel times allow.	As with all volunteer fire departments this is proving to be more difficult if not impossible to do- mutual aid works very well in the County.
4	EFD incorporates municipal staff as members of the EFD who are interested or desire to be on the volunteer fire department and Council support this staff by permitting them to augment daytime fire department emergency response from their place of employment for critical calls.	Has been attempted but does not seem to be the level of support expected from Essa as an employer.
5	EFD consider fire fighter incentives, duty schedules and/or stand-by initiatives during daytime hours to maintain a firefighter complement during these challenging daytime periods with funding allocations to sustain the initiatives.	Again, this costs money, and budgets are very tight to begin with. Little incentive to support this to date.
Fire Station, Apparatus, & Equipment		
1	Consider designating Station 1 as the Essa Fire Department Headquarters.	Complete
2	Consider full implementation of the actions identified to limit the exposure of diesel emissions as an interim measure and consider installing the recommended direct capture system as part of any future renovations or alterations to the fire station.	Airmation total area capture systems installed in both stations.
3	Increase office space for maintaining records.	Has been increased and already outgrown again.

Rec #	Recommendation	Current Status
4	Continue vehicle replacement within the life cycle of the replacement plan. Allocate a greater number of reserve vehicles/apparatus once their 20-year life cycle is complete.	Fleet replacement works well within EFD however due to costing a limited number of reserve apparatus available
Communications and Technology Recommendations		
1	The Fire Chief and Deputy Fire Chief identify and implements strategies to enhance the communication and interaction across the department.	No update
2	We recommend during daytime hours incentives, duty schedules and stand-by initiatives be considered and funded to maintain a firefighter complement for daytime hours.	No update

8.2 FUS Report for the Township of Essa and EFD

FUS is a national organization administered by SCM Risk Management Services Inc., formerly CGI Insurance Business Services, formerly the Insurers' Advisory Organization and Canadian Underwriters Association. FUS provides data on public fire protection for fire insurance statistical work and underwriting purposes of subscribing insurance companies. The other primary function of the FUS is to advise municipalities on deficiencies in their fire protection capabilities and recommend improvements to enable them to better deal with fire protection problems. Subscribers of FUS represent approximately 85% of the private sector property and casualty insurers in Canada.[44]

It is unknown when FUS completed the last survey on the EFD, but the Fire Chief does complete the FUS' Community Update Form and the Fire Station Form annually. The results of the previous survey were not available for review during this FMP process. The results of a FUS report lay the foundation on which insurance companies set their rates. Positive results and

[44] Fire Underwriters Survey, "Who We Are," Accessed August 30, 2023, https://fireunderwriters.ca/

ratings may result in savings for the residents in the form of reduced insurance premiums, whereby the opposite is a risk.

The availability of a water supply nearby, be it via hydrants or a static water source, will affect the premiums. Station locations also affect the ratings. The continuing and anticipated growth of the Township of Essa, combined with a desire to look to the community's future needs, is reason enough to ensure the data in the FUS Portal is current.

The results identify areas that need improvement, ultimately improving the Township's response and insurance ratings. Survey ratings may be adjusted when the FUS Portal is regularly updated.

One of the grades is called the Dwelling Protection Grade, which provides grades from one to five. One is the highest grading, and five indicates little or no recognized fire protection. Fire Departments such as EFD aim for a grade 3A or 3B. To achieve that, it must have a minimum of 15 firefighters scheduled to respond at each station. EFD's current staffing levels do meet that prerequisite.

Not all insurance companies recognize FUS and set premiums based on survey findings. Not referencing this material could result in higher insurance costs for those who subscribe to those companies for insurance policies.

Section 8: Recommendataions

Rec #	Recommendation	Suggested Timelines for Implementation	Estimated Cost	Rationale
30	EFD continues to implement recommendations from the 2014 FMP as feasible.	Short-term (1 to 3 years)	Staff time	The implementation of recommendations will advance EFD in fire protection services and initiate fire and life safety programs.
31	The Fire Chief should contact FUS and acquire copies of the previous FUS Survey to identify gaps found either in the operations of EFD or the municipality.	Short term (1 to 3 years)	Staff time	Acquiring and reviewing the previous survey will aid EFD in improving its efficiency, which may result in lower insurance costs for some of the community.

SECTION 9

Recommendation Overview

SECTION 9: RECOMMENDATION OVERVIEW

9.1 Conclusion

The review conducted by EMG demonstrated that the full-time staff and volunteer firefighters are genuinely dedicated to the community they serve. The Council, CAO, and Fire Chief are sincerely committed to ensuring the safety of the community and fire service personnel.

Based on the present staffing, equipment, and fire station locations, the fire service is endeavouring to offer the most efficient and effective service possible.

All costs and associated timelines noted in this report are approximations that can be implemented through prioritization between the Fire Chief, CAO, and Council.

This FMP is a long-range planning document. It is, however, 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. A section has also been added to the chart identifying potential efficiencies upon implementation of the recommendations presented by EMG.

This FMP document is a culmination of 31 recommendations.

Rec #	Recommendation	Suggested implementation Timeline	Estimated Costs	Rationale
Section 1				
No recommendations.				
Section 2				
1	Fire Administration review by-laws that affect the daily operations of the fire department.	Short-term (1 to 3 years)	Staff time	Having current by-laws will reflect changing the circumstances of the Town and meet federal or provincial Acts and regulations.
2	Review and update all SOGS, including establishing an SOG Committee that meets on a pre-determined schedule and operates under a newly developed Terms of Reference.	Immediate (0 to 1 year)	Staff time Pending the decision to establish a SOG Committee, there may be a financial impact on the budget for firefighter participation.	Current SOGs provide clear direction on the expected operations of the EFD.

Rec #	Recommendation	Suggested implementation Timeline	Estimated Costs	Rationale
3	Review input received from the surveys to identify further opportunities for the Department and the community it serves.	Short-term (1 to 3 years)	Staff time, but some recommendations may include associated costs	Keeping track of the input received from the surveys can result in the implementation of new ideas and sharing this information with staff will support the value of their input.
Section 3				
4	Provide adequate resources such as software and staff time to expand the current pre-incident planning program.	Immediate to Short-term (0 to 3 years)	Staff time	This will improve information when responding to emergencies, work to improve current information in the RMS on building risk, and engage staff.
5	Add the provision to local by-law to provide monetary penalties to non-compliant inspections.	Immediate (0 to 1 year)	Staff time	This will provide a tool to gain compliance of infractions, as well as support the cost of existing resources to carry out these functions.
6	Add, refresh, and revise all fire prevention SOGs to reflect current EFD practices.	Immediate to Short-term (0 to 3 years)	Staff time	Contemporary SOGs that are reflective of industry informed practices guide staff and decrease liability risk to the community.

Rec #	Recommendation	Suggested implementation Timeline	Estimated Costs	Rationale
7	EFD expand its Public Education activities by establishing and funding a Public Education Program and Plan with supporting SOGs.	Short-term (1 to 3 years)	Staff time	Active and engaging Public Education Programming can reduce the incidence of unwanted fires and change unwanted and unhealthy behaviours.
8	Design a career path model for all specialised functions/positions within the EFD.	Immediate (0 to 1 year)	Staff time	Firefighting is a high-risk profession. Training is essential to enable firefighters to respond more efficiently to emergencies, reducing the property damage caused by fire, loss of life, and public hazards, as well as reducing personnel injuries. Although the EFD has a career path model for firefighter maintenance training, recruit firefighters, and officer promotion, there is limited documentation regarding career path modeling for other specialised positions, such as fire prevention officer, fire investigator, public educator, or technical rescuer.

Rec #	Recommendation	Suggested implementation Timeline	Estimated Costs	Rationale
9	Township of Essa and the EFD review their funding obligations to ensure adequate financial support to meet the training objective iterated in point four of the "Objectives of the Essa Fire and Emergency Services" section of The Township of Essa By-law 2022-16.	Immediate (0 to 1 year)	Staff time	This is becoming critical with the adoption of the Firefighter Certification regulation made under the *FPPA*, 1997.
10	EFD create a full-time Training Officer position to manage training needs for the EFD.	Short-term (1 to 3 years)	FTE cost and benefits could be in the amount of approximately $90,000.	Although EMG's analysis suggests that 4.5 staff would be required to adequately support EFD training needs, EMG is of the opinion that a full-time dedicated Training Officer supported by a training clerk would suffice to adequately administer the EFD training needs. The full-time Training Officer would be coordinating and supervising training delivery through appointment of captains as per the current model. A full-time Training Officer would provide consistency and uniformity in training delivery.

Rec #	Recommendation	Suggested implementation Timeline	Estimated Costs	Rationale
11	EFD ensure that any training props comply with NFPA 1402, *Standard on Facilities for Fire Training and Associated Props*.	Immediate (0 to 1 year)	Staff time	NFPA 1402 provides guidance for the planning of fire service training centers, focusing on the main components necessary to accomplish general fire fighter training effectively, efficiently, and safely.
12	EFD create a Live Fire Training SOG to support their live fire training efforts.	Immediate (0 to 1 year)	Staff time	The most frequently cited contributing factors in the National Firefighter Near-Miss Reporting System are situational awareness, followed by decision making. In the live-fire training environment, both skills are crucial to the success of the operation and can be repeatedly practiced and fine-tuned. An SOG will solidify the importance of live-fire training.

Rec #	Recommendation	Suggested implementation Timeline	Estimated Costs	Rationale
13	Township of Essa By-law 2022-16 be updated to align technical rescuer core services with wording from Table 1 of the O. Reg. 343/22. Secondly, EMG recommend that unless EFD. The Township of Essa has an automatic aid agreement Memorandum of Understanding in place with a reputable fire service the City of Barrie who provides technician level technical rescuer services, all staff should be trained to the Operations Level for any technical rescuer core service identified in the Township of Esa By-law 2022-16.Thirdly, all technical rescuer training programs should be monitored to adhere to the NFPA 1006: *Standard for Technical Rescue Personnel Professional Qualifications* and in accordance with O. Reg. 343/22: *Firefighter Certification*. Finally, EMG also recommends that the EFD aligns its technical rescuer	Immediate (0 to 1 year)	Staff time	Aligning wording in the By-law with O. Reg. 343/22 will avoid misunderstanding as to the adequate level of service provided and to avoid unnecessary training expenses. This standard specifies the minimum requirements for the EFD identified levels of functional capability for conducting operations at technical search and rescue incidents while minimizing threats to rescuers.

Rec #	Recommendation	Suggested implementation Timeline	Estimated Costs	Rationale
	operations and training to NFPA 2500: *Standard for Operations and Training for Technical Search and Rescue Incidents and Life Safety Rope and Equipment for Emergency Services*.			
14	Suppression staff be trained to Fire and Life Safety Educator Level 1 and that the EFD operations Division Captains also be trained as Public Information Officer, under the NFPA 1035.	Short-term (1 to 3 year)	Staff time	EMG applauds that public fire and life safety education training aligns with NFPA 1035. However, given the importance of the first two lines of defence, all staff should be trained to NFPA 1035 Level 1.
15	At least the District Chief at each station should be certified to NFPA 1031 Fire Inspector Level 1. Ideally, both district chiefs and all captains should be trained and certified to NFPA 1031 Fire Inspector Level 1.	Short-term (1 to 3 year)	Staff time	Having these extra resourced with help to meet the goals set in The Township of Essa By-law 2022-16 pertaining to FIRE PREVENTION – Core Services.
16	At least two members of EFD train to the Operations Level in elevator rescues per the TSSA Standard for training.	Short term (1 to 3 years)	Staff time, plus training and possibly some hand tools.	Having at least two members trained in this discipline permits EFD to meet its due diligence in ensuring the members of EFD train to the Awareness Level.

Rec #	Recommendation	Suggested implementation Timeline	Estimated Costs	Rationale
17	Implement SOGs, training and specialized equipment to fight fires involving lithium batteries found in vehicles, scooters, and motorbikes.	Short-term (1 to 3 years)	Staff time The cost of training programs and specialized equipment has yet to be determined.	Electric vehicles present a high rate of fires involving lithium-ion batteries with approximately 400 volts. Fires have also occurred in scooters and e-bikes with the same battery type.
18	Include references to NFPA 1225 and 1061 in the Township of Essa's dispatch agreement with the City of Barrie.	Short-term (1 to 3 years)	Staff time	This addition to the agreement will identify expected competencies and service provisions from BFC.
19	Invest in a connection at the source exhaust extraction system when building the replacement fire station in Angus.	Short-term (1 to 3 years)	Costs vary depending on the length of the track, fan size, number of vehicle connections required, etc.	At source exhaust extraction system will reduce the risk more than an internal ventilation system, as less particulate and carcinogens circulate throughout the structure.

Rec #	Recommendation	Suggested implementation Timeline	Estimated Costs	Rationale
20	The Township of Essa needs to develop a formal PTSD Prevention Plan with EFD.	Short-term (1 to 3 years)	Staff time	While the Township has included members of EFD in its EAP through Homewood Health Services, the requirement still exists that a complete PTSD Prevention Plan be developed.
Section 4				
21	The Township of Essa, include in their 2024 budget deliberations, funds to build a new Fire Station 2.	Short term (1 to 3 years)	$8 to $9.5 million.	Station 2 is at the end of its life span. Several amenities lacking in the present station would be advantageous to have, including some to address the risk of contracting cancer. Further delays will reflect in higher construction costs.
22	Develop a Respiratory Program.	Short-term (1 to 3 years) ongoing	Staff time	This program is an industry standard and best practice. It also aids in ensuring the health and safety of firefighters when wearing respiratory protection devices.

Rec #	Recommendation	Suggested implementation Timeline	Estimated Costs	Rationale
23	Inspect all fire hydrants and test as required in Section 6.6 of the *Ontario Fire Code* and NFPA 291, *Recommended Practises of Fire Flow Testing and Marking of Hydrants*. Further, EFD should works with the Water Department to convert the steamer ports to Storz couplings and make Storz connections the new standard for hydrants in the Township.	Short-term (1 to 3 years)	Staff time and costs	This ensures compliance with the Ontario Fire Code. The conversion of the hydrants from threaded steamer ports to Storz lugs need not be completed in one year. This retrofit could be managed over several years.
Section 5				
24	Establish a budget line specifically for "Community Emergency Planning Initiatives" within the annual operating budget.	Short-term (1 to 3 years)	To be determined.	To allow broader community education efforts and establish a funding pool for exercise design and implementation.
Section 6				
25	EFD needs to review and update, as necessary, all response and automatic aid agreements annually.	Short-term (1 to 3 years)	Staff time	Maintaining an up-to-date agreement will ensure the communities receive fire service protection that meets current and future circumstances.

Rec #	Recommendation	Suggested implementation Timeline	Estimated Costs	Rationale
26	The EFD must review and prepare the Mutual Aid Participation By-law 2006-31 for the Council's Approval.	Short-term (1 to 3 years)	Staff time	By-laws and Agreements need reviewing and updating annually to ensure they are current and meet the community's needs.
27	Include in the Fees and Charges By-law responding to and mitigating technical rescues at full cost recovery.	Short-term (1 to 3 years)	Staff time	Including this charge in the by-law ensures that local taxpayers do not bear the cost of mitigating technical rescues, which can cost thousands of dollars.
Section 7				
28	Equipment with definitive lifecycles should be part of the Township of Essa Lifecycle Management Strategy.	Immediate to short term (1 to 3 years)	Staff time only	Currently, fire protection services identifiable equipment with a definitive lifecycle are not outlined in the Township's lifecycle management strategy.

Rec #	Recommendation	Suggested implementation Timeline	Estimated Costs	Rationale
29	Review the EFD 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).	Immediate to short term (1 to 3 years)	Staff time	With revenue generation in mind, during the next Development Charge review process, the Township of Essa's anticipated growth and its impact on emergency services should be factored into the formula applied for fees and charges.
Section 8				
30	EFD continues to implement recommendations from the 2014 FMP as feasible.	Short-term (1 to 3 years)	Staff time	The implementation of recommendations will advance EFD in fire protection services and initiate fire and life safety programs.
31	The Fire Chief should contact FUS and acquire copies of the previous FUS Survey to identify gaps found either in the operations of EFD or the municipality.	Short term (1 to 3 years)	Staff time	Acquiring and reviewing the previous survey will aid EFD in improving its efficiency, which may result in lower insurance costs for some of the community.

APPENDICES

Appendix 'A' – Five-Step Staffing Process

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Five-Step Staffing Process

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.