November 2019

Brock Township Fire Department

Master Fire Plan

Developed by:
Emergency Management & Training Inc.
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EXECUTIVE SUMMARY

Master planning is a process of identifying a fire department's strategy and future direction, along with assisting the department in making decisions in relation to more efficiently allocating its resources to pursue this strategy. This Master Fire Plan created for the Brock Township Fire Department consists of a review of the community and the fire department, along with identifying present and future population statistics and anticipated growth of the community.

A review of past and present service levels was completed, keeping in mind the overall goals and expectations of the department. Based on the review a set of recommendations have been provided. To assist with prioritization and implementation, the recommendations provided by Emergency Management and Training Inc. have been broken down into the following timelines:

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

Ultimately, the implementation of the recommendation will depend on the Township's resources and ability to move forward with the associated recommendations contained within the document.

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

1. Community and Fire Service Overview
2. Planning – future community growth and related service needs
3. Risk Assessment of the community in relation to present and future service requirements
4. Fire Service Staffing
5. Fire Suppression Services
6. Facilities and Fire Service Agreements
7. Vehicles and Equipment
8. Emergency Management
9. Finance

Along with the previously noted nine areas, the report has addressed the scope of work as noted in the Township's Request for Proposal, which includes the following key components:

- Governance including by-laws, policies, procedures, provincial and federal legislation
- Administration
- Service delivery
- Emergency response including mutual aid, automatic aid, and fire protection agreements
- Fire Prevention including public education, inspections, enforcement, and investigations

- Fire Suppression and Rescue operations
- Training and Education
- Firefighter safety, health and wellness
- Fire station facility and location with response and cover mapping
- Apparatus and equipment
- Assessment of existing fire service facilities, equipment, and assets
- Maintenance program for apparatus and equipment
- Emergency management program
- Human Resources/Leadership including staffing, organizational chart, workload, recruitment and retention, succession planning, promotional processes, etc.
- Reporting structure and requirements
- Finance/budget, including operational, capital, and reserve budgets, and development charges
- Potential revenue generation strategies
- Opportunities for innovative solutions

Brock is serviced by a volunteer fire department that consists of three fire stations. The stations are located in the communities of Sunderland, Cannington, and Beaverton. In total, there are 79 highly dedicated volunteer fire service personnel dispersed throughout the three fire stations. Brock Fire Department's day-to-day operations are managed by the department's Fire Chief, who is supported by a full-time Deputy Fire Chief/ Fire Prevention Officer, along with a part-time Training Officer.

The Brock Fire Department responds to approximately 270 to 350 calls for service per year. These incidents include, but are not limited to, fire-related incidents, medical assist, and motor vehicle collisions. These calls for service can equate to over 450 vehicle movements annually; more than one fire department vehicle may be dispatched from either the same or another fire station to certain calls based on the severity of the incident and resource requirements.

To ensure that they are meeting the needs of the community and their staff, the Fire Chief and Council recognizes that it is necessary to conduct this Master Fire Plan for the intention of providing high-quality fire services to the residents and businesses of the community along with its visitors.

Based on the information received during our meetings, a review of supplied documentation and reference to industry standards and best practices, there is a total of 16 recommendations for consideration by the Fire Chief and Council to guide the Fire Department into the future.

A quick reference chart has been included within this Executive Summary, along with a more detailed chart that includes timelines for implementation and estimated costs found in Section 10.

Summary of Recommendations – Quick Reference Chart

Rec #	Recommendation	Suggested Timeline
1	The present Establishing & Regulating By-law be reviewed, updated to reflect more recent changes from the Ontario Fire Service Curriculum to the NFPA Standards, and presented to Council for approval. • The new update should include an outline of services being delivered by the fire department.	Short-term (1-3 years) and ongoing
2	Brock Fire Department is approaching the point of requiring the equivalent of one full-time, dedicated Fire Prevention Officer. • This can be also accomplished through the use of part-time staff, who are scheduled to accomplish specific fire prevention and education program hours. • The utilization of the present complement of volunteer firefighters is also an option to be considered.	Short to Mid-term (1-6 years)
3	The Fire Chief review Brock's inspection program to identify levels of desired frequency in relation to the inspections noted in the Fire Underwriters Survey Chart in Appendix "B".	Short-term (1-3 years)
4	BFD staff present an updated Community Risk Assessment to Council in 2020. Upon completion of the risk assessment, the Fire Chief provides Council with a draft policy for review and passage that outlines a proactive fire inspection program to address identified needs and expected outcomes. This program should outline the building types and the frequency of inspections. • Should also identify what level of staffing is required to meet the FUS recommended inspection and the fire department recommended inspection program. • To accomplish a staffing/ hourly requirement, an assessment of recently conducted inspections is needed to create an anticipated costing for this program.	Short-term (1-3 years) and ongoing
5	An assessment of utilizing Township staff on a part-time basis (2-3 days per week) to assist BFD with its records management and other administrative challenges be conducted.	Short to Mid-term (1-6 years)

6	To assist with the fire prevention program including public fire safety education and inspection programs, all officers should be trained and certified to at least: • National Fire Protection Association 1031: Fire Inspector I, and • National Fire Protection Association 1035: Fire and Life Safety Educator I	Annually
7	The BFD work with developers and the public to make the Home Sprinkler Systems initiative a part of its fire prevention and public education program.	Short-term (1-3 years) and ongoing
8	An annual training plan to be developed, implemented and assessed to ensure that the volunteer firefighters are completing the required training. To verify the training programs are meeting related NFPA (and other) training program recommendations, the Training Officer should identify: • training programs that area appropriate for the services that BFD is providing • number of hours required to meet the training needs • training resources required • joint partnerships with bordering fire departments and private organizations • presented to chief annually with key performance indicators monitor training compliance	Short-term (1-3 years) and ongoing
9	To meet the increasing need for training and records management of the volunteer firefighter training programs, the Training Officer position should become a permanent part-time position for 15 to 20 hours per week, for a total annual allotment of 780 to 1,040 hours.	Short-term (1-3 years)
10	To improve firefighter response reliability: • Increase each fire station's roster to 30 volunteer firefighters. • Review of the pay scale for responses and training to ensure equal pay for time spent on fire department related business.	Short-term (1-3 years)
11	The Fire Chief conduct an annual review of BFD and its response data in comparison to industry standards.	Short-term (1-3 years) and ongoing
12	The dispatch agreement with Oshawa Fire be renegotiated to include full dispatching services.	Short-term (1-3 years)
13	Electrical panels in the garage bays should be protected from possible water spray and electrical outlets should be GFI to reduce the risk of shock should they become wet.	Short-term (1-3 years)

14	Sunderland Fire Station, which also serves as the alternate Emergency Operations Centre, should be equipped with an emergency backup generator.	Short-term (1-3 years)
15	BFD should continue moving forward with its planned purchase of an aerial device.	Short-term (1-3 years)
16	BFD to continue to utilize the resources at their disposal along with identifying ongoing joint opportunities to enhance the training of the firefighters. Consideration should also be given the purchase of a mobile training unit.	Short-term (1-3 years) and ongoing

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Immediate	Recommendations that should be addressed urgently due to the legislative or health and safety requirements
Short-term	Recommendations that should be addressed within 1 – 3 years
Mid-term	Recommendations that should be addressed within 4 – 6 years
Long-term	Recommendations that should be addressed within 7 – 10 years
BFD	Brock Fire Department
CEMC	Community Emergency Management Coordinator
CFAI	Commission on Fire Accreditation International
CRA	Community Risk Assessment
EMCPA	Emergency Management & Civil Protection Act
EOC	Emergency Operation Centre
FPPA	Fire Prevention & Protection Act
FUS	Fire Underwriters Survey
HFSC	Home Fire Sprinkler Coalition
IRM	Integrated Risk Management Approach
OFC	Ontario Fire College
MFP	Master Fire Plan
OFMEM	Ontario Fire Marshal's Office and Emergency Management
NIOSH	National Institute for Occupational Safety & Health
NFPA	National Fire Protection Association
SRA	Simplified Risk Assessment

INTRODUCTION

Review Process and Scope

Emergency Management & Training Inc. (EMT) has based its review process on the Township's initial Request for Proposal and the response document submitted by Emergency Management & Training Inc. The specific scope of work noted (in the Request for Proposal) was reviewed. The Master Fire Plan (MFP) review was completed by utilizing best practices, current industry standards, and applicable legislation as the foundation for all work undertaken. Emergency Management & Training Inc. also used both quantitative and qualitative research methodologies to develop a strong understanding of current and future needs and circumstances of the community.

Scope of Requirements

As noted in the original Request for Proposal, the following generally describes the responsibilities of the Consultant. The Plan is to include a high-level review, long term planning, and recommendations, where appropriate, on the following key areas:

- Governance including by-laws, policies, procedures, provincial and federal legislation
- Administration
- Service delivery
- Emergency response including mutual aid, automatic aid, and fire protection agreements
- Fire Prevention including public education, inspections, enforcement, and investigations
- Fire Suppression and Rescue operations
- Training and Education
- Firefighter safety, health and wellness
- Fire station facility and location with response and cover mapping
- Apparatus and equipment
- Assessment of existing fire service facilities, equipment, and assets
- Maintenance program for apparatus and equipment
- Emergency management program
- Human Resources/Leadership including staffing, organizational chart, workload, recruitment and retention, succession planning, promotional processes, etc.
- Reporting structure and requirements
- Finance/budget, including operational, capital, and reserve budgets, and development charges
- Potential revenue generation strategies
- Opportunities for innovative solutions

To accomplish the scope of requirements, EMT will:

- Review the Establishing and Regulating by-law.

- Review applicable municipal, provincial and federal legislations.
- Review planning department documents regarding community and areas of jurisdiction growth projections over the next 10-20 years.
- Review the Simplified Risk Assessment, MFPIS, Council's strategic priorities and other pertinent documents.
- Review the Community Risk Profile including community building stock, industry, care occupancies, transportation networks, etc.
- Review current service agreements with neighbouring municipalities and any other current documents.
- Gather information on operational requirements including past and current response statistics (call volumes/response times) to analyze for tends, staff availability/needs and response capabilities, etc.
- Review 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.
- Tour the Township of Brock Fire Stations conducting a location/response analysis.
- Examine fire vehicles, apparatus and equipment including the maintenance program.
- Review Fire Service policies, procedures and emergency response operational guidelines, training programs and records.
- Collect information on the Fire Prevention Program including education programs, inspection reports/data, enforcement data, and investigations.
- Identify and compare industry best practices relating to fire and emergency services performance measurement.
- Review current job descriptions, staff recruitment and retention practices, promotional policy, succession planning and demographics.
- Review the operational and capital budgets along with reserves and current revenue generation programs within the fire department and the Township (development fees).

Based on the previously noted criteria, through meetings with the Fire Chief and other stakeholders, the consulting team was able to complete a thorough review of elements that are working well and areas requiring improvement within the Brock Fire Department (BFD). Data provided by the Fire Service was also reviewed in relation to all the previously noted items contained in the Brock's request for proposal.

Based on the review of the BFD facilities, equipment, programs and related data, Emergency Management & Training Inc. is submitting a total of 16 recommendations that can be implemented.

Performance Measures and Standards

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

- The Ontario Fire Marshal's Office and Emergency Management (OFMEM) Public Fire Safety Guidelines.
- *The Fire Prevention and Protection Act* and its subordinate regulations, including the Ontario Fire Code O. Reg 213/07, Mandatory Assessment of Complaints and Requests for Approval O. Reg 365/13, and Mandatory Inspection – Fire Drill in Vulnerable Occupancy O. Reg 364/13.
- Office of the Fire Marshal and Emergency Management's (OFMEM) Integrated Risk Management program.
- The *Ontario Health and Safety Act*, with reference to the National Institute for Occupational Safety and Health (NIOSH).
- Ontario Fire Service – Section 21 Guidelines:
    - The Section 21 Committee is based on Section 21 of the *Ontario Occupational Health and Safety Act*. This committee is charged with reviewing industry safety concerns and developing recommended guidelines to reduce injuries for the worker.
- The National Fire Protection Association (NFPA) standards:
    - NFPA 1001 – Standard for Fire Fighter Professional Qualifications
    - NFPA 1002 – Standard for Fire Apparatus Driver/Operator Professional Qualifications
    - NFPA 1021 – Standard for Fire Officer Professional Qualifications
    - NFPA 1031 – Standard for Professional Qualifications for Fire Inspector and Plan Examiner
    - NFPA 1033 – Standard for Professional Qualifications for Fire Investigator
    - NFPA 1035 – Standard on Fire and Life Safety Educator, Public Information Officer, Youth Fire Setter Intervention Specialist and Youth Fire Setter Program Manager Professional Qualifications
    - NFPA 1041 – Standard for Fire Service Instructor Professional Qualifications
    - NFPA 1061 - Professional Qualifications for Public Safety Telecommunications Personnel
    - NFPA 1072 – Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications
    - NFPA 1201 – Standard for Providing Fire and Emergency Services to the Public

- NFPA 1221 – Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems
- NFPA 1500 – Standard on Fire Department Occupational Safety, Health, and Wellness Program
- NFPA 1521 – Standard for Fire Department Safety Officer Professional Qualifications
- NFPA 1720 – Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public by Volunteer Fire Departments
- NFPA 1730 – Standard on Organization and Deployment of Fire Prevention Inspection and Code Enforcement, Plan Review, Investigation, and Public Education Operations
- NFPA 1901 – Standard for Automotive Fire Apparatus
- NFPA 1911 – Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Emergency Vehicles

- The Commission on Fire Accreditation International, which is a program that promotes fire service excellence by evaluating a fire department based on related National Fire Protection Association standards, local legislation, and industry best practices (the parent organization for Commission on Fire Accreditation International is the Centre for Public Safety Excellence.
  - This program has been adopted by many fire departments in Canada as a measure of best practices. Within Ontario, Guelph, Kitchener, and Ottawa are just a few fire departments that have obtained accreditation from the Commission on Fire Accreditation International.
- Fire Underwriters Survey technical documents

Project Consultants

Although several staff at Emergency Management & Training Inc. were involved in the collaboration and completion of this Plan, the overall review was conducted by:

- Darryl Culley, President
- Lyle Quan, Fire Service Consultant
- Richard Hayes, 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 Emergency Management & Training Inc. team has worked on projects that range from fire service reviews, creation of strategic and Master Fire Plans, and development of emergency response programs for clients.

SECTION 1- Community and Fire Department Overview

1.1 Community Overview

1.2 Fire Service Composition

1.3 Governance and Establishing & Regulating By-law

SECTION 1: COMMUNITY AND FIRE DEPARTMENT OVERVIEW

This Master Fire Plan for the Brock Fire Department (BFD) analyses and identifies current and probable community fire risks and needs over the next 10 years and beyond. This will greatly assist the Fire Chief with future planning relating to staffing and response, fire and life safety programming, and asset management. To ensure a comprehensive review is conducted, this review has examined and researched all aspects of BFD operations including planning, fire prevention, training and education, communications, apparatus and equipment, human resources, station suitability and location, and large-scale emergency preparedness.

1.1 Community Overview

The Township of Brock is approximately 423 km^2 and is located in the northern portion of Durham Region, along the east shore of Lake Simcoe approximately 1.5 hours northeast of Toronto. The Township represents three distinct urban areas, numerous hamlets, and beautiful countryside. While agriculture is the largest employer, a full range of commercial and industrial businesses are located within the urban areas of Beaverton, Cannington, and Sunderland.

Brock Township's location on Lake Simcoe and the Trent-Severn Waterway make it a popular destination for tourists – both summer and winter. The Township of Brock is bordered to the south by Uxbridge and Scugog, both located within Durham Region.

Figure #1: Map of Brock Relative to Other Communities in Durham Region

Brock is well served by a network of roads linking the Township to markets beyond. All of the transportation factors, along with the proximity to the Greater Toronto Area, make Brock an ideal location for residential, commercial, and industrial growth opportunities. The growth of Brock, however, is not projected to be substantial in either population or housing over the next 10 years. Most of this growth will occur within the present communities of Sunderland, Cannington and Beaverton.

TABLE #1: Brock Population by Year

2011	**2016**	**2021** (estimated)
11,341	11,642	12,000

NOTE: Retrieved from Stats Canada website, December 2018

From 2011 to 2016, the population in Brock has only grown by approximately 2.7%. In terms of projection, for the year of 2021, the anticipated population is expected to be 12,000. Projections for the next 10 years has the Township population at generally the same rate. As such, it is anticipated that call volumes will increase slightly in stride with the marginal population increase. With a call volume of up to 350 calls per year (2016), this equates to a present ratio of 33 calls per 1,000 population. With everything being relatively constant, this would mean that BFD could see approximately 400 - 425 calls per year as the population grows to around 13,000 over the next 10 years.

From a risk perspective, Brock Township is comprised mainly of residential, farming, some general commercial building such as stores, restaurants and offices, along with some light industry. A major transportation (trucking) route bisects Brock. There is also the challenge of water and ice rescue along the shores of Lake Simcoe.

1.2 Fire Service Composition

As previously indicated, the Township of Brock covers an area of approximately 423 km^2 with a population of approximately 11,700 people. Brock Fire Department (BFD) responds to 270 to 350 calls per year out of the three fire stations.

2018 – 306 calls
2017 – 270 calls
2016 – 349 calls

These calls range from fires, to medical assist, to motor vehicle collisions, and the demand can vary based on weather conditions (e.g. storms, heat waves, dry conditions), highway traffic and road conditions, etc.

The organizational structure of the BFD is comprised as follows:

- Full-time Fire Chief
- Full-time Deputy Fire Chief/ Fire Prevention Officer
- Part-time Training Officer
- 79 Volunteer Firefighters

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

Figure #2: Fire Department Organizational Chart

The Township's fire department is comprised of three fire stations:

- Station #81 – Sunderland Station
- Station #82 – Cannington Station
- Station #83 – Beaverton Station

Each fire station has a complement of volunteer firefighters that respond to calls for service on a 24/7 basis.

1.3 Governance and Establishing & Regulating By-law

The current Establishing & Regulating By-law (E&R) was last updated in 2016, which makes it relatively current. This by-law is the guiding document that outlines such things as what services the Department is expected to provide to the community. It is therefore recommended that this document be reviewed on an annual basis or as significant changes occur to the community to ensure that the noted services levels, service expectations, and authority of the Fire Chief are properly aligned with the service needs of the community.

As part of any by-law update process, the draft should be vetted through the Township solicitor prior to going to council.

No definitive response time expectation/ criteria are noted in the Department's E&R By-law. The National Fire Protection Association (NFPA) and the Commission on Fire Accreditation International (CFAI) recommend that some type of assessment be completed to evaluate a baseline for a department's response time goal. To accomplish this, the CFAI recommends that a minimum of the past three years' response times be reviewed. This review will offer an understanding of how the Department has been performing, along with identifying areas for possible improvement in relation to station location and vehicle and staffing distribution. More information on response times will be covered in Section 5 of this report.

Recommendation(s)

Rec #	Recommendation	Estimated Costs	Suggested Timeline
1	The present Establishing & Regulating By-law be reviewed, updated to reflect more recent changes from the Ontario Fire Service Curriculum to the NFPA Standards, and presented to Council for approval. • The new update should include an outline of services being delivered by the fire department.	Staffing related costs only	Short-term (1-3 years) and ongoing

SECTION 2 – Planning

2.1 Three Lines of Defence

2.2 National Fire Protection Association Standards 1201

2.3 Fire Underwriters Survey

2.4 Strengths, Weaknesses, Opportunities, and Threats

2.5 Comparable Fire Departments

2.6 Stakeholder Surveys

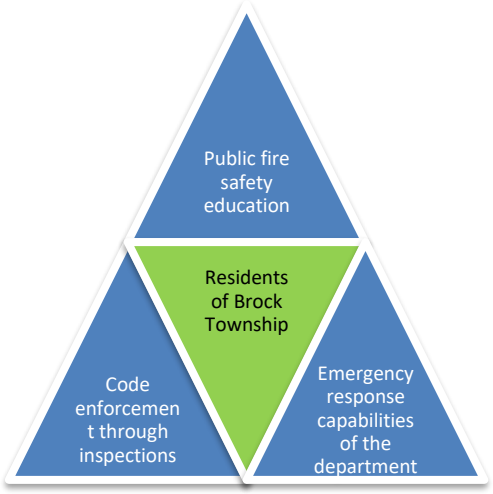
SECTION 2: PLANNING

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

2.1 Three Lines of Defence

The Office of the Fire Marshal and Emergency Management (OFMEM) have identified "Three Lines of Defence" to be utilized by all fire departments in Ontario when planning to meet the needs of the community.

The identified three lines of defence, as noted by the OFMEM, are:



1. **Education** – Fire safety education is the key to mitigating the fire and life hazards before they start. With the growth of the community, how will the municipality continue to meet the fire safety educational needs of the community?
2. **Inspections and Enforcement** – If the public education program does not prove effective, then the next step is for the fire department to enforce fire safety requirements through inspections leading to possible charges under the *Act*.
3. **Emergency Response** – If the first two lines of defence fail for whatever reason, the community, through its fire department, should be prepared to respond in an efficient and effective manner to put the fire out and/or mitigate the emergency itself. By evaluating the effectiveness of the fire stations, staff, and equipment, this report will be able to make recommendations for related efficiencies.

In conjunction with the three lines of defence, a key industry standard that outlines goals and expectations for a fire department is the National Fire Protection Association (NFPA). These standards are not mandated but do form the foundation of the fire services recommended best practices. These NFPA standards are also utilized by organizations such as the Fire Underwriters Survey group to conduct their assessments of a fire department and the community. The Provincial Fire Marshal Offices and Provincial fire schools also use them to form the foundation of their evaluation and training related programs.

2.2 National Fire Protection Association (NFPA) 1201

In 2013, the Province of Ontario adopted a move to the NFPA Standards and away from the Ontario Fire Service Standards. To assist with Emergency Management & Training Inc.'s review and related recommendations, reference has been made to a key NFPA standard that identifies the services that should be offered and how they are to be delivered based on the composition of a fire department.

National Fire Protection Association Standard 1201 – Standard for Providing Fire and Emergency Services to the Public

Section 4.3.5 notes:

- The Fire and Emergency Services Organization 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, a Fire and Emergency Services Organization (FESO) must ensure open and timely communications with the Chief Administrative Officer and governing body (Council), create a masterplan for the organization, and ensure there are mutual aid and automatic aid programs in place, along with an asset control system and maintenance program.

To provide a fire department clearer focus on what the ultimate goals for emergency response criteria are, the National Fire Protection Association suggests that response times should be used as a primary performance measure in fire departments. National Fire Protection Association 1720 refers to goals and expectation for Volunteer Fire Departments has been incorporated into the evaluation of the fire department's response and staffing needs. More discussion in relation to these two standards will be presented in Sections 4 and 5.

2.3 Fire Underwriters Survey (FUS)

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

department assessment. This assessment included a review of apparatus, distribution of companies/ fire stations, staffing, training, maintenance, pre-incident planning, etc.

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

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

2.4.1 Strengths

- Brock benefits from having three centrally located fire stations in the communities of Sunderland, Cannington, and Beaverton. All three fire stations appear to be in good condition and serve each area quite well.
- Fire prevention and code related inspections programs are in place throughout the Township by Brock Fire Department personnel.
- Training programs are being updated by the part-time Training Officer, with oversight from the Fire Chief.
- The Brock Fire Department has strong relationships with neighbouring departments and a long history of cooperative services.

2.4.2 Weaknesses

- BFD, as with many volunteer fire departments, is challenged when it comes to having sufficient volunteer firefighter numbers for daytime (weekday) response. This is an area that needs to be monitored on a constant basis to identify how many volunteers respond, or if there are times that the Fire Department was unable to muster the appropriate number of volunteer personnel for large-scale incidents such as house fires or rescue situations.
    - Due to other commitments, such as their full-time jobs and family obligations, there is no guarantee the volunteer firefighters will be available to respond as needed, which in turn can create a condition where possible low numbers of on-scene staffing levels may occur.
- Although the future growth projections do not indicate a large amount of growth in population, service demands could still increase due to an aging population, and aging infrastructure, along with an increase in vehicular traffic passing through the Township. For example, while the median age of the population in Ontario is 41.3 years, the median age in Brock Township is 46.5 years, with more than 20% of the population being 65+.

- The current part-time Training Officer is allocated only six hours a week creating a challenge to meet the required responsibilities and should be re-evaluated. This is an important position due to training needs and expectations outlined in such documents as the NFPA and the *Occupational Health and Safety Act*.

2.4.3 Opportunities

- Brock Fire Department has a region-wide mutual aid and fire service agreements in place in which it can call on neighbouring fire departments for assistance whenever resources are exhausted and/ or there is an inability to handle the situation in an efficient and effective manner.
    - This type of resource is not meant to supplement Brock Fire Department's resources on a regular basis. Mutual aid is to be used when no other options are available, such as automatic aid and fire services agreements. Further monitoring of these fire service agreements should be ongoing to identify if any adjustments need to be implemented as the community grows.

2.4.4 Threats/ Challenges

- Major emergencies stressing the available volunteer suppression staffing and equipment must be considered as the community's population continues to grow and age. This is a challenge that needs to be considered by most communities in the Province.
- The threat of weather patterns is a challenge for communities to deal with the so called "100-year storm". Due to changes in climate, inclement weather incidents, such as freezing rain/ ice storms are becoming more commonplace and need to be part of the emergency response program for each community. This change in climate conditions, along with the resulting frequency and severity of incidents, has also predicated the need for a larger response component to these emergencies.
- Daytime response by the volunteer firefighters is a challenge due to their other commitments, such as full-time jobs within or outside of the community. This is a challenge for most fire departments that depend on responses from the volunteer firefighters.
    - As previously noted, the level of response should be monitored to identify if any issues exist.
- In 2019, the Office of the Fire Marshal and Emergency Management introduced a new regulation to the *Fire Protection and Prevention Act (FPPA)*:
    - Conducting a community risk assessment every five years

Note: During the initial update of the FPPA a specific regulation of firefighter certification was presented but has been put into abeyance for review to make this regulation more achievable by both career and volunteer fire departments. It is anticipated that this firefighter certification regulation will be reintroduced sometime in the near future. As such, all fire departments should continue to identify this type of training as part of their present and future (related) training programs.

All these noted challenges need to be monitored, evaluated and reported to Council by the Fire Chief to ensure that Fire Department is meeting the needs and expectations of the community.

2.5 Comparable Fire Departments

As previously noted, from 2011 to 2016 the population in Brock has only grown by approximately 2.7%. Reported growth projections for the next 10 years has the Township population at relatively the same growth rate. As such, it is anticipated that call volumes will stay relatively constant, with the exception of medical responses due to an aging population.

To assist with the planning process, a fire service needs to look at other comparable fire services within its own region to help identify similarities and possible shortcomings in structure, staffing, and equipment. In completing this type of review, the Fire Chief and Council must be aware that no two communities are identical; each community has its own unique challenges due to demographics, topography, percentage of residential, commercial and industrial areas, along with transportation and road network challenges.

The following Figure #3 provides a general overview of comparable communities and fire departments, their staffing levels and type, along with call volumes for each fire department.

Figure #3 – Fire Department Comparables and Population Ratio

Municipality	Population Served (approx.)	Community's Geographical Area	Number of Fire Stations	Firefighter Staffing Volunteer and Full-time	Fire Service Agreements in Place for Response by Other Fire Departments	Annual Incidents (Including Medical)	Firefighter to Population Ratio
Township of Brock	**11,700**	**423 km^2**	**3**	**2 FT, 1 PT 79 VFFs**	**4 agreements in place**	**350**	**143**
Meaford	11,000	588 km^2	1	2 FT 34 VFFs	1 with ITFD and 1 with	200+	323* Does not factor ITFD

					Georgian Bluffs		covering 50% of land mass
Ramara	9,488	418.8 km^2	3	1 FT fire chief, 1FT deputy chief, 73 VFFs	2 automatic, 5 other agreements	425	129
Gravenhurst	12,000	518 km^2	3	2 FT, 50 VFFs	None	300+	230

As illustrated in the above chart, there is a range of population versus staffing ratios between the communities surveyed. No definitive conclusion or recommendation can be drawn from this comparison. This data does, however, offer a snapshot of information which can be used to identify whether Brock is in a similar situation relating to call volumes, population versus staffing, and composition of the service. Based on the fire departments surveyed, the Brock Fire Department employs a similar staffing level to most of the other comparable municipalities (in relation to population vs. staffing). Brock also utilizes fire service agreements where required.

As already noted, Brock Fire Department responds to approximately 350 calls per year out of its three fire stations. Close monitoring of call volumes, times of calls (day, night, or weekends) and related response times, and staffing need to be monitored to identify if Brock Fire Department is meeting the related NFPA response time recommendations. If not, a determination of why, and what possible options are available to meet the NFPA standard if approved by Council.

2.6 Stakeholder Surveys

To get a complete understanding of how well Brock Fire Department is meeting the needs of its staff and the community, and to assist Brock Council in making strategic decisions for the future of the community, surveys and interviews were conducted.

The interviews resulted in the identification of the following key points/ concerns:

- The top three major challenges for the Fire Department are:
    - Continuing to meet the needs of the community with the present set up of the fire stations, along with several fire service agreements
    - Staffing levels and related response times
    - Changes to Provincial legislation impacting service standards and costs
- If there continues to be contracts for fire services, the go-forward contracts must clearly establish performance targets and measurement of service standards that are regularly reported.

Overall, the interviews were quite positive about the services being offered by Brock Fire Department. The primary themes we heard were to ensure that the Brock Fire Department continues to ensure it is meeting the community needs and can continue to provide a quality service. This quality service should be through cost effective methods, whether that is through the utilization of more volunteer firefighters or other fire service agreements.

To get a clear understanding of how well BFD is meeting the needs of its staff and the community, surveys were conducted with both the internal staff of the BFD and external stakeholders of the Township, along with interviews with members of Brock Council.

To assist with the completion of the staff surveys, information meetings were held during the month of July and August 2019. The community survey was advertised through local media and was set up on the Department's website (in the form of an electronic survey). Within the community surveys, participants were also offered the opportunity to be part of a focus group meeting. This community focus group meeting was held on August 1st at the Fire Department Headquarters in Sunderland.

2.6.1 Internal Surveys

During the MFP process, feedback was gathered from internal staff, which included Firefighters, Administration, Training and Fire Prevention.

Much of the information received from the internal surveys identified the following:

- The majority of the staff are very proud of the service that they offer to the community and believe that the community feels that they are served by a professional and dedicated group off firefighters.
- Overall, the firefighters expressed that they have good facilities to work out of, along with a variety of equipment to do their jobs.
- The top three major challenges put forward for the Fire Department are the continued growth that is occurring within the Township; volunteer firefighter retention; and the assurance of properly trained and equipped staff in meeting response challenges.
- The top four services that they feel are priority to the community are:
    - Firefighting
    - Rescue (i.e. motor vehicle accidents)
    - Technical rescue response (i.e. motor vehicle collisions) and
    - Medical responses
- It was noted in the surveys that in the future, staffing requirements should be reviewed which may include more of a full-time component as the community grows. This full-time component would be more related to fire prevention, training and administration positions.

2.6.2 External Surveys and Stakeholder Meeting Results

Input from the community is vital, giving the Fire Department an accurate indication of how the public perceives the Department and suggests areas for improvement from those with first-hand interaction with the Department.

The following input was received:

- Most respondents see the BFD as a dedicated and professional service
- The top three priorities noted by external respondents are:
    - That the Fire Department responds in a timely manner to calls for assistance
    - The presence of the Fire Department within the community in relation to public education and related safety training
    - The cost of the fire service
- The top three services noted by external respondents are:
    - Firefighting, emergency preparedness
    - Rescue (i.e. motor vehicle accidents)
    - Medical assist and response
- In relation to what is needed over the next 10 years, the top responses were:
    - More staff to meet the growing demands of the community
    - More public safety education and attendance at community events
    - Well-equipped fire stations and equipment to meet the needs of the community

The internal and external surveys and focus group meetings were quite positive in relation to the services being offered by BFD. The primary focus we heard (both internally and externally) was ensuring that the Fire Department continues to expand as the community grows so that BFD can continue to provide a quality service to the community.

Recommendation(s)

No recommendations for this section.

SECTION 3 – Risk Assessment

3.1 Community Risk Assessment – Current and Future Needs

3.2 Simplified Risk Assessment

3.2 Integrated Risk Management Approach

SECTION 3: RISK ASSESSMENT

The most effective ways to reduce injuries, death, and property damage due to fire are through public education, inspections, and enforcement. The fire prevention program addresses these key components of fire safety which starts with conducting a community risk assessment.

3.1 Simplified Risk Assessment

In 2006 the Ontario Fire Marshal published Public Fire Safety Guideline, PFSG 04-40A-03 recommending municipalities develop Simplified Risk Assessments:

> *The simplified risk assessment (SRA) and ensuing fire concern profile will assist in identifying the degree to which these activities are required in accordance with local needs and circumstances. The simplified risk assessment is made up of the following components:*
>
> - *demographic profile*
> - *building stock profile*
> - *local and provincial fire loss profiles*
> - *information analysis and evaluation*
> - *priority setting for compliance*
> - *implementing solutions*
>
> *Conducting a simplified risk assessment is a practical information gathering and analyzing exercise intended to create a community fire profile that will aid in identifying appropriate programs or activities that can be implemented to effectively address the community's fire safety needs.*

The SRA is an integral building block in the data gathering process to understand the community that is served by the fire department.

3.1.1 Current Condition

The last documented risk assessment conducted by BFD was in completed in 2007; however, one is being conducted and should be presented to council in 2020.

At the time of the 2007 risk assessment, the following areas of concern were identified:

1) **Central Business Districts of Beaverton, Cannington, and Sunderland**: Many buildings constructed of wood-frame construction due to their age which increases the risk of fire.

2) **Thorah Island:** Several seasonal dwellings are only accessible to the Fire department during the winter months when Lake Simcoe is frozen.
3) **Lakeview Manor, Bon Air Nursing Home:** Non-Ambulatory residents may require additional manpower to assist with evacuation.
4) **Sunderland Co-op:** Chemical & Fertilizer Storage.
5) **Seeburn Metal Products/ Ventra Group:** Largest industrial employer in Township; building does not have sprinklers.
6) **Canadian National Railway:** Bala subdivision is the mainline railroad to northern Ontario and western Canada – many hazardous materials are transported throughout the municipality on a weekly basis.
7) **Community Centres (5):** Three have a relatively large occupancy load together with ability to serve alcohol for specific events. Potential for serious large loss fires.
8) **Rural Farm Buildings:** Most buildings are of wood/ timber construction and are in areas without a constant supply of water. Fires in these buildings are of concern given the risk of spreading to other buildings (i.e. residences).
9) **Increased responses:** The increase in the number of the emergencies that the Fire department responds to continues to increase on an annual basis. The Township notes that the increase in responses is primarily due to medical assist calls, whether required or not. This increased call load places a physical and financial burden on the Fire Department as well as the municipality.
10) **Residential fires:** Approximately 40% of fires in the municipality occur in residential occupancies. Despite provincial and municipal fire prevention programs and tips available to the public, a greater effort must be made to educate the public on fire prevention initiatives – at both levels of government. The municipality does now have a Fire Prevention Officer. This position will be an asset for the municipality in providing ongoing and additional public education programs, fire safety inspections and pre-fire plans. The Fire Prevention Officer will set a high priority towards retrofit of the downtown core.

Many of the concerns noted in the 2007 risk assessment still exist today and need to be re-evaluated within the new community risk assessment.

Brock Fire Department staff are keenly aware that a regular assessment of the community that is based on present and future fire risks needs to be conducted. In keeping with the new Provincial regulations and the NFPA 1730, it is recommended that Brock Fire Department staff present an updated assessment to Council in 2020 and every five years thereafter.

In relation to its fire prevention and public education initiatives, Brock Fire Department has a full-time Deputy Chief who also functions as the Fire Prevention/ Public Education Officer for the community. Due to the other duties assigned to the Deputy Chief, there is a limited number of staffing hours allotted to create a current list of all risk considerations as highlighted in National Fire Protection Association 1201, section 4.3.5 (as previously noted). As such, Brock Fire Department must consider the implementation of a fire prevention and public education program that can be accomplished through greater use of the volunteer firefighters and officers. By ensuring that the volunteer officers are certified in the related NFPA fire inspection standards, BFD would be promoting a more comprehensive fire prevention and public education program.

There are minimum fire prevention programs required for a community under the *Fire Protection and Prevention Act.* The minimum acceptable level that a municipality must provide includes the following:

- A Community Risk Assessment (every five years)
- A Smoke Alarm / Carbon Monoxide Program
- Fire Safety Education materials distributed to residents /occupants
- Inspections upon complaint or Request to Assist with code compliance (including any necessary code enforcement)

Additional programs may also be required based upon the risks identified by the needs analysis conducted by the fire department, with consideration relating to available resources to implement the recommended programs. The Fire Underwriters Survey organization recommends the utilization of one full-time, dedicated fire prevention/public education officer per 15,000 to 20,000 population. Based on this FUS suggestion, Brock Fire Department is approaching the point of requiring the equivalent of the one full-time, dedicated Fire Prevention Officer. This can be also accomplished through the use of part-time staff, who are scheduled to accomplish specific fire prevention/ public education program hours. The utilization of the present complement of volunteer firefighters is also an option to be considered.

3.1.2 Preparing for Future Needs

With a more robust fire prevention/ public education program in place, BFD will gain a greater understanding of the community and its needs. This in turn will allow BFD to be more proactive in its education and enforcement programs for the community. This increased level of community awareness will help to identify present and future equipment and training needs, along with what other fire safety programs may need to be rolled out to the community.

With all of this in place, when fires or other emergencies do occur within the community, the firefighters will be better prepared to cope with these emergencies because they are trained, not only in the basics of firefighting, but are also much more aware of the special hazards that are found

within the community (because of a more proactive fire prevention/ inspection program). These hazards also need to be noted in the future risk assessment being conducted by BFD.

3.2 Integrated Risk Management Approach

The Integrated Risk Management (IRM) approach, that was introduced by the Office of the Fire Marshal and Emergency Management, is a combination of reviewing all facets of the fire service that is meant to combine a review of building stock, fire safety and prevention related issues to be addressed, ability to effectively and efficiently respond to emergencies, and how well equipped and trained the firefighters are to deal with emergencies within the community.

Conducting a review of every building (as recommended by the IRM) within the Township of Brock may not be practical at this time; however, utilizing National Fire Protection Association 1730 and 1300 definitions of risk categories may help to guide the Fire Chief and Council in deciding the focus and service level within the community. Council should determine (with input from the Fire Chief) an acceptable level of risk to manage within the community based on its needs and balanced with the circumstances to deliver the services.

National Fire Protection Association 1730 and 1300 defines the risks in three categories and provides examples for each. These risk categories are:

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

3.2.1 Current Condition

Brock Fire Department staff have identified the vulnerable occupancies (care facilities) and schools within the community that are a high priority for annual inspections. Brock Fire Department has been as proactive as possible based on present staffing and available resources; however, a more formal

proactive inspection program needs to be put into place that goes above and beyond conducting inspections on a request and complaint basis.

To help support this proactive initiative, BFD should make note of and keep track of the following building stock within the Township to ensure that they are meeting the inspection recommendations outlined in the Fire Underwriters Survey (FUS) below, or at the very least using these guidelines as a benchmark to aim for.

TABLE #2: FUS Suggested Inspection Frequency Chart

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

The FUS Suggested Inspection Frequency Chart is highly aggressive and being able to provide inspection frequencies at the noted levels may be difficult to achieve. As a benchmark, however, the FUS chart provides an optimal set of goals for Brock Fire Department to strive towards. Priority should be given to Vulnerable Occupancies, institutional facilities, hotels/ motels, multi-family dwellings (including basement apartments), and assemblies.

Utilizing the Integrated Risk Management approach in conjunction with the guidance from National Fire Protection Association 1730 and 1300 standards will provide an overall picture of the resources, time, and tools required to keep the fire risks in the community to a manageable level (as defined by Council). The NFPA 1730 Standard also outlines a process in Appendix C (of the standard) to assist council in setting the level of fire prevention service within the community based on the local needs and circumstances.

Information received confirms that based on staffing levels, Brock Fire Department has not been able to do as efficient a job as they could be to ensure that ongoing inspections and related education programs are being conducted. Fire Prevention Officers are merely legislated to conduct inspections upon request or complaint. The desire of the BFD, however, is to go beyond what is required by legislation and to be more proactive within the community in relation to inspections and public education.

It is recommended that the Fire Chief review Brock's inspection program to identify levels of desired frequency in relation to the inspections noted in the Fire Underwriters Survey Chart in Appendix "B". The FUS strongly recommends that a level of frequency be identified by the Fire Service in its quest towards ensuring a fire-safe community. The volunteers of BFD may not be able to meet the FUS recommendations, but a set of goals and expectations should be outlined to identify staffing hours required to achieve these goals and expectations.

3.3 Community Risk Assessment – Current and Future Needs

While the province has been recommending the use and development of a Simplified Risk Assessment in the past, recent changes to the *Fire Protection and Prevention Act*, Ontario Regulation 378/18 on conducting a community risk assessment came into force. This regulation notes the following:

> ***When to complete (at least every five years)***
>
> *3. (1) The municipality or fire department must complete a community risk assessment no later than five years after the day its previous community risk assessment was completed.*
>
> *(2) If a municipality, or a fire department in a territory without municipal organization, comes into existence, the municipality or fire department must complete a community risk assessment no later than two years after the day it comes into existence.*
>
> *(3) A municipality that exists on July 1, 2019, or a fire department in a territory without municipal organization that exists on July 1, 2019, must complete a community risk assessment no later than July 1, 2024*.

When conducting a community risk assessment, it is important to note that it is Council that approves the level of service within the community. It is therefore the Fire Chief's responsibility to inform Council on the risks that exist within the community, along with the related needs and circumstances. Based on the information received from the Fire Chief, Council can make an educated decision regarding any recommended improvements and/ or adjustments.

The National Fire Protection Association (NFPA) 1201 – Standard for Providing Fire and Emergency Services to the Public, section 4.3.1 notes that,

> *The Fire & Emergency Service Organization shall carry out a program to develop public awareness and cooperation in management of risk, based on analysis of relevant loss records and potential hazards in the identifiable physical and social sectors of the community.*

Section 4.3.5 notes that the Fire and Emergency Services Organization shall provide customer service-oriented programs and procedures to accomplish the following:

1. Prevent fires, injuries, and deaths from emergencies and disasters
2. Mitigate fires, 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 and historical resources

The “needs” of a community can be defined by identifying and cataloging the types of buildings, infrastructure, and demographics of the local area, which in turn can be extrapolated into the types of services that would be offered and needed. The “circumstances” are considered the ability to afford the level of service to be provided. Together, the needs and circumstances assist in identifying a level of service for the community. This combination meets the expectations of the public for safety and the affordability of this level provided.

Conducting a risk assessment is a practical information gathering and analyzing exercise intended to create a community fire profile that will aid in identifying appropriate programs or activities that can be implemented to effectively address the community's fire safety needs. As the community continues to evolve, the document should not become dormant, as the results are only accurate to the time of which the review was conducted.

The recently updated *Fire Protection and Prevention Act*., along with the NFPA 1730 Standard on *Organization and Deployment of Fire Prevention Inspection and Code Enforcement, Plan Review, Investigation, and Public Education Operations*, note that this review should be conducted at a minimum every five (5) years or after significant change.

The NFPA 1730 standard also establishes a process to identify and analyze community fire risks. There are seven (7) components of a Community Risk Assessment outlined in the NFPA Standard. These components are:

1. Demographics
2. Geographic overview
3. Building stock
4. Fire experience
5. Responses
6. Hazards
7. Economic profile

Along with NFPA 1730, the Office of the Fire Marshal and Emergency Management has recently released a document on conducting a Community Risk Assessment. This document was developed to assist communities in meeting the new FPPA Regulation that came out earlier this year.

A thorough risk assessment can also avoid invalid comparisons between your fire service and others. A municipality with a similar population may have very different fire risks, and therefore very different fire protection needs. A thorough risk assessment will ensure that such comparisons are valid. By providing a valid basis for comparison, a sufficient risk assessment can also provide confidence that innovations introduced elsewhere can be successfully applied in your municipality.

Based on the new Ontario Regulation 378/18, a fire department should be conducting a community risk assessment every five years, to be completed no later than 2014. The present Brock community risk assessment is out of date. To be proactive, it is recommended that a Community Risk Assessment be completed in 2020 and not wait until 2024.

It is also recommended that the Fire Chief provides Council with a fire inspection program that addresses identified needs and expected outcomes.

In relation to staffing (Fire Prevention) hour requirements, an initial assessment needs to be completed by the Fire Chief and the part-time Fire Prevention Officer to identify hours presently spent on inspections along with identification of the annual goal. By doing this assessment, future hourly requirements can be consolidated into a report to Council.

> *Note: Due to the complexities with fire prevention inspections, along with the variety of building stock in a community, there is no industry standard formula for calculating number of hours based on building stock. This can only be accomplished through experience, familiarity, and understanding of the community's needs.*

Recommendation(s)

Rec #	Recommendation	Estimated Costs	Suggested Timeline
2	Brock Fire Department is approaching the point of requiring the equivalent of one full-time, dedicated Fire Prevention Officer. • This can be also accomplished through the use of part-time staff, who are scheduled to accomplish specific fire prevention and education program hours. • The utilization of the present complement of volunteer firefighters is also an option to be considered.	Estimated cost to implement either part-time or added time for firefighters $20-30,000	Short to Mid-term (1-6 years)
3	The Fire Chief review Brock's inspection program to identify levels of desired frequency in relation to the inspections noted in the FUS Chart in Appendix "B". • Develop a plan detailing what can be accomplished with its staffing complement, options for increasing inspection frequencies (through utilization of fire suppression staff), and requirements to meet the FUS benchmarks. This review will help to determine the level of fire prevention staffing needs.	Staff time until a program is implemented	Short-term (1-3 years)
4	BFD staff present an updated Community Risk Assessment to Council in 2020. Upon completion of the risk assessment, the Fire Chief provides Council with a draft policy for review and passage that outlines a proactive fire inspection program to address identified needs and expected outcomes. This program should outline the building types and the frequency of inspections. • Should also identify what level of staffing is required to meet the FUS recommended inspection and the fire department recommended inspection program.	Costing would depend on resource requirements to meet Fire Chief recommendations	Short-term (1-3 years) and ongoing

	• To accomplish a staffing/ hourly requirement, an assessment of recently conducted inspections is needed to create an anticipated costing for this program.		

SECTION 4 – Fire Department Divisions

4.1 Administration
4.2 Fire Prevention and Public Education
4.3 Training and Education
4.4 Fire Suppression
4.5 Training Facility

SECTION 4: FIRE DEPARTMENT DIVISIONS

Within the scope of work noted in the original Request for Proposal document, staffing needs were identified as a priority in which Emergency Management & Training Inc. was to review the capabilities of existing staffing and identify future needs for each branch, including Suppression, Training, Prevention, and Administration.

When considering the overall staffing needs for the Brock Fire Department, some of the key questions that should be considered are:

- Is there a proper level of senior staff to manage the Department, its divisions, and fire stations?
- Is there adequate administrative or management staff to effectively deal with such things as records management and addressing day-to-day operations of the Department?
- Is there a need for other support staff in relation to vehicle and facility maintenance?
- Is there a time when the Department should consider migrating from a volunteer service to a composite or full-time service?

4.1 Administration

The Administrative Division is comprised of a full-time Fire Chief and a full-time Deputy Chief. There is no Administrative Assistant for the Department. When reviewing a department's administration division, the Commission on Fire Accreditation International accreditation program has a specific section that evaluates the administration component of a fire department. In this section, the following points are noted:

CATEGORY 9C: ADMINISTRATIVE SUPPORT AND OFFICE SYSTEMS:

Administrative support services and general office systems are in place with adequate staff to efficiently and effectively conduct and manage the agency's administrative functions, such as organizational planning and assessment, resource coordination, data analysis/research, records keeping, reporting, business communications, public interaction, and purchasing.

While the Fire Chief and Deputy Chief have been managing the basic administrative and operational needs of the Department, they are challenged to meet the daily demands of the departmental data and documentation requirements. As such, Emergency Management & Training Inc. is recommending the utilization of a Township staff member on a part-time basis to assist Brock Fire Department with its records management and other administrative challenges. This could equate to an administrative assistant at the Township's office being assigned to the equivalent of 2 to 3 days a week to fire department related duties. The position should be evaluated annually to determine if the time assigned is adequate to meet the needs of the fire department.

4.2 Fire Prevention and Public Education

Fire prevention and public safety are the foundation to creating a safe community and this should be the initial focus of a fire service to create an effective, manageable program. As such, Emergency Management & Training Inc. has conducted a review of existing fire prevention programs, to identify their strengths, gaps, and areas for growth and improvement.

The National Fire Protection Association 1035 standard section 3.3.11 identifies fire and life safety education as a "comprehensive community fire and injury prevention program designed to eliminate or mitigate situations that endangers lives, health, property, or the environment." The Township of Brock should consider the implementation of a more comprehensive program within the fire department that focuses on fire inspections, prevention, and preplan programs. Currently, there are minimal fire prevention inspections being conducted based on "complaint and request" requirements. Consequently, there is a significant gap in the level of BFD's prevention and preplanning programs. As noted earlier in this document, more utilization of the volunteer firefighters could assist greatly in closing this gap. Those providing primary Fire Prevention activities should be qualified as Fire Inspector 1 and Fire and Life Safety Educator Level 1.

4.2.1 Determination of Current Staffing Requirements

The present allotted time for the Deputy Chief/ Fire Prevention Officer does not support a proactive program to go above the minimum requirements of a fire prevention program. To assist fire departments in the determination of staffing needs, National Fire Protection Association 1730 outlines a process within Annex "C" of the standard. Ultimately. Council determines the level of Fire Prevention based off the local needs and circumstances of the community.

> *Note: Annex C is not a part of the requirements of this* National Fire Protection Association *document but is included for informational purposes only.*

THE FIVE-STEP PROCESS INVOLVES A REVIEW OF THE FOLLOWING ITEMS:

1. Identifying the scope of desired services, duties and desired outputs.
2. Review of the Fire Prevention Branch 's overall time demands in its efforts to offer services.
3. Review of hours presently documented, coupled with the hours required to meet annual goals of the branch.
4. Actual availability of branch personnel, factoring in vacation and other absences.
5. Estimating total number of personnel required based on the previous four steps.

Recommendation #3 identified the need for the Fire Chief and the Deputy Chief/ Fire Prevention Officer to conduct a review on time spent on inspections. By completing this process, it will assist the department in identifying what services it not only wants to offer, but what can actually be delivered

based on present staffing and the existing gap. This evaluation process will identify what additional staffing is required, or at the very least, what services can be effectively delivered with the present staffing complement.

More information on this staffing equation can be found in Appendix "C" and within the National Fire Protection Association 1730 standard. The Fire Chief should assess the previous five steps and evaluate Brock Fire Department's present level of activity and the future goals for fire prevention activities. By conducting this type of evaluation, a true assessment can be made on whether the utilization of the volunteer fire officers will suffice or if the implementation of a part or full-time fire prevention officers' position is required.

To assist in this process, the Fire Chief should ensure close tracking of the actual time spent on each of the fire prevention related activities (ranging from site plan reviews, routine inspections, licensing, complaints, and requests, to name a few) over the next year. Further, reporting should include clearly identifying the number of public education events as well as the number of adults and children reached by the programs. By identifying the time spent on each project and collating this into baseline (approximate) times, then the Fire Chief can then use those hours spent as a based amount in applying future initiatives.

As previously noted in this document, the Fire Underwriters Survey group is very supportive of Fire Prevention programs as a first line of fire safety defence within a community and support the concept of one full-time Fire Prevention Officer per 15,000 to 20,000 population. The present utilization of existing resources is a cost-effective option for the promotion of fire prevention and public education programs. To accomplish this, some fire departments have trained most, if not all of their fire officers (e.g. Captains and above) to be certified to conduct fire prevention/ public education related inspections and programs. This not only brings more resources to the table; it also enhances the level of fire safety awareness by those trained staff.

For the immediate future, Brock Fire Department should enhance the training and certification of its volunteer officers (Captains and above) in the areas of fire prevention and public education, so they are trained and certified to at least:

- National Fire Protection Association 1031 – Fire Inspector I, and
- National Fire Protection Association 1035 – Fire and Life Safety Educator I

Considering the duties and other related information noted in this section, as well as Section 3, it appears that the Brock Fire Department lacks the ability to be as pro-active in its inspections goals as it would like to be, and that it is presently impossible for them to meet the Fire Underwriters Survey Frequency Chart on inspections. It is therefore recommended that the Brock Fire Department, through the utilization of this Fire Underwriters Survey chart as a benchmark, develop a plan on what can be accomplished with its present staffing complement, along with presenting options for

increasing inspection frequencies (through utilization of fire officers and/or a full-time fire prevention officer) and ultimately what is needed to meet the Fire Underwriters Survey benchmarks.

4.2.2 Fire Underwriters Survey Suggested Frequency Chart

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

It is acknowledged that the Fire Underwriters Survey suggested frequency chart would be difficult to address, therefore, the priority should be on the vulnerable occupancies (e.g. nursing homes, retirement homes, group homes, etc.), institutional buildings, assemblies, multi-residential, and industrial buildings.

With all of the aforementioned information noted, the Deputy Fire Chief/ Fire Prevention Officer is doing an admirable job at ensuring that the Fire Department is meeting any related (mandated) requirements such as complaint and inspection requests, along with inspecting the vulnerable occupancies in the community, and should be commended for his efforts; however, moving to a more proactive fire prevention program will require additional staffing time.

4.2.3 Home Fire Sprinklers

The NFPA, along with the Ontario Association of Fire Chiefs, are strong supporters of home sprinkler systems to reduce the risk to life and property from fire.

In a recent NFPA on-line article, it was noted that because fire sprinklers react so quickly, they can dramatically reduce the heat, flames, and smoke produced in a fire. Properly installed and maintained fire sprinklers help save lives, reduce damage and make it safer for firefighters.

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

Facts about home fire sprinklers

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

Automatic sprinklers are highly effective and reliable elements of total system designs for fire protection in buildings. According to an American Housing Survey, 4.6% of occupied homes (including multi-unit) had sprinklers in 2009, up from 3.9% in 2007, and 18.5% of occupied homes built in the previous four years had sprinklers.

Source: *U.S. Experience with Sprinklers*[1]

- 85% of all U.S. fire deaths occur in the home.
- Home fire sprinklers can control and may even extinguish a fire in less time than it would take the fire department to arrive on the scene.
- Only the sprinkler closest to the fire will activate, spraying water directly on the fire. In 84% of home fires where the sprinklers operate, just one sprinkler operates.
- If you have a fire in your home, the risk of dying is cut by about one-third when smoke alarms are present (or about half if the smoke alarms are working), while automatic fire sprinkler systems cut the risk of dying by about 80%.
- In a home with sprinklers, the average property loss per fire is cut by about 70% (compared to fires where sprinklers are not present.)
- The cost of installing home fire sprinklers averages $1.35 per sprinklered square foot.

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

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

4.3 Training and Education

A fire service is only capable of providing effective levels of protection to its community if it is properly trained and equipped to deliver these services. Firefighters must be trained and equipped to apply a diverse and demanding set of skills to meet the future demands the community they serve.

[1] https://www.nfpa.org/News-and-Research/Data-research-and-tools/Suppression/US-Experience-with-Sprinklers

Whether assigned to Administration, Fire Prevention, or Fire Suppression, firefighters must have the knowledge and skills necessary to provide reliable fire protection.

Presently there is no full-time Training Officer for the Brock Fire Department. Training is the responsibility of the part-time Training Officer who is charged with identifying the training needs of the suppression staff based on industry requirements. Planning and organizing the training and ensuring all training programs are properly documented takes up a great deal of the allotted hours, but it is a necessary that all required training programs are in place and being assessed.

During Emergency Management & Training Inc.'s review of the Training and Education programs, it was found that Brock Fire Department staff are endeavouring to ensure that all required training programs are being addressed to the best of the Department's ability. The Department does utilize the services of in-house staff (volunteers) wherever possible in an attempt to ensure both consistency in training programs and related qualifications. They also take full advantage of the web-based Target Solutions training program in which they are seeing 90 to 95% involvement by the volunteer firefighters. This is an effective use of training programs that are not "brick and mortar" based, which translates into a greater opportunity for the volunteers to conduct training from the comfort of their own homes.

Due to the minimal time allotted for the part-time Training Officer, there is a lack of accurate accounting of training hours in relation to any anticipated annual goals. It is strongly recommended by EMT that an annual plan be developed, implemented and assessed to ensure that the volunteer firefighters are completing the required training. A plan should also be put in place to identify how any training time that was not completed, can be completed.

During conversations with the Training Officer, it also became quite clear that more time should be allotted to this position to allow for more dedicated focus in relation to such things as:

- Ensuring that all training programs are meeting industry standards
- That all training is conducted in a consistent manner at both fire stations
- That all training records are properly maintained and kept up to date
- That a proper annual training program is in place, coupled with an annual assessment relating to the efficiency of the training programs

The Fire Chief was able to provide an accounting of actual hours logged by the Training Officer for 2018, totalling 356.75 hours. For 2019 (as of October), the Training Officer logged 360.25 hours. Both of these yearly times far exceed the official allotted time of six hours per week, which would equate to 312 hours per year. To meet the increasing need for training and records management of the volunteer firefighters training programs, this Training Officer position should become a permanent part-time position that would allot for approximately 15 to 20 hours per week, for a total hourly allotment of 780 to 1040.

National Fire Protection Association 1201 – Providing Fire and Emergency Services to the Public notes, in relation to training and professional development, that:

- 4.11.1 *The Fire Department Organization shall have training and education programs and policies to ensure that personnel are trained, and that competency is maintained in order to effectively, efficiently, and safely execute all responsibilities.*

The Fire Chief and Training Officer are aware of the program needs and facility requirements and have indicated that they are tracking the related needs and ability to do training in-house or off site. To verify in a more formal manner, however, that each training program is meeting the related National Fire Protection Association program recommendations, the Fire Chief and Training Officer should:

- Identify what training programs are required for the services that Brock Fire Department is providing.
    - Each area needs to be evaluated regarding the present (and future) services to be provided by the Fire Service, such as suppression, EMS, hazardous materials response, etc.
- Identify the number of hours that are required to meet each of those training needs based on Provincial and/or industry standards.
    - What are the recommended training hours required and what refresher programs need to be conducted, and when?
- Identify the resources required to accomplish this training.
    - Does the training program require a full training tower for live fire and rescue scenarios, or can this be accomplished in other ways?
- Continue to strengthen joint partnerships with bordering fire departments and private organizations to achieve the training requirements identified.
    - What joint training can be accomplished to promote cost efficiencies?
- Continue to enhance the services of the county-wide training officer.
    - Identify how the Department can utilize the county-wide training officer over and above the present programs to find cost efficiencies through the application of joint training programs with bordering fire departments.

Having noted all of the previous recommendations, it should be mentioned that the Fire Chief and Training Officer are commended for having put together the present training plan. Linking and supporting the training subjects with Provincial and industry standards (that highlight what standard the training is meeting) will give greater credibility to each training initiative.

The training program should include a training plan for all firefighters such as:

- NFPA 1001 – Firefighter levels one and two within the first year

- NFPA 1002 – Driver operator qualifications within the second or third year
- NFPA 1006 – Technical rescue at the awareness levels
- NFPA 1021 – Fire Officer level one and two training for all suppression officers
- NFPA 1072 – Hazardous Materials response at the awareness level
- NFPA 1041 – Fire Instructor level one and two for those teaching courses within the department

Another area related to training that needs to be considered by the Fire Chief is the implementation of a succession program to ensure that senior positions can be filled by qualified people as they become vacant. The Fire Chief has noted that this is on his list of 'to dos' but with having a Training Officer that is only part-time, succession planning is not a key priority at this time. With all of this in mind, EMT is still recommending that a review of officer qualifications be clearly identified and that a more formal promotional process be implemented. This formal promotional process would lend itself well to creating a succession plan.

4.4 Fire Suppression

When it comes to the staffing levels required for a fire department, there is no standard that identifies a required firefighter to population ratio. Therefore, to make an informed decision on staffing requirements of the suppression division, consideration is dependent on the following points:

- Does the Brock Fire Department have an approved response criterion as a baseline?
    - Has Council given direction to the Fire Chief regarding expected response times that are to be met by the Fire Department?
    - If so, is the Department meeting this response criterion on a consistent basis or is it struggling to meet the response times and perhaps falling behind?
- Does the Brock Fire Department have issues or concerns with getting enough volunteer firefighters to respond during daytime hours (or other times) on a consistent basis to ensure a viable level of response outside of the weekday hours of 8:00 AM to 5:00 PM?
    - Local and national standards and guidelines exist to help direct Brock Fire Department in its decisions relating to station location and staffing models, specifically, National Fire Protection Association 1720 along with the Commission on Fire Accreditation International "industry best practices".

The Fire Chief and Council also need to consider what growth in population and industry is occurring that may precipitate the need for more stations and staffing.

As already noted, there are four main standards and industry best practices that need to be considered:

- There are industry standards/best practices in the form of the National Fire Protection Association's 1720 and 1730 standards, which offer guidance regarding response times, staffing, fire prevention, and code enforcement.
- The Department must consider the Public Safety Guidelines that are created and distributed by the Office of the Fire Marshal and Emergency Management. These Guidelines advise fire services on aspects of delivering fire prevention, fire suppression, and fire station location programs.
- The Fire Underwriters Survey, which is endorsed by the insurance industry as a tool for measuring the ability of a fire service in meeting the response time, staffing, and water supply needs of a community.
- The Commission of Fire Accreditation International, has a focus on three key documents:
    1. A community risk assessment and standards of cover document
    2. A self-assessment manual based on the 10 categories that make up the program review
    3. A strategic plan for the service

    (The Master Fire Plan can be considered the strategic plan for the service.)

4.4.1 National Fire Protection Association 1720 – Volunteer Fire Departments

Chapter 4 of the NFPA 1720 Standard does help to identify industry recommended requirements for number of response personnel. The Standard notes the following for the deployment of volunteer firefighters:

- Section 4.2.1: "*the Fire Department shall identify minimum staffing requirements to ensure that a sufficient number of members are available to operate safely and effectively.*
    - *In Urban areas (population greater than 386 people per square kilometer/1000 per square mile), there should be a minimum response of **15 staff within 9 minutes**, 90 percent of the time.*
    - *In Suburban areas (population of 103 - 386 people per square kilometer/500 – 1000 per square mile), there should be a minimum response of **10 staff within 10 minutes,** 80 percent of the time.*
    - *In Rural areas (population of less than 103 people per square kilometer/500 per square mile), there should be a minimum response of **6 staff within 14 minutes,** 80 percent of the time."*

With a current population of approximately 11,700 within 423 square kilometres, Brock's community and population falls into the rural standard of having approximately 28 residents per square kilometer. This would require 6 firefighters on scene within 14 minutes 80% of the time.

> *Note: Although, overall, the Township falls within the Rural response time standard under the NFPA 1720 definition, each of the core areas of the three main communities (Sunderland, Cannington and Beaverton) are more densely populated than the rest of the outlying area of the Township and this area itself would fall under the Suburban population density. Therefore, the Chief should develop a Standards of Cover document that specifically targets this core area with the NFPA 1720 Suburban standard of 10 firefighters within 10 minutes 80% of the time.*

Based on a review of the response data supplied, along with discussions with the Fire Chief, Brock Fire Department is witnessing a varying level of success in meeting the NFPA response criteria. This can be seen in the charts found in *Section 5 – Fire Suppression Services*. By utilizing this information in conjunction with the supplied response maps created by Emergency Management & Training Inc., we can see the effect of road networks, traffic levels, and traffic control systems on response times by emergency responders.

> *Note: To accomplish the National Fire Protection Association Standard, a fire department should endeavour to meet the stated minimum response standards based on responding to a 2,000-sq. ft. single family dwelling. The dwelling (noted in the Standard) does not have a basement or other exposures (buildings close enough to each other to create a greater possibility for fire spread). Most homes in Brock have basements, however, and these homes are often built close enough to each other to create that "exposure" for potential fire spread, which must be considered by the Fire Department in its response efforts.*

Communities often ask when the Fire Department should consider moving to a career or composite (career and volunteer) model, thus reducing the reliance on its volunteer firefighters. There is no document that specifically identifies the tipping point for this move. It is based on the level of service set by the community's Council, coupled with regular reports by the Fire Chief on how the Department is meeting service level expectations.

There are many factors including the number of volunteers arriving when paged out, how quickly they respond to the page, minimum staffing for apparatus turnout time and number based on the time of the day, and day of the week (e.g. volunteer availability during day shift vs. night shift), etc. Another consideration is the recruitment and retention of the volunteers based on the turnover with many younger volunteers actively looking for a full-time firefighting career, or loss of the volunteer due to other family and work commitments.

Recruitment and retention of volunteers is becoming more of a challenge within the fire service with the increase in training that must be committed to on an annual basis and with staff turnover. As with

many volunteer fire departments, the daytime hours from Monday to Friday are the greatest challenge for volunteer response due to fact that many volunteer firefighters are either at work, school, or taking care of family. As such, some municipalities add full-time firefighters Monday to Friday dayshift to compensate for a reduced volunteer availability.

Another indicator for making this decision is tracking the number of volunteer firefighters that arrive at the fire station to respond. If, for example, the standard set by a fire department is that three or more volunteer firefighters must arrive at the station before the fire truck can respond, this should be monitored along with how many times the department is unable to assemble the needed personnel to effectively respond based on time of day and day of the week. Continued monitoring of this data will assist with future fire service needs.

Some volunteer fire departments, such as the Township of Puslinch, have created a platoon style system in which the volunteers sign up for days, weeks, or even weekends to ensure an adequate level of staffing coverage. The Brock Fire Department could consider implementing a similar program. Some increased costs (depending on the department) are associated with this type of platoon system such as a small stipend to pay for volunteers that need to stay in town for response. Any system that will provide more consistency with response by the volunteers is worth experimenting with.

Another alternative is to implement a level of full-time firefighters to guarantee a response component, but this a costly endeavour and Emergency Management & Training Inc. is not recommending this type of staffing at this time. Going to a composite or full-time service is a large cost to the community ($2-2.5 million per 24/7 fire truck staffed by career firefighters) and therefore many communities that have decided to move to this staffing model accomplished this in stages. One such model is adding full-time firefighters Monday to Friday on 10-hour dayshifts to meet the needs of the community when volunteer availability is at its lowest. This model has an annual cost of approximately $600,000-700,000 for one truck during these hours. The costs for additional staff go beyond wages including additional equipment and gear for the firefighters, along with any improvements required for the fire station itself, such as living quarters. Any consideration to moving to such a full-time model must be seriously evaluated.

Brock Fire Department's model of a volunteer fire department is a very cost-effective form of fire protection for a community of its size. The Township should invest in additional opportunities to improve those times when current response is not meeting the standards or needs of the community. Brock has taken advantage of fire service agreements with neighboring fire departments to minimize costs and provide timely response. The Township should continue to investigate other opportunities identified in this report to maintain a volunteer service and keep the cost minimized.

At this time EMT is not recommending that BFD move to a full-time or partial full-time complement of firefighters, however, consideration should be given to two areas:

- Increase to each fire station's roster to 30 volunteer firefighters per station.

- Review of the pay scale for responses and training to ensure appropriate pay for time spent on fire department related business.

These two options will help to ensure a more robust number of volunteers available to respond to calls, and at the same time support retention of the volunteers by paying them at a consistent rate of pay for time spent at the fire department.

4.5 Training Facility

The Department does not have a training facility within Brock's borders to conduct regular hands-on programs, such as live fire training and other specialized programs that require more training props outside of those available at the fire stations. The Brock Fire Department does have an area at the back of each station where some auto extrication training and other general training can take place, but each facility is limited in what training can be accomplished. The Fire Department can do weekend fire training at the Ontario Fire College, along with utilizing the facilities of other bordering departments within Durham Region.

All of this is a definite positive but creates an issue with some of the firefighters and fire trucks being out of the community during these training opportunities. This translates into a delayed response by both the crews that are training at a facility outside of the community and for the crews that will have to respond from the other two fire stations. For example, if the Sunderland volunteers are training at an out of community facility, any required response would have to come from the Cannington and/or the Beaverton stations.

More information is presented on training facility options in Section 6.

Recommendation(s)

Rec #	Recommendation	Estimated Costs	Suggested Timeline
5	An assessment of utilizing Township staff on a part-time basis (2-3 days per week) to assist BFD with its records management and other administrative challenges be conducted.	$20-30,000 per year	Short to Mid-term (1-6 years)

6	To assist with the fire prevention program including public fire safety education and inspection programs, all officers should be trained and certified to at least: • National Fire Protection Association 1031: Fire Inspector I, and • National Fire Protection Association 1035: Fire and Life Safety Educator I	Staff time for training	Short-term (1-3 years) and ongoing
7	The BFD work with developers and the public to make the Home Sprinkler Systems initiative a part of its fire prevention and public education program.	Staff time only	Short-term (1-3 years) and ongoing
8	An annual training plan to be developed, implemented and assessed to ensure that the volunteer firefighters are completing the required training. To verify the training programs are meeting related NFPA (and other) training program recommendations, the Training Officer should identify: • training programs that area appropriate for the services that BFD is providing • number of hours required to meet the training needs • training resources required • joint partnerships with bordering fire departments and private organizations • presented to chief annually with key performance indicators • monitor training compliance	The costs are mostly related to staff hours unless outside facilities or trainers need to be accounted for	Short-term (1-3 years) and ongoing
9	To meet the increasing need for training and records management of the volunteer firefighter training programs, the Training Officer position should become a permanent part-time position for 15 to 20 hours per week, for a total annual allotment of 780 to 1,040 hours.	Increase in staffing cost $20 – 30,000 per year	Short-term (1-3 years)

10	To improve firefighter response reliability: • Increase each fire station's roster to 30 volunteer firefighters. • Review of the pay scale for responses and training to ensure equal pay for time spent on fire department related business.	Increasing firefighter complement would cost approximately $38,000 in equipment and $45,000 in salaries. Pay scale review could cost $15 - 20,000 per year.	Short-term (1-3 years)

SECTION 5 – Fire Suppression Response and Dispatching Services

5.1 Fire Suppression/Emergency Response

5.2 Response Data

5.3 Service Level Standards – Dispatching Services

SECTION 5: FIRE SUPPRESSION RESPONSE AND DISPATCHING SERVICES

5.1 Fire Suppression/ Emergency Response

5.1.1 National Fire Protection Association (1720)

To provide a fire department clearer focus on what the ultimate goals for emergency response criteria are, the National Fire Protection Association suggests that response times should be used as a primary performance measure by fire departments. The NFPA's 1720 Standard for volunteer fire department response times is noted below. Based on the overall population density of approximately 28 residents per square kilometer, the Township response criteria is Rural, with a response of 6 firefighters on scene within 14 minutes, 80 percent of the time. Within communities like Sunderland, Cannington and Beaverton, however, the population densities can be greater than 28 residents per square kilometer. Therefore, there does exist pockets of Brock that fall into the Rural definition, thus requiring a response of 10 firefighters on scene within 10 minutes, 80 percent of the time. Based on this mix of population densities, EMT has utilized both the 10- and 14-minute response criteria for its review of BFD's response data.

TABLE #3: NFPA 1720 Standard for Volunteer Fire Department Response Times

Demand Zone	Demographics	Minimum FF to respond	Response time (minutes)	Meets objective (%)
Urban area	>1000 people/mi^2 >386 people per km^2	15	9	90
Suburban area	**500-1000 people/mi^2 193-386 people per km^2**	**10**	**10**	**80**
Rural Area	**<500 people/mi^2 <193 people per km^2**	**6**	**14**	**80**
Remote Area	Travel distance > 8 mi (12.87km)	4	Directly dependent upon travel distance	90
Special risks	Determined by Authority Having Jurisdiction	Determined by Authority Having Jurisdiction	Determined by Authority Having Jurisdiction	90

When considering the response times and related needs for a community, the fire response curve (Figure 7) presents the reader with a general understanding of how fire can grow within a furnished residential structure over a short period of time. Dependant on many factors, the rate of growth can be affected in several ways, such as room contents or availability to oxygen, which can increase or suppress the burn rate through fire control measures within the structure.

When we look at 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 response/ incident location
- The layout of the community
- Impediments such as weather, construction, traffic jams, lack of direct routes (rural roads)
- Notification time
- Assembly time of the firefighters, both at the fire station and at the scene of the incident
    - Assembly time includes dispatch time, turnout time to the fire station and response to the scene. Assembly time can vary greatly 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, the need for immediately initiating fire suppression activities is critical. It must be noted that Brock Fire Department responds to more than just fires. For example, motor vehicle collisions can create a medical or fire emergency that also needs to be addressed urgently. Hence, the reason to be as efficient and effective as possible in responding to calls for assistance.

Figure #4: Fire Response/Propagation Curve

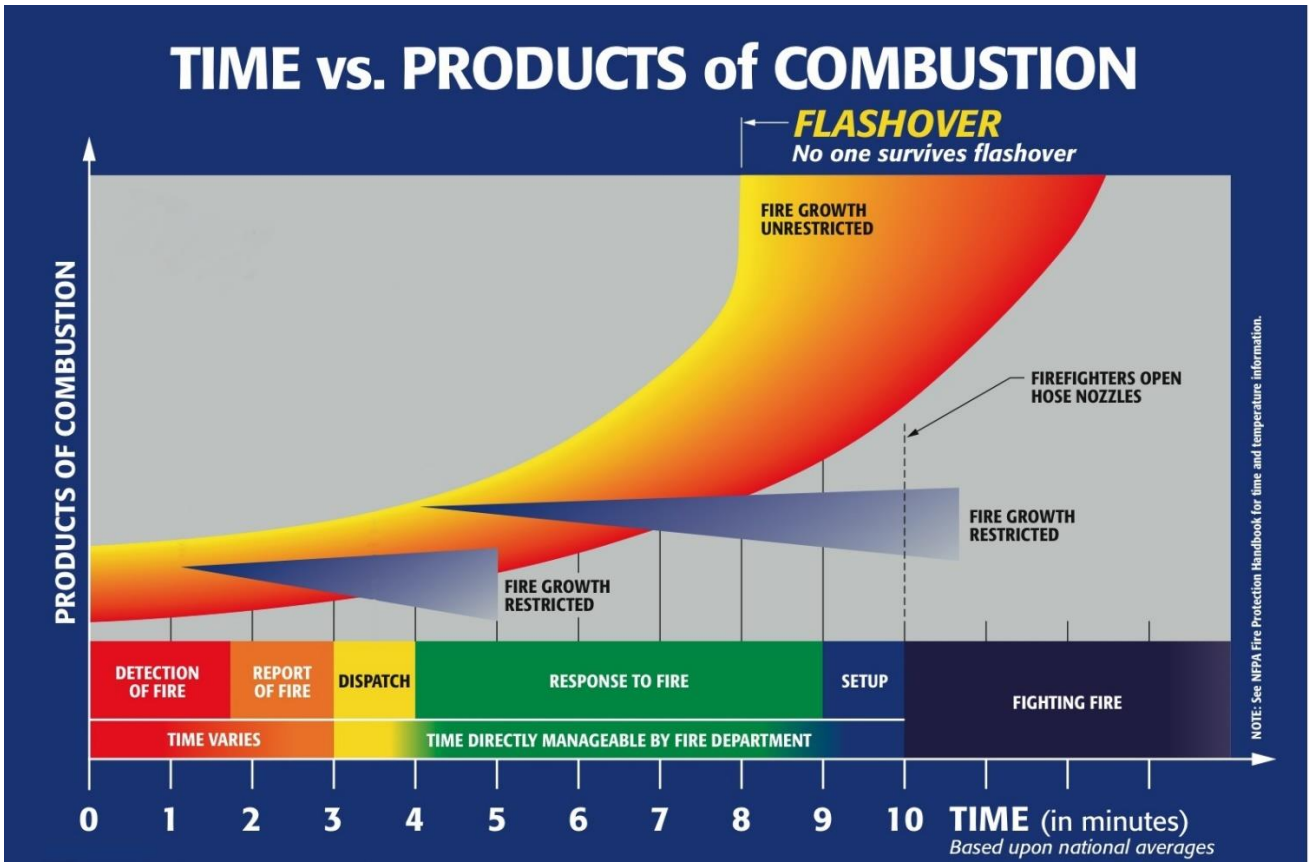


Figure 7 notes the following time variables:

- Detection of fire – when the occupant discovers that there is 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 – when someone has identified the fire and is calling 9-1-1 for help.
- Dispatch – the time it takes the dispatcher to receive the information and dispatch the appropriate resources.
- Response to the fire – response time is a combination of the following:
    - Turnout time – how long it takes the career firefighters to get to the fire truck and respond or how long it takes the volunteer firefighters to get to the fire station to respond on the fire truck.
    - Drive time – the time from when the crew advises dispatch that they are actually responding, until the time that they report on scene.
- Setup time – the time it takes for the fire crews to get ready to fight the fire.
- Fighting the fire – actual time on scene extinguishing the fire.

The overall goal of any fire department is to arrive at the scene of the fire and/or incident as quickly and as effectively as possible. If a fire truck arrives on scene in eight minutes or less, with a recommended crew of four or more firefighters, there is increased opportunity to contain the fire by reducing further spread of the fire to the rest of the structure. Alternatively, if the first fire attack team arrives with fewer than four firefighters on board, then it is limited to what operations it can successfully attempt.

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

Because volunteer firefighters will be carrying out their normal daily work and/ or family related activities when a fire call comes in, they then need to get dressed to respond to the station, drive to the station, get suited up in their bunker gear, and get on the truck to respond. The time from the page until they are leaving the fire station is often referred to as the ‘chute’ or assembly time. Depending on the time of day, weather, traffic, and their distance from the fire station when the call comes in, will determine how quickly they can be ready to respond to the call.

Not having enough firefighters at an emergency scene can create an unsafe situation for the firefighters or, in a worst-case scenario, it can cause a delay in conducting fire suppression, lifesaving and/or rescue operations. The NFPA 1710 standard on firefighting notes that for a standard two-story single-family dwelling (without a basement), the required response of 12 firefighters on scene is necessary to effectively battle the fire. Brock Fire is unable to meet this staffing requirement on a consistent basis. The NFPA standards are not law, but they are an industry best practice and as noted in National Fire Protection Association 1720, to be effective in delivering fire suppression services, Brock Fire Department should endeavour to meet this standard.

Although there is the option of calling in mutual aid from other bordering fire departments, a delay in conducting fire suppression and rescue operations can be hampered if sufficient numbers of firefighters are not available to conduct these operations.

Currently the Brock Fire Department 80th percentile is 12:50 (minutes:seconds). This response time falls below the 14-minute timelines noted in the NFPA Standard for rural communities.

Another requirement by NFPA is that once on scene, the fire department must have a coordinated approach, a secured water supply and be able to begin an initial attack within 2 minutes, 90 percent of the time. Although this is an operational goal and not presently measured by Brock Fire Department, the Department should start to measure and monitor this time for effectiveness and training purposes.

The Office of the Fire Marshal and Emergency Management's (OFMEM) Comprehensive Fire Safety Effectiveness Model Considerations, notes the following:

- The fire department should strive to provide an adequate, effective and efficient fire suppression program designed to control/ extinguish fires for the purpose of protecting people from injury, death or property loss.
    - Does your fire department have a comprehensive training program and evaluation system for all positions?
    - Does the fire department have a system to ensure that an adequate number of trained personnel respond to all emergencies within a reasonable time period?
    - Is your fire department provided with adequate resources to safely and effectively handle the risks it will be called upon to mitigate?
    - Does the fire department use standard operating guidelines to define expected fire department actions for the wide variety of situations it might encounter?
    - Does your fire department have automatic response agreements to guarantee an adequate level of personnel at all times?

In addition to the recommendations contained in this Master Plan document, the Fire Department should review these questions annually to implement effective measures to meet the OFMEM Guideline considerations.

5.2 Response Data

The following chart identifies a comparison of response types and the response breakdown for 2018. To view more data for 2018, 2017 and 2016, refer to Appendix "E".

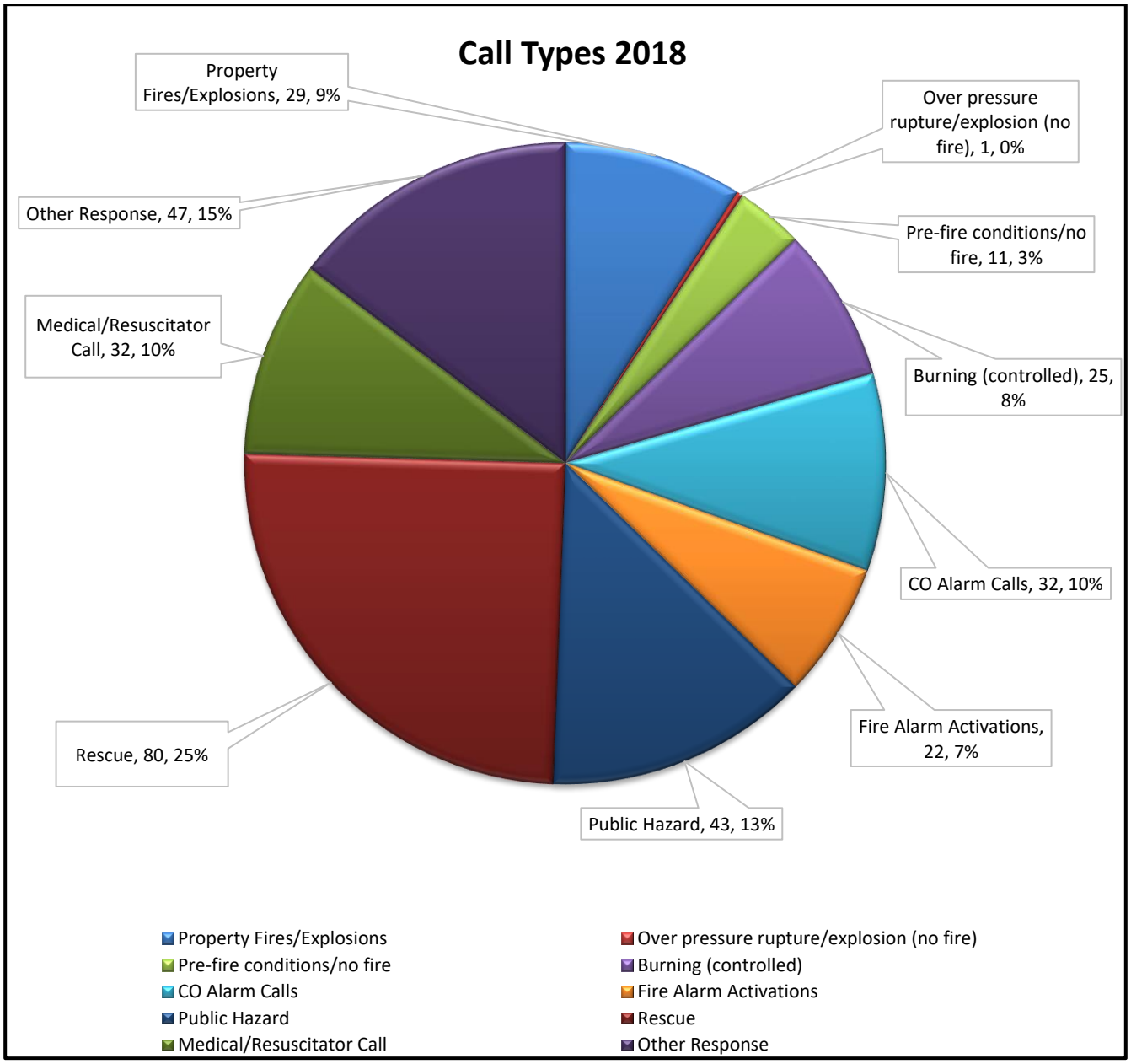
The following set of charts (using the supplied data) help to identify the types of calls that are creating the bulk of response demands.

Note: The following charts may not reflect 100% of the yearly calls for service. This is due to the following:

- *To get a more accurate accounting of response times, some of the calls were removed from the data analysis due to identified anomalies in time stamping. For example, if an emergency response time was noted as taking hours, then it was removed based on the assumption of a data entry error.*
- *Only the emergency responses were measured, which is the recommended practice noted by the National Fire Protection Association and the Commission of Fire Accreditation International*
    - *For example, a department may have noted a total of 200 calls for service for the noted year. However, only 150 of those calls were emergency responses.*

Figure #5: Response Data for 2018

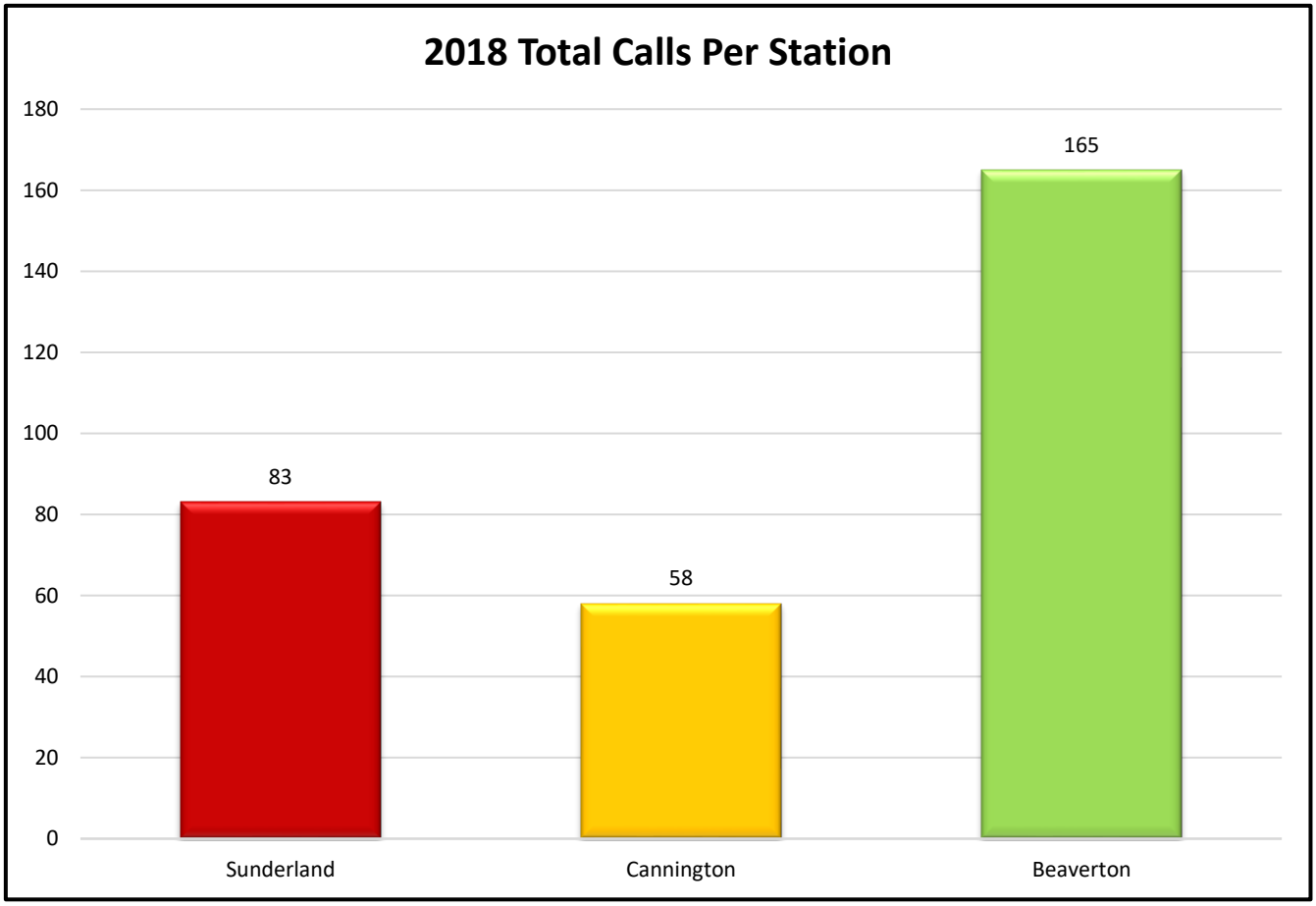
Yearly Comparisons of All Calls for 2018



As illustrated in the above chart, the top three types of calls that Brock Fire Department responds to are:

1. Motor Vehicle Collision/Rescue related calls, which account for 25% of the Department's overall responses.
2. Public Hazard Calls, which account for 13% of the Department's overall responses, and
3. False alarm activations, which account for 11% of the Department's overall responses.

Figure #6: 2018 Total Calls Per Station



Based on this information, the percentage comparison gives the Fire Chief and his staff the ability to monitor where the bulk of their resources are being utilized according to type of call and by which is the busier fire station. This also offers greater focus for the Training Branch to ensure that the firefighters are receiving training related to the types of responses that will demand a higher skill set.

Incorporating an overview of station location and its reliability to respond to calls within its response zone should be reported to Council. This review would entail identifying how many times units from the Brock fire station are available or not available (due to being tied up at other calls) for responses. This will confirm whether there is a high percentage of reliability – ability to respond to calls without a delay. It may also identify that there is a need for more staff to be available for support or secondary calls. Although accurate data could not be confirmed, it would appear that for the most part, each fire station (within the three locations) do have a high percentage of availability to respond to calls within their own response areas.

Along with tracking of overall response reliability, tracking of vehicle movements will offer the Fire Chief an even more accurate accounting of how resources are being utilized. For example, we know that in 2018 the BFD responded to 306 calls, but how many units from the Brock fire stations were required to meet the needs of each response? Many calls require more than one fire truck to respond

from the fire station(s). This can also support the present level of staff and vehicles and/or indicate more tracking of these amounts to identify future needs.

5.3 Service Level Standards – Dispatching Services

The Brock Fire Department receives its dispatching services from the Oshawa Fire Department. Based on information received, along with a review of the dispatching data, the Brock Fire Department is receiving adequate dispatching services from Oshawa Fire and is the benefactor of this service as noted below in the NFPA 1221 excerpt.

NFPA 1221, Section 7.4 Operating Procedures

7.4.1* Ninety-five percent of alarms received on emergency lines shall be answered within 15 seconds, and 99 percent of alarms shall be answered within 40 seconds. *(For documentation requirements, see 12.5.2.)*

7.4.1.1 Compliance with 7.4.1 shall be evaluated monthly using data from the previous month.

Oshawa only does the initial dispatching for BFD; from that moment onward, BFD is responsible for having one of its volunteer firefighters take over all dispatching duties and other related responsibilities. This effectively removes one firefighter from the response numbers, which could create a challenge for on-scene staffing numbers. EMT is recommending that the dispatch agreement with Oshawa Fire be renegotiated to include full dispatching services. The cost of such an increase is not known at this time because it would depend on call numbers and the ability of Oshawa Dispatch to meet this enhanced level of service.

Another opportunity is the incorporation of a regional central dispatching service. This would be a long-term consideration to be discussed with all fire departments in Durham Region.

Recommendation(s)

Rec #	Recommendation	Estimated Costs	Suggested Timeline
11	The Fire Chief conduct an annual review of BFD and its response data in comparison to industry standards.	Staff time only	Short-term (1-3 years) and ongoing
12	The dispatch agreement with Oshawa Fire be renegotiated to include full dispatching services.	No costing offered at this time.	Short-term (1-3 years)

SECTION 6 – Facilities, Vehicles, and Equipment

SECTION 6: FACILITIES, VEHICLES, AND EQUIPMENT

6.1 Fire Station Review

The Brock Fire Department stations are located in Sunderland, Cannington, and Beaverton. A review of the existing fire station facilities was conducted by Emergency Management & Training Inc. and will be addressed in this section. It should be noted that the walkthrough of the fire stations was a visual inspection; no destructive testing or engineering assessment was conducted.

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

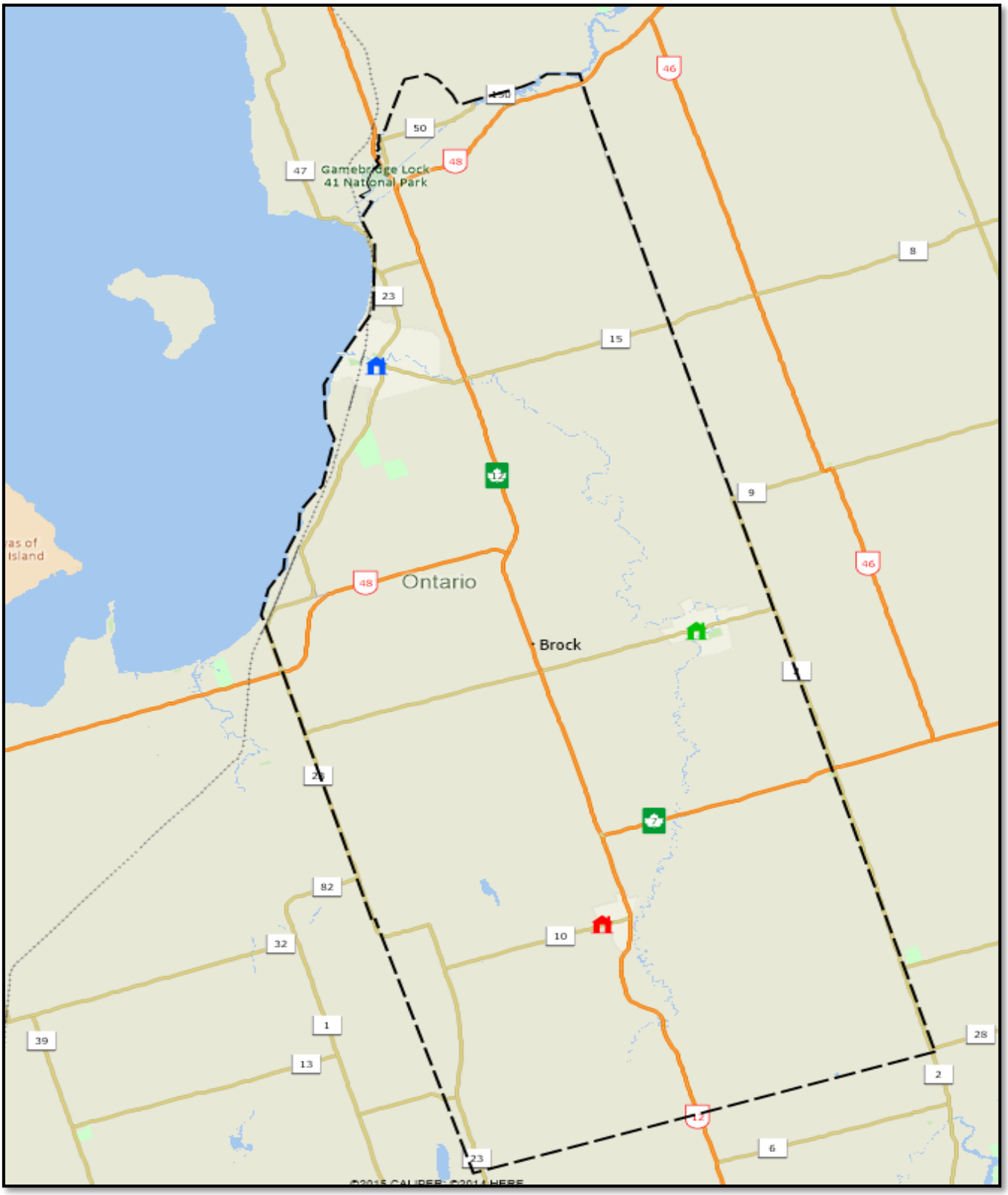
Fire stations should be situated to achieve the most effective and safe emergency responses. Distance and travel time may be a primary consideration; however, if a basic expectation of response time is set by the community's decision makers, then a more realistic level of service and fire station location criteria can be identified.

In the following maps, the shaded area around the fire station denotes a response time zone:

- The first response time zone in the coloured shade is for 10-minutes, minus 4-minutes for volunteers to arrive at the station and then respond in a fire department vehicle (the 10 minutes is related to the NFPA Suburban response time standard).
- The second response time zone in light brown is for 14-minutes, minus 4-minutes for volunteers to arrive at the station and then respond in a fire department vehicle (the 14 minutes is related to the NFPA Rural response time standard).

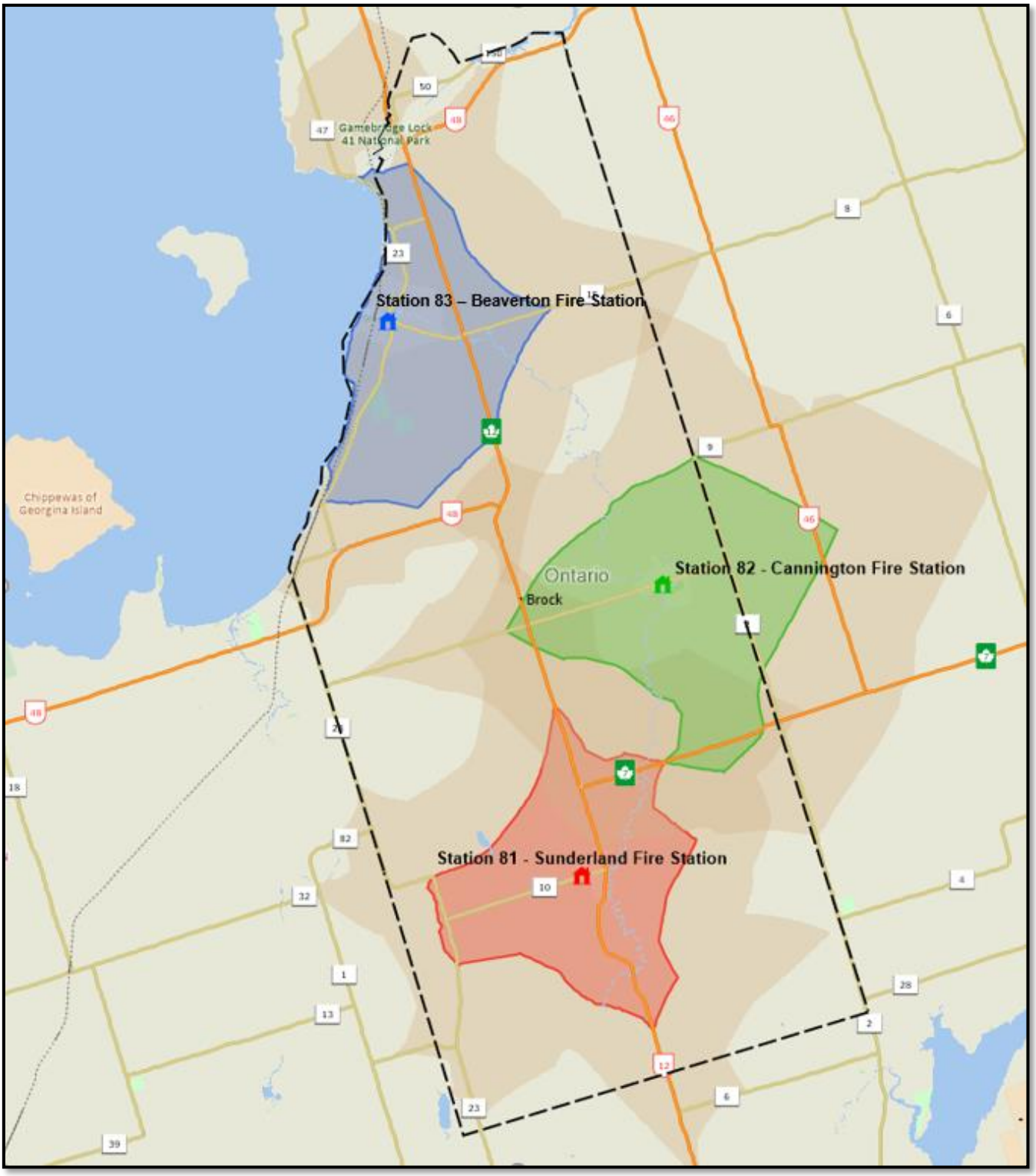
The response mapping and related response data supplied in this document should not be taken in isolation. A full in-depth study along with an annual report submitted to Council by the Fire Chief with an update on the key performance measures and expectations is required.

FIGURE #7: Map #1 – Location of the Fire Stations



Sunderland station in **RED**, Cannington Station in **GREEN** and the Beaverton Station in **BLUE**

FIGURE #8: Map #2 – Response/Drive Time of 6 and 10-Minutes from the Fire Stations

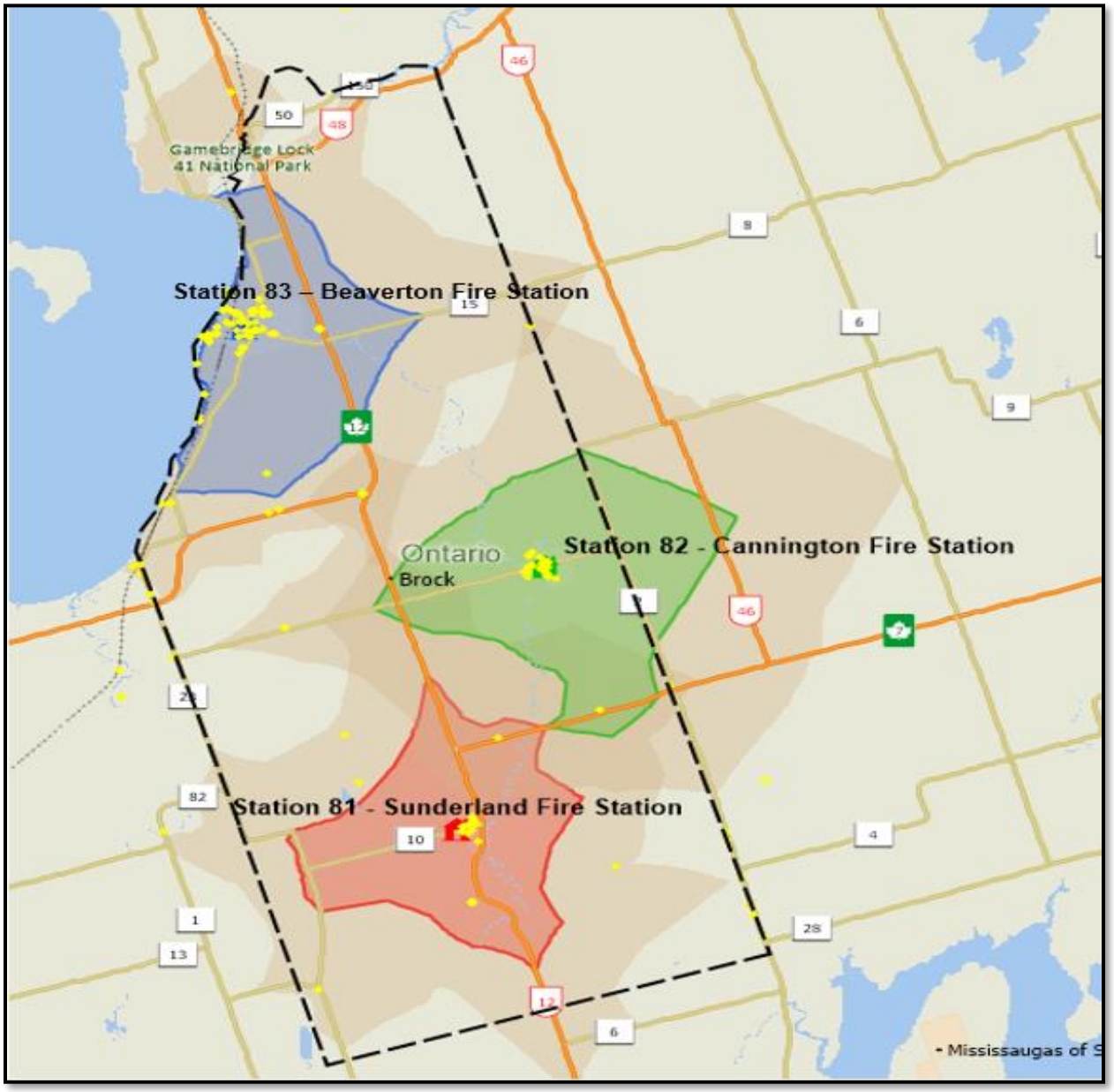


The response zone map indicates that Brock is well covered within the three main communities based on the Suburban 10-minute response times criteria. It can also be seen that the more rural areas are generally well covered by the Rural 14-minute response recommendation. When incorporating 4-

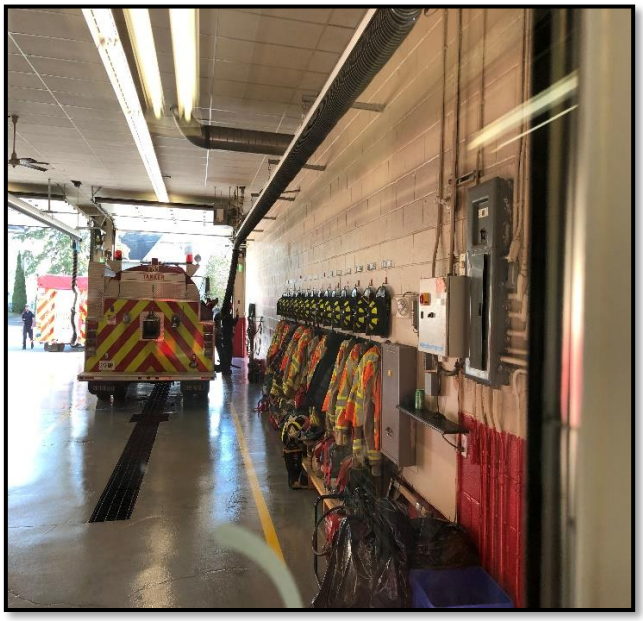
minutes for the firefighters to respond to the station, the 6-minute grid provides a 10-minute response time and the 10-minute grid is within the 14-minute response time.

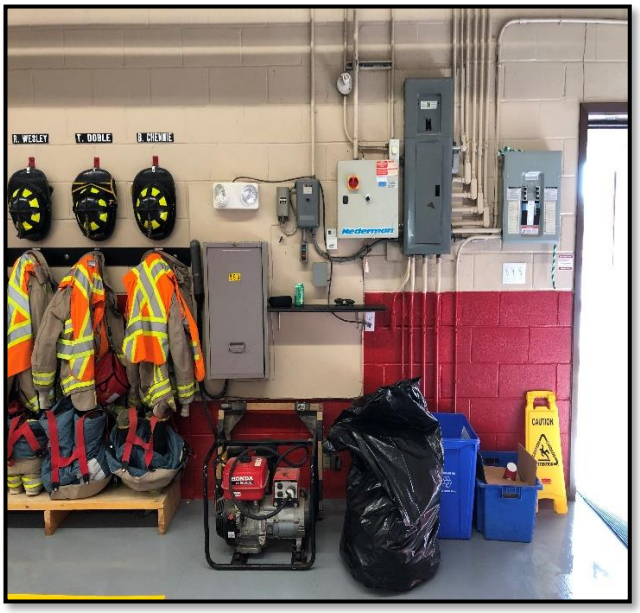
In the next map, Emergency Management and Training Inc. has pinpointed the general locations of responses for 2018. This type of call clustering helps to identify if the fire stations are well equipped to respond to the bulk of calls. As can be seen in Map #3, each of the three stations do appear to be well situated in relation to the bulk of their responses.

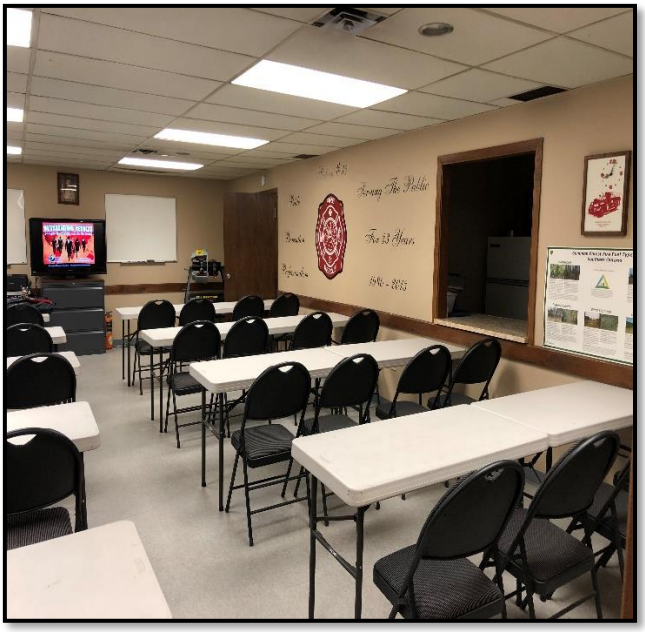
FIGURE #9: Map #3 – Call Cluster Map



6.1.1 Beaverton Fire Station #83

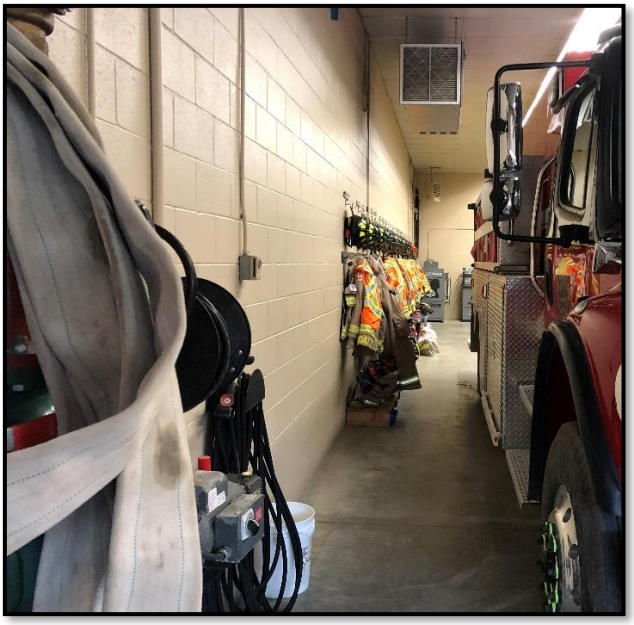






During the walk-through by Emergency Management & Training Inc., it was evident that the Beaverton fire station is in good condition with no specific concerns noted other than the location of the electrical panel in relation to possible water contamination. Overall, the office spaces, gear storage, and vehicle bays were found to be well set-up and maintained.

6.1.2 Cannington Fire Station #82

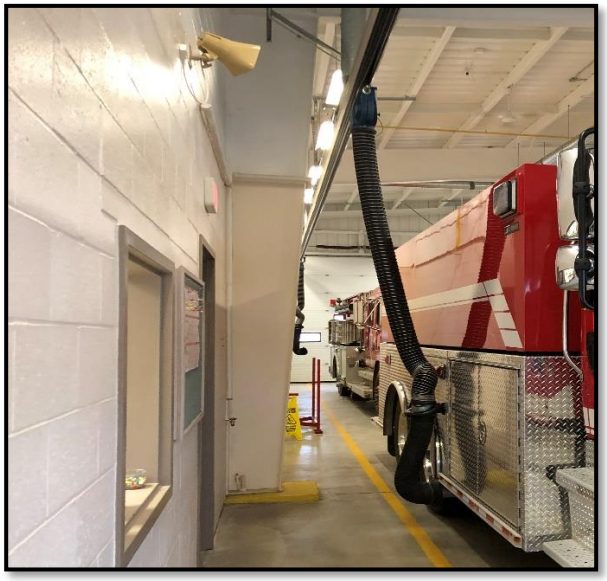


During the walk-through by Emergency Management & Training Inc., it was evident that the Cannington fire station is in good condition. Overall, the office spaces, gear storage, and vehicle bays were found to be well set-up and maintained.

As can be seen in the supplied photos, this station is, however, nearing its maximum capacity for storage of vehicles and equipment. Although no recommendation is being made for expansion or upgrades at this time, the Fire Chief should monitor future needs of this station along with availability of land for any future relocation requirements.

It was also noted that the fire station does have a ceiling mounted diesel exhaust system, which for the most part removes and contains the bulk of contaminates from adhering to the firefighter's gear; however, consideration needs to be given to the proximity of the firefighter's gear in relation to the closeness to the vehicle exhaust. This could create an exhaust contamination issue. Firefighter gear should be stored in a separate room away from any exhaust contamination.

6.1.3 Sunderland Fire Station #81



Sunderland is the newest station in the Township and is also the location of the Fire Chief and Deputy Chief's offices. During the walk-through of the Sunderland fire station, it was evident that the station is in good condition with no specific concerns. Overall, the office spaces, gear storage, and vehicle bays were found to be well set-up and maintained.

The single concern is that this station does not have a backup generator. This station is a critical emergency service facility and is also listed as the Township's alternate Emergency Operation Centre, and it is therefore required to have back up power. As such, EMT is recommending that a backup generator be installed. The cost of a new generator can fluctuate greatly depending on power requirements, but it is estimated that a full-size generator could cost as much as $60,000.

6.2 Training Facilities

Brock Fire Department does not have a training centre within its Township boundaries, but it does have access to joint training initiatives within Durham Region. Brock Fire Department also has the option of utilizing the Ontario Fire College's (OFC) training grounds, however this is a logistical challenge being that the OFC is more than an hour away from Brock.

The OFC offers the Brock Fire Department the ability to train and practice on a wide range of training programs; however, one of the key concerns about going outside of the community to conduct required training is that fire department resources are on a delayed response if a large-scale situation, such as a house fire, were to occur.

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

Example of a Drager Mobile Live Fire Training Unit.

To enhance its training programs, it is recommended that BFD consider a joint purchase of a Draeger (or similar model) container and place it at the training centre to more effectively accommodate live fire training needs of the firefighters.

Based on Emergency Management & Training Inc.'s experience and considering the size of the Township of Brock's fire department, it is recommended that BFD continue to utilize the resources at their disposal along with identifying ongoing joint opportunities to enhance the training of the Brock Township firefighters.

6.3 Fire Apparatus - New and Replacement Schedules

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

The Brock Fire Department is well-equipped with pumper trucks, tankers and support vehicles required for primary response to calls within the Township. All the vehicles have been identified in the Department's capital replacement plan. There is also reference to an aerial device that is scheduled for inclusion into the fleet in 2021. EMT is supporting the inclusion of this new aerial device as it will enhance the fire department's ability to battle 'above ground' fires that are out of the reach of conventional ground ladders. Aerials or any type of elevated device trucks play a vital role at the scene of a structure fire; securing building access for upper floors, rescue, assisting with rooftop ventilation, and suppression can be achieved from an aerial ladder. These factors are especially important when dealing with apartment buildings and/or other structures of 2 storeys or more, such as commercial buildings and industrial facilities. As such, it is recommended that this replacement be incorporated into the fleet's future replacement plan.

As noted in a 2017 Vehicle and Equipment study, there are options relating to the types of elevated devices that a fire department can purchase. The following is an excerpt from that 2017 report.

6.3.1 Elevated Devices – Aerial Verses Tele-squirt

The following two pictures help to display the difference between an aerial truck and a tele-squirt. The aerial truck (in the left photo) is specifically designed to be used for access to upper floors of a structure for rescue. As such, it has a very large ladder structure that is generally 30 meters or more in length. Most of these ladders are equipped with a large capacity nozzle to assist with fire extinguishment on upper floors of a building or roof tops that are out of reach of regular ground ladders. Whereas the tele-squirt (in many cases) is a regular fire truck style frame that has the ability to raise a large capacity water nozzle, generally up to 15 or 20 meters. A tele-squirt has a much smaller ladder on it that can be used for firefighting purposes.

The key differences between the two vehicles are the size of the vehicle (the aerial is much larger), the reach of the elevated device and what the elevated device was designed for. Another key difference is the cost. A new aerial truck can cost as much as 1.6 million dollars. Whereas a new tele-squirt can cost as much as one million dollars or more.

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

More information on recommendations for aerial apparatus can be found in Appendix D, and in the original 2017 report. EMT is recommending that BFD continue moving forward with its planned purchase of an aerial device.

6.3.2 Fire Underwriters Survey – Vehicle Replacement Recommendations

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

The Medium Sized Cities section (outlined in blue) is the recommendation for vehicle replacement for a township the size of Brock. This allows for up to a 20-year replacement cycle, in which the fire vehicle can be utilized as Second Line response status. It is, however, recommended that all First Line units be replaced by a new or younger unit when it reaches 15 years of age.

TABLE #4: FUS Vehicle Replacement Recommendations

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	First Line	First Line
16 – 20 Years	Reserve	Second Line	First Line
20 – 25 Years [1]	No Credit in Grading	No Credit in Grading or *Reserve* [2]	No Credit in Grading or *Reserve* [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 [1]	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 (*National Fire Protection Association *1071)*
2. *Exceptions to age status may be considered in small to medium sized communities and rural centre conditionally, when apparatus condition is acceptable, and apparatus successfully passes required testing*
3. *Major cities are defined as an incorporated or unincorporated community that has:*
    a. *a populated area (or multiple areas) with a density of at least 400 people per square kilometre; AND*
    b. *a total population of 100,000 or greater.*
4. *Medium Communities are defined as an incorporated or unincorporated community that has:*
    a. *a populated area (or multiple areas) with a density of at least 200 people per square kilometre; AND*
    b. *a total population of 1,000 or greater.*
5. *Small Communities are defined as an incorporated or unincorporated community that has:*
    a. *no populated areas with densities that exceed 200 people per square kilometre; AND*
    b. *does not have a total population in excess of 1,000.*

Fire Underwriters Survey definition of 1st line, 2nd line and Reserve is:

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

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

6.3.3 National Fire Protection Association – Vehicle Replacement Recommendations

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

For fire departments that are considering refurbishing their vehicles to extend the in-service life, reference can be made to the National Fire Protection Association (NFPA) 1912, *Standard for Apparatus Refurbishing*.

It should be noted that although the FUS do take refurbishment of vehicles into consideration, no credit rating is assigned to vehicles over 30 years of age.

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

TABLE #5: Apparatus Replacement Schedule (as noted by BFD)

Year and Type of Vehicle	Lifecycle	Scheduled Replacement
2021 Aerial	20 years	2041
2003 Pumper	20 years	2023
2005 Pumper	20 years	2025
2018 Pumper	20 years	2038
2000 Rescue	20 years	2020
2006 Rescue	20 years	2026
2006 Rescue	20 years	2026
1999 Tanker	20 years	2019
2016 Tanker	20 years	2036
2018 Tanker	20 years	2038
2011 Pickup Truck	7 Years	2020
2013 SUV	7 Years	2020

National Fire Protection Association and Fire Underwriters Survey both recommend replacement of front-run units after 20 years. This same vehicle can then be put into a secondary role. As such, all front-run units should be scheduled for replacement at the 20-year stage with the back-up/ secondary units being replaced at 25 years. Once a pumper truck has passed the 25-year stage, no credit is given by Fire Underwriters.

6.4 Maintenance

Brock Fire Department does not have its own mechanical division to complete repairs and testing to its vehicles and equipment, but they can conduct minor repairs and upgrades due to some of the volunteer firefighter's qualifications. If a major repair is required, a decision is made on whether the repair can be handled in-house or if it is a specialized repair that needs to be contracted out to a third party.

Recommendation(s)

Rec #	Recommendation	Estimated Costs	Suggested Timeline
13	Electrical panels in the garage bays should be protected from possible water spray and electrical outlets should be GFI to reduce the risk of shock should they become wet.	$5,000	Short-term (1-3 years)
14	Sunderland Fire Station, which also serves as the alternate Emergency Operations Centre, should be equipped with an emergency backup generator.	$40-60,000	Short-term (1-3 years)
15	BFD should continue moving forward with its planned purchase of an aerial device.	$1.0 - $1.3 Million	Short-term (1-3 years)
16	BFD to continue to utilize the resources at their disposal along with identifying ongoing joint opportunities to enhance the training of the firefighters. • Consideration should also be given the purchase of a mobile training unit.	Staff time only	Mid to Long-term (4-10 years)

Section 7 – Fire Service Agreements

7.1 Mutual Aid and Automatic Aid

SECTION 7: FIRE SERVICE AGREEMENTS

Due to the geographical makeup of Brock Township, populations are mainly located within the three large communities of Sunderland, Cannington and Beaverton. To ensure coverage in some of the outlying areas of the community, BFD has established response agreements with other communities to assist the Department in providing effective coverage. These agreements exist with Georgina, Kawartha Lakes, Oshawa and Ramara. These types of agreements are not only a cost-effective measure, they are also a way of ensuring that all residents of the community receive proper fire response protection when needed.

7.1 Mutual Aid and Automatic Aid

In fire and emergency services, mutual aid is an agreement among emergency responders to lend assistance across jurisdictional boundaries. This may occur due to an emergency response that exceeds local resources, such as a disaster or a multiple alarm fire. Mutual aid may be an ad hoc request only when such an emergency occurs. It may also be a formal standing agreement or cooperative emergency agreement on a continuing basis, ensuring that 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 referred to as "automatic aid agreements".

During the review conducted by EMT, it was observed that the Brock Fire Department has positive working relationships with the other fire departments in the surrounding jurisdictions. As such, mutual aid and other required agreements (if necessary) are in place. During the interviews conducted by EMT staff, no concerns were noted about the present agreements that are in place.

Recommendation(s)

There are no recommendations for this section on fire service agreements

SECTION 8 – Emergency Management

8.1 Emergency Management Program

SECTION 8: EMERGENCY MANAGEMENT

8.1 Emergency Management Program

In this section Emergency Management & Training Inc. conducted a review of Brock's Emergency Management Program, including existing training for Brock employees and response planning. As mandated by the *Emergency Management and Civil Protection Act* (EMCPA), all municipalities in Ontario must have an emergency response plan and an emergency planning program. For every community in Ontario, there must also be an identified Community Emergency Management Coordinator (CEMC). Within Brock Township, this role is fulfilled by the Fire Chief.

Based on interviews with the Fire Chief, it would appear that the Township's Emergency Response Plan complies with all required legislation and that annual training exercises are conducted to ensure that the Emergency Plan is reviewed and practiced on a regular basis.

8.1.1 Current Condition

The primary and secondary Emergency Operations Centres (EOC) are functional spaces that can be set up, as needed, by the EOC group. The primary EOC is located at the Township Offices and has served the community well. The Township office is in the process of installing a back-up power system in the case of a power failure in the community which makes this a suitable location. The alternate EOC is located at the Sunderland fire station. The Sunderland fire station, however, as the alternate EOC, requires a backup generator.

Based on a review of the two present EOC facilities and the program in place, the Township is well equipped in relation to its EOC locations. The single recommendation made for a back-up generator at the Sunderland Station has been previously noted in the report.

Recommendation(s)

See recommendation #14 regarding a backup generator at the Sunderland Fire Station.

SECTION 9 – Finance, Budgeting, and Capital Investment Plan

9.1 Operating Budgets

9.2 Capital Investment Plan

SECTION 9: FINANCE, BUDGETING, AND CAPITAL INVESTMENT PLAN

The Brock Fire Department has a set of annual operating and capital budget/ forecasts that fluctuate based on the staffing, programs and equipment that have been identified for replacement. During the review of the operating and capital budget process, it was found that Brock Fire Department is well organized in both areas. This indicates a strong level of support by Council in assisting the Fire Department with meeting its service goals.

9.1 Operating Budgets

During the review of the operating budget, it was noted that all key account operating sections are identified and tracked, such as:

Operating Budget Line Items:

- Staffing related costs
- Training
- Fire Prevention and related Fire Safety Education
- Vehicle and equipment maintenance
- Station maintenance

9.2 Capital Forecasts

It appears there is a standard year replacement cycle for the fire trucks that is based on the FUS recommendations for frontline vehicles. This replacement cycle falls in line with the industry standards of 20 years or more (for smaller communities), depending on the vehicle's function. As such, Brock and its Fire Department should be commended for its efforts in endeavouring to adhere to this industry standard.

Capital Budget Line Items:

- Vehicle replacement
- Equipment replacement (for large cost items that are not covered in the operating budget)

Along with the replacement schedule, FUS recommends that there should be at least one spare fire truck for up to every eight related units. For example:

- One pumper truck for every eight (pumpers),
- One spare aerial truck for every eight (aerials),
- One spare tanker truck for every eight (tankers), etc.

A reserve unit should always be available, should one of the primary units go out of service. This still applies if the department has less than eight vehicles. Alternate solutions include having agreements with neighbouring fire departments to provide apparatus on loan or through an automatic aid response when vehicles are out of service.

9.3 Reserve Funds

It is important to ensure that adequate annual contributions for small equipment, along with apparatus repairs, and contributions for future infrastructure (fire stations) are identified. If any shortfalls are determined, the Fire Chief should establish what effect this will have on operations and bring forward any recommendations (for funding adjustments), if necessary.

Based on information received from the Fire Chief, there is a business plan in place that incorporates all the department's general vehicle and equipment needs to support future goals and expectations.

Recommendation(s)

No recommendations for this section.

SECTION 10 – Conclusion and Recommendations

10.1 Conclusion

10.2 Recommendations and Estimated Costs

SECTION 10: CONCLUSION AND RECOMMENDATIONS

10.1 Conclusion

During the review conducted by Emergency Management & Training Inc., it was demonstrated that the full-time staff and volunteer firefighters are truly dedicated to the community they serve. The Council, Chief Administrative Officer, and Fire Chief are sincerely committed to ensuring the safety of the community and the firefighters.

Based on the present staffing, equipment, and fire stations locations, Brock Fire Department is endeavoring to offer the most efficient and effective service possible and is doing so admirably.

All costs and associated timelines noted in this report are approximate estimates that can be implemented through prioritization between the Fire Chief, Chief Administrative Officer, and Council.

This Master Fire Plan is a long-range planning document; however, it is recommended that annual updates be completed, along with a full review to be conducted at the five-year mark.

10.2 Recommendations and Estimated Costs

The following chart provides a detailed overview of the recommendations found throughout this report along with any estimated costs and suggested timelines for implementation. This Master Fire Plan document is a culmination of 16 recommendations.

Rec #	Recommendation	Estimated Costs	Suggested Timeline
1	The present Establishing & Regulating By-law be reviewed, updated to reflect more recent changes from the Ontario Fire Service Curriculum to the NFPA Standards, and presented to Council for approval. • The new update should include an outline of services being delivered by the fire department.	Staffing related costs only	Short-term (1-3 years) and ongoing
2	Brock Fire Department is approaching the point of requiring the equivalent of one full-time, dedicated Fire Prevention Officer. • This can be also accomplished through the use of part-time staff, who are scheduled to accomplish specific fire prevention and education program hours. • The utilization of the present complement of volunteer firefighters is also an option to be considered.	Estimated cost to implement either part-time or added time for firefighters $20-30,000	Short to Mid-term (1-6 years)
3	The Fire Chief review Brock's inspection program to identify levels of desired frequency in relation to the inspections noted in the Fire Underwriters Survey Chart in Appendix "B".	Staff time until a program is implemented	Short-term (1-3 years)

4	BFD staff present an updated Community Risk Assessment to Council in 2020. Upon completion of the risk assessment, the Fire Chief provides Council with a draft policy for review and passage that outlines a proactive fire inspection program to address identified needs and expected outcomes. This program should outline the building types and the frequency of inspections. • Should also identify what level of staffing is required to meet the FUS recommended inspection and the fire department recommended inspection program. • To accomplish a staffing/ hourly requirement, an assessment of recently conducted inspections is needed to create an anticipated costing for this program.	Costing would depend on resource requirements to meet Fire Chief recommendations	Short-term (1-3 years) and ongoing
5	An assessment of utilizing Township staff on a part-time basis (2-3 days per week) to assist BFD with its records management and other administrative challenges be conducted.	$20-30,000 per year	Short to Mid-term (1-6 years)
6	To assist with the fire prevention program including public fire safety education and inspection programs, all officers should be trained and certified to at least: • National Fire Protection Association 1031: Fire Inspector I, and • National Fire Protection Association 1035: Fire and Life Safety Educator I	Staff time for training	Short-term (1-3 years) and ongoing
7	The BFD work with developers and the public to make the Home Sprinkler Systems initiative a part of its fire prevention and public education program.	Staff time only	Short-term (1-3 years) and ongoing

8	An annual training plan to be developed, implemented and assessed to ensure that the volunteer firefighters are completing the required training. To verify the training programs are meeting related NFPA (and other) training program recommendations, the Training Officer should identify: • training programs that area appropriate for the services that BFD is providing • number of hours required to meet the training needs • training resources required • joint partnerships with bordering fire departments and private organizations • presented to chief annually with key performance indicators • monitor training compliance	The costs are mostly related to staff hours unless outside facilities or trainers need to be accounted for	Short-term (1-3 years) and ongoing
9	To meet the increasing need for training and records management of the volunteer firefighter training programs, the Training Officer position should become a permanent part-time position for 15 to 20 hours per week, for a total annual allotment of 780 to 1,040 hours.	Increase in staffing cost $20 – 30,000 per year	Short-term (1-3 years)
10	To improve firefighter response reliability: • Increase each fire station's roster to 30 volunteer firefighters. • Review of the pay scale for responses and training to ensure equal pay for time spent on fire department related business.	Increasing firefighter complement would cost approximately $38,000 in equipment and $45,000 in salaries. Pay scale review would cost $15 – 20,000 per year.	Short-term (1-3 years)

11	The Fire Chief conduct an annual review of BFD and its response data in comparison to industry standards.	Staff time only	Short-term (1-3years) and ongoing
12	The dispatch agreement with Oshawa Fire be renegotiated to include full dispatching services.	No costing offered at this time.	Short-term (1-3 years)
13	Electrical panels in the garage bays should be protected from possible water spray and electrical outlets should be GFI to reduce the risk of shock should they become wet.	$5,000	Short-term (1-3 years)
14	Sunderland Fire Station, which also serves as the alternate Emergency Operations Centre, should be equipped with an emergency backup generator.	$40-60,000	Short-term (1-3 years)
15	BFD should continue moving forward with its planned purchase of an aerial device.	$1.0 – 1.3 million	Short-term (1-3 years)
16	BFD to continue to utilize the resources at their disposal along with identifying ongoing joint opportunities to enhance the training of the firefighters. Consideration should also be given the purchase of a mobile training unit.	Staff time only	Mid to Long-term (4-10 years)

SECTION 11 – Appendices

- Appendix A - Definitions and References
- Appendix B – Fire Underwriters Survey, Suggested Inspection Frequency
- Appendix C – Five Step Staffing Process Review
- Appendix D– Fire Underwriters Survey Technical Document on Elevated Devices
- Appendix E – Call and Response Data for 2016 and 2017
- Appendix F – OFMEM Guidelines

SECTION 11: APPENDICES

Appendix A – Definitions and References

Automatic Aid Agreements

For the purposes of this report an automatic aid agreement means any agreement under which,

a) a municipality agrees to ensure the provision of an initial response to fires, rescues and emergencies that may occur in a part of another municipality where a Fire Department in the municipality is capable of responding more quickly than any Fire Department situated in the other municipality; or

b) a municipality agrees to ensure the provision of a supplemental response to fires, rescues and emergencies that may occur in a part of another municipality where a Fire Department situated in the municipality is capable of providing the quickest supplemental response to fires, rescues and emergencies occurring in the part of the other municipality.
   - *Automatic aid is generally considered in other jurisdictions as a program designed to provide and/or receive assistance from the closest available resource, irrespective of municipal boundaries, on a day-to-day basis.*

Commission on Fire Accreditation International - Community Definitions

- Suburban – an incorporated or unincorporated area with a total population of 10,000 to 29,999 and/or any area with a population density of 1,000 to 2,000 people per square mile
- Rural – an incorporated or unincorporated area with a total population of 10,000 people, or with a population density of less than 1,000 people per square mile.

National Fire Protection Association Documents

- National Fire Protection Association 1201 - Standard for Providing Fire and Emergency Services to the Public
- National Fire Protection Association 1500 – Standard on Fire Department Occupational Safety and Health Program, 2013 editions
- National Fire Protection Association 1710 – Standard for the Organization and Deployment of Fire Suppression Operations, Medical Operations, and Special Operations to the Public by Career Departments

- National Fire Protection Association 1720 – Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments

Mutual Aid

a) Mutual aid plans allow a participating Fire Department to request assistance from a neighbouring Fire Department authorized to participate in a plan approved by the Fire Marshal.

b) Mutual aid is not immediately available for areas that receive fire protection under an agreement. The municipality purchasing fire protection is responsible for arranging an acceptable response for back-up fire protection services. In those cases where the emergency requirements exceed those available through the purchase agreement and the backup service provider, the mutual aid plan can be activated for the agreement area.

Appendix B – Fire Underwriters Survey, Suggested Inspection Frequency

Fire Underwriters Survey Suggested Frequency Chart:

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

Appendix C – Five-Step Staffing Process

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

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

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

Step 2: Time Demand

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

- Local nuances
- Resources that affect personnel needs

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

Step 3: Required Personnel Hours

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

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

Step 4: Personnel Availability and Adjustment Factor

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

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

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

Step 5: Calculate Total Personnel Required

Branch of the unassigned personnel hours by the adjustment factor will determine the amount of personnel (persons/year) required. Any fractional values can be rounded up or down to the next integer value. Rounding up provides potential reserve capacity; 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 capacity
(4) Impact of non-personnel resources (materials, equipment, vehicles) on personnel

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

Appendix D – Fire Underwriters Survey Technical Document on Elevated Devices

Fire Underwriters Survey™

TECHNICAL BULLETIN

FIRE UNDERWRITERS SURVEY™

A Service to Insurers and Municipalities

LADDERS AND AERIALS: WHEN ARE THEY REQUIRED OR NEEDED?

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

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

Fire Underwriters Survey

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

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

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

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

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AN SCM COMPANY

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

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

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

NFPA

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

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

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

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

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

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

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

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

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

Excerpt: National Building Code 2012

A-3 Application of Part 3.

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

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

Firefighting Assumptions

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

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

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

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

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

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

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

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

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

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Eastern region 1-800-263-5361

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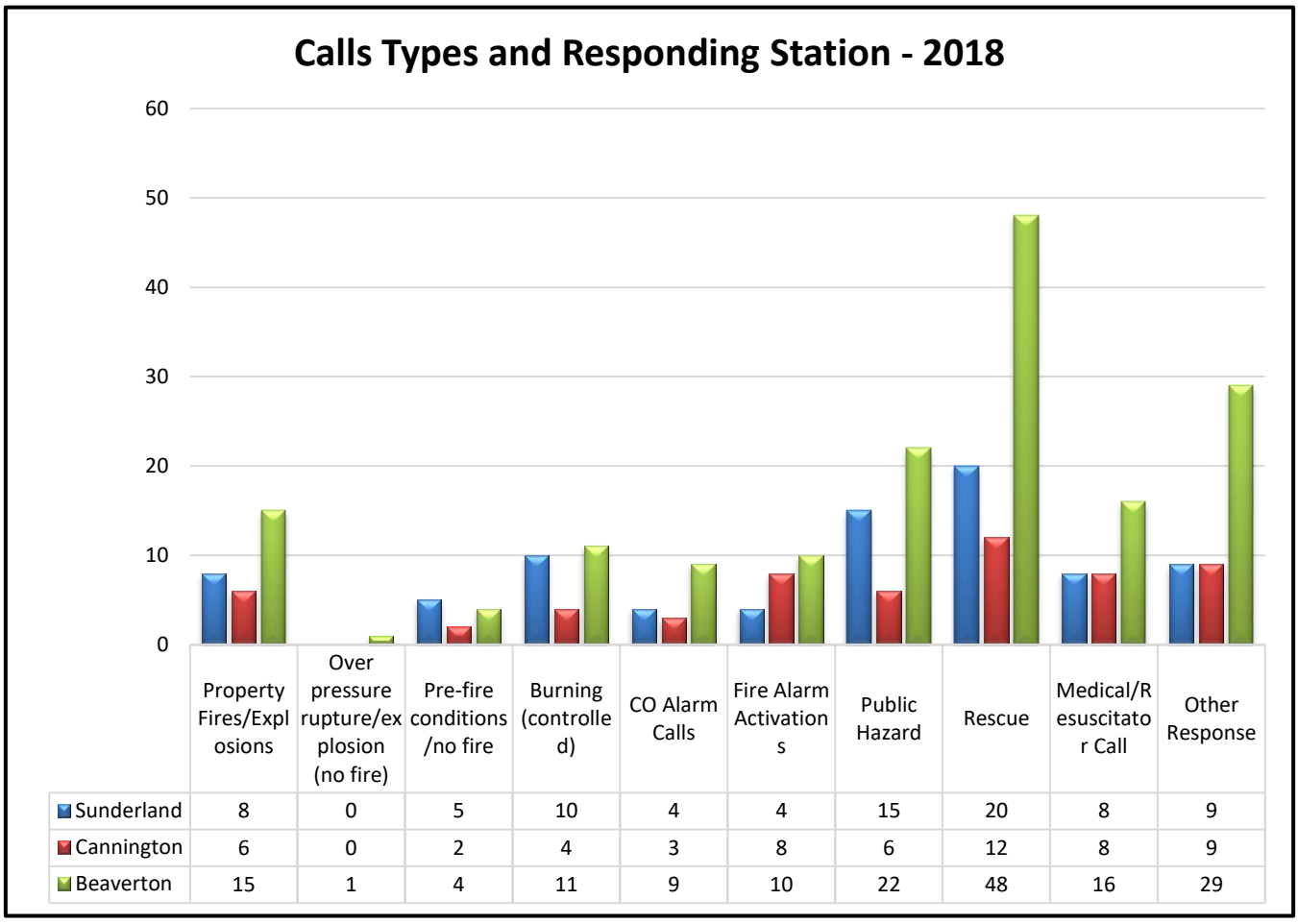
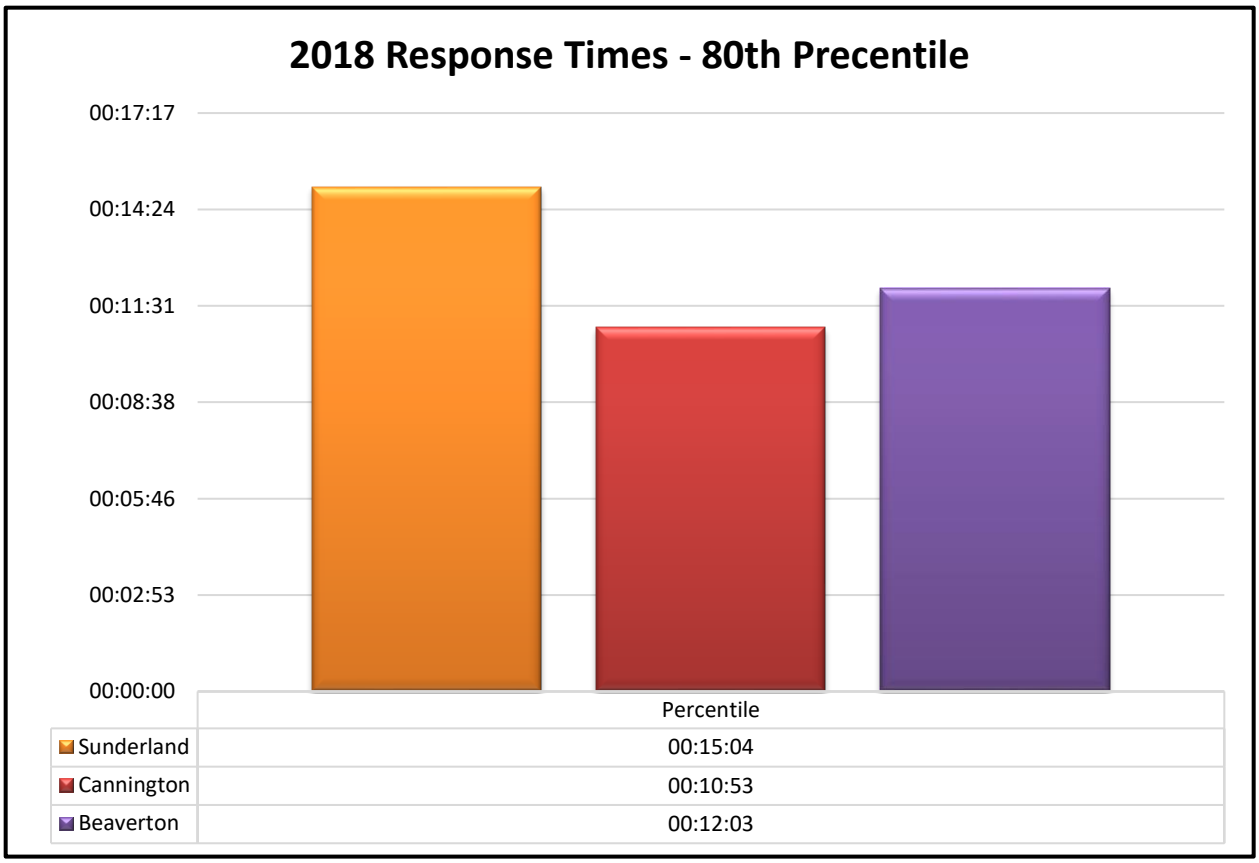
fireunderwriters.ca
optaintel.ca

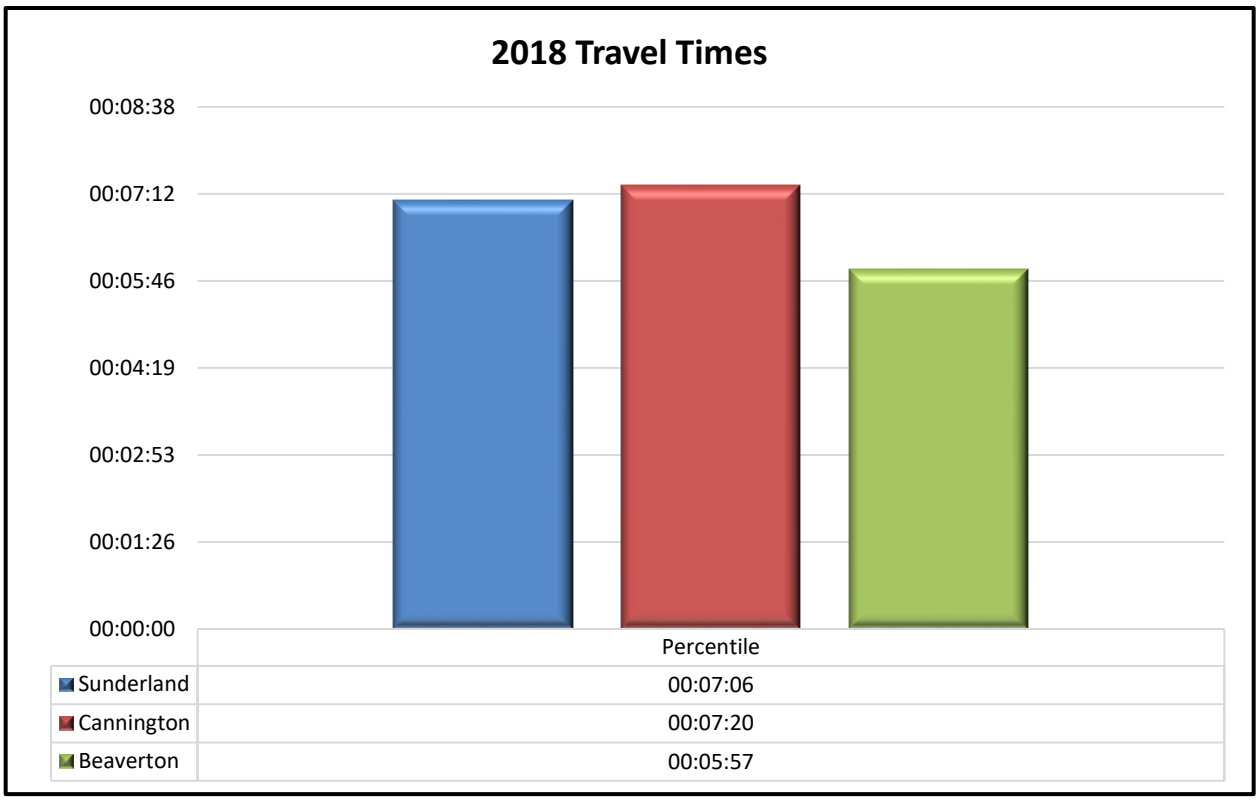
Appendix E – Call and Response Data for 2018, 2017 and 2016

Yearly Comparisons of All Calls for 2018



	Property Fires/Explosions	Over pressure rupture/explosion (no fire)	Pre-fire conditions/no fire	Burning (controlled)	CO Alarm Calls	Fire Alarm Activations	Public Hazard	Rescue	Medical/Resuscitator Call	Other Response
Sunderland	8	0	5	10	4	4	15	20	8	9
Cannington	6	0	2	4	3	8	6	12	8	9
Beaverton	15	1	4	11	9	10	22	48	16	29


2018 Response Times - 80th Precentile
00:17:17
00:14:24
00:11:31
00:08:38
00:05:46
00:02:53
00:00:00
Percentile
Sunderland 00:15:04
Cannington 00:10:53
Beaverton 00:12:03


2018 Travel Times
00:08:38
00:07:12
00:05:46
00:04:19
00:02:53
00:01:26
00:00:00
Percentile
Sunderland 00:07:06
Cannington 00:07:20
Beaverton 00:05:57

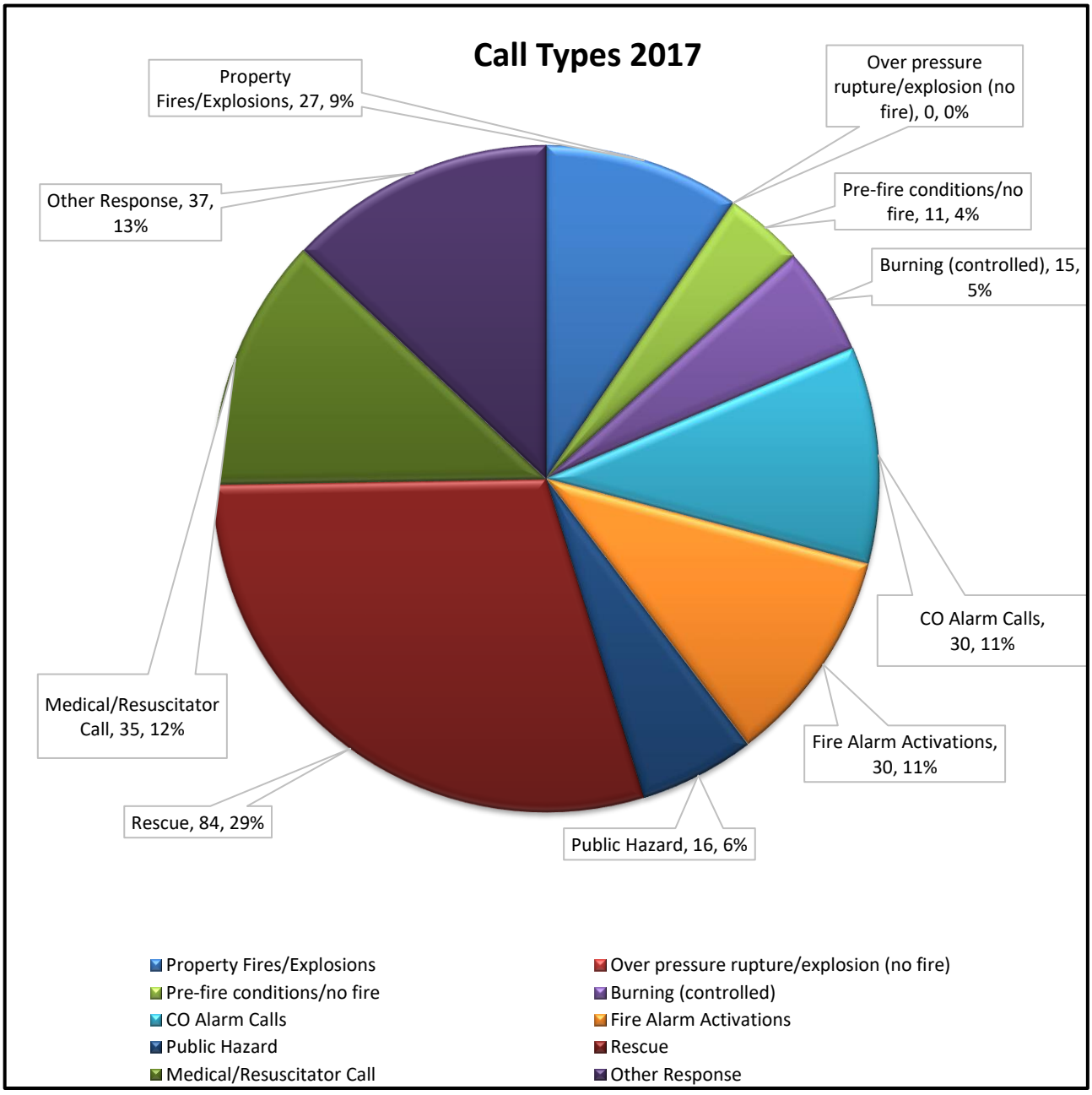
Yearly Comparisons of 80th Percentile Response Times for 2018

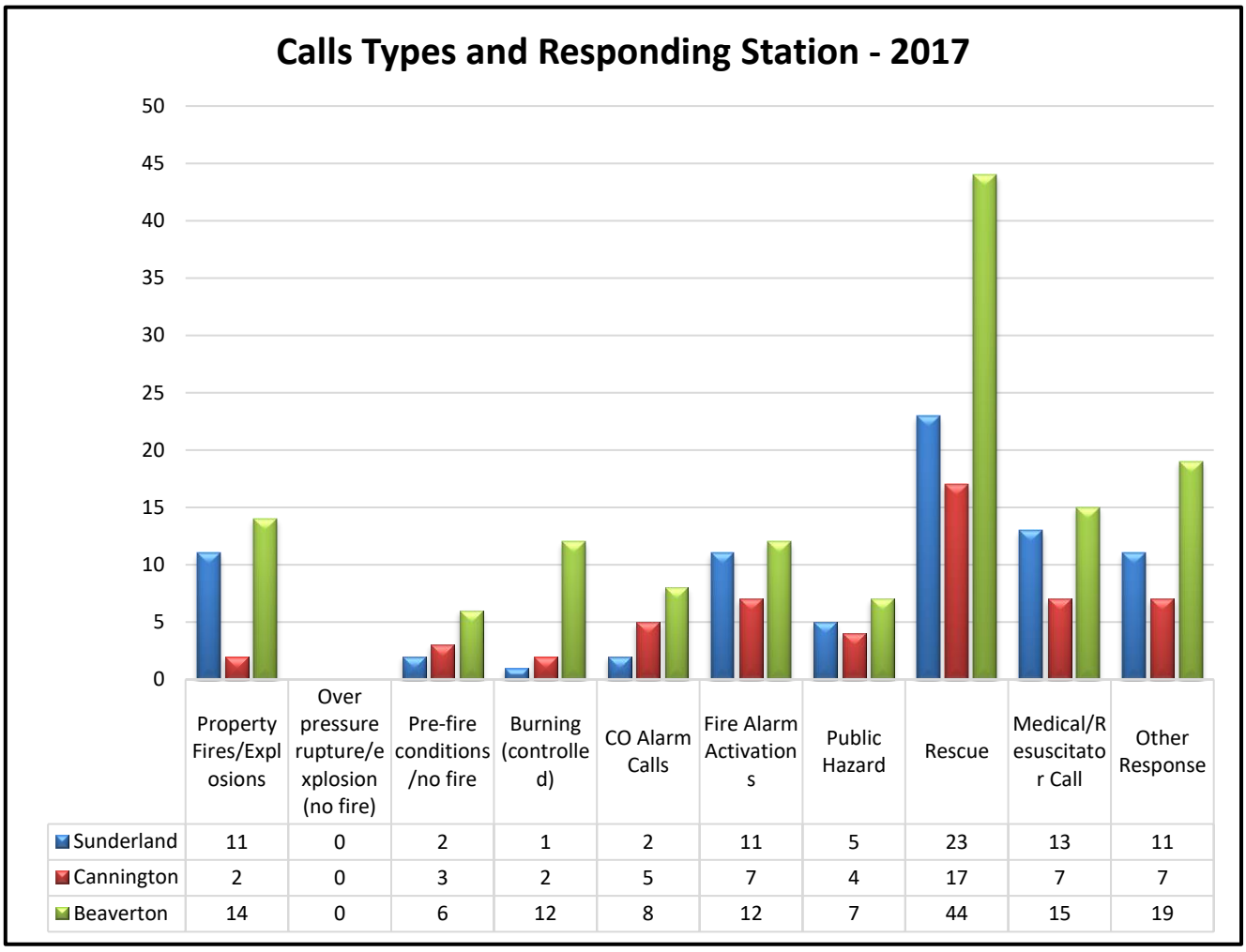
Note: The 80th percentile criterion is the recommended practice that is endorsed by the National Fire Protection Association and the Commission on Fire Accreditation International. This data is considered more accurate since it is evaluating the times based on 80 percent of the calls, as opposed to averaging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

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

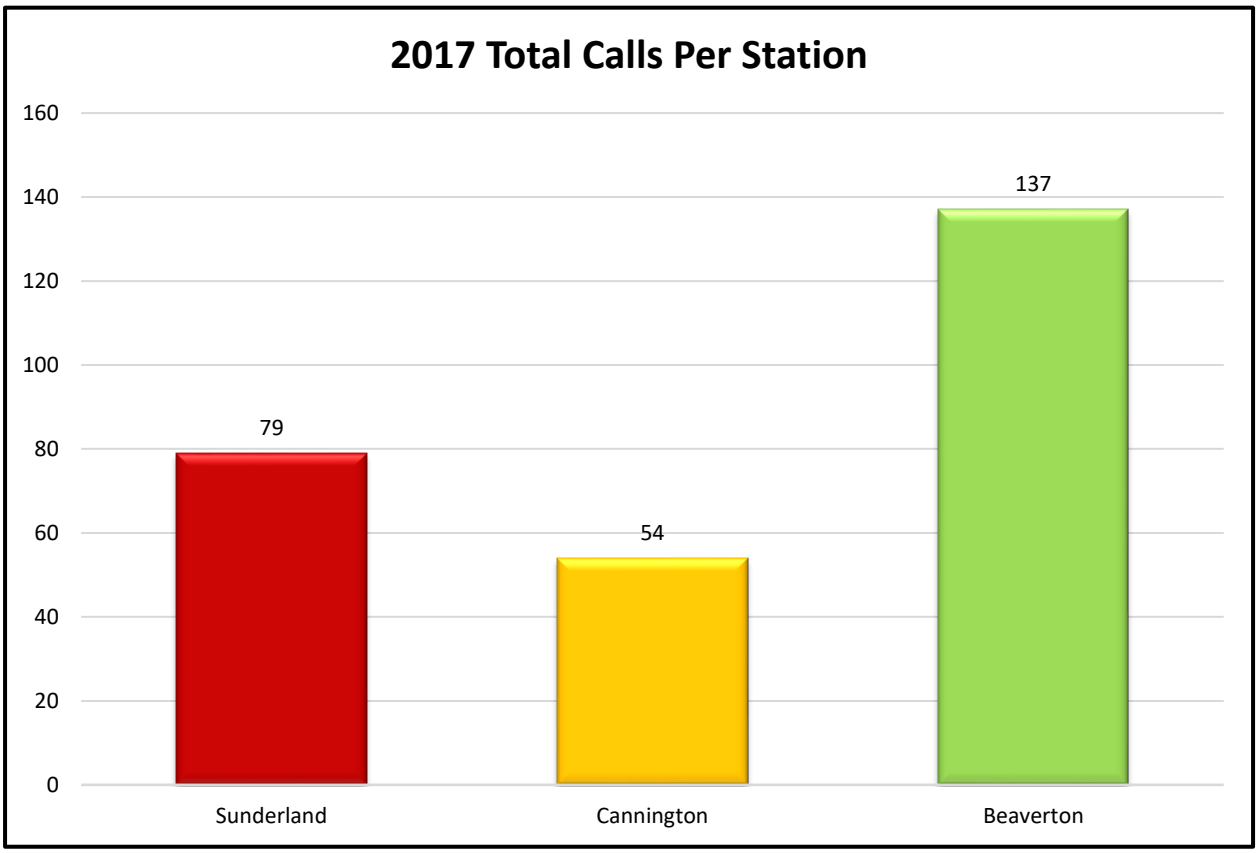
Note: Call data displayed in the charts are for emergency responses only.

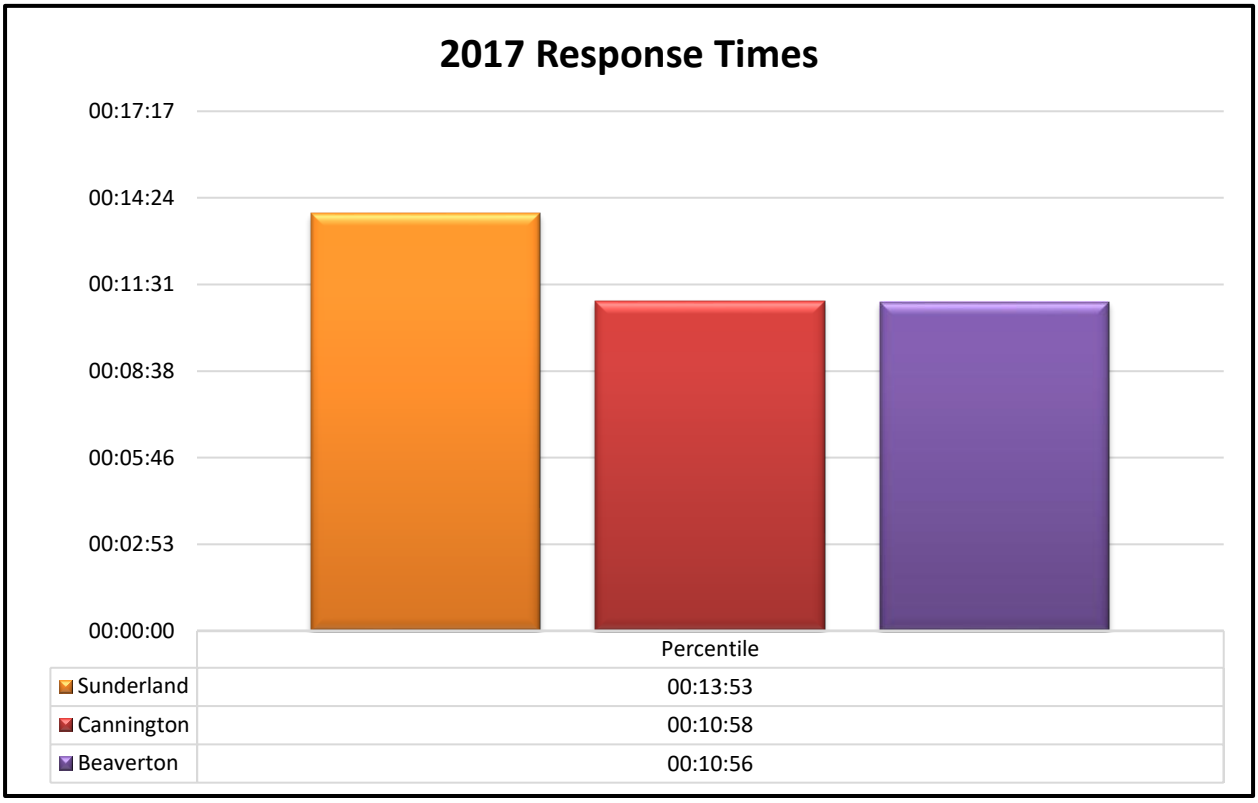
Total Calls Responded by Brock Fire Department in 2017

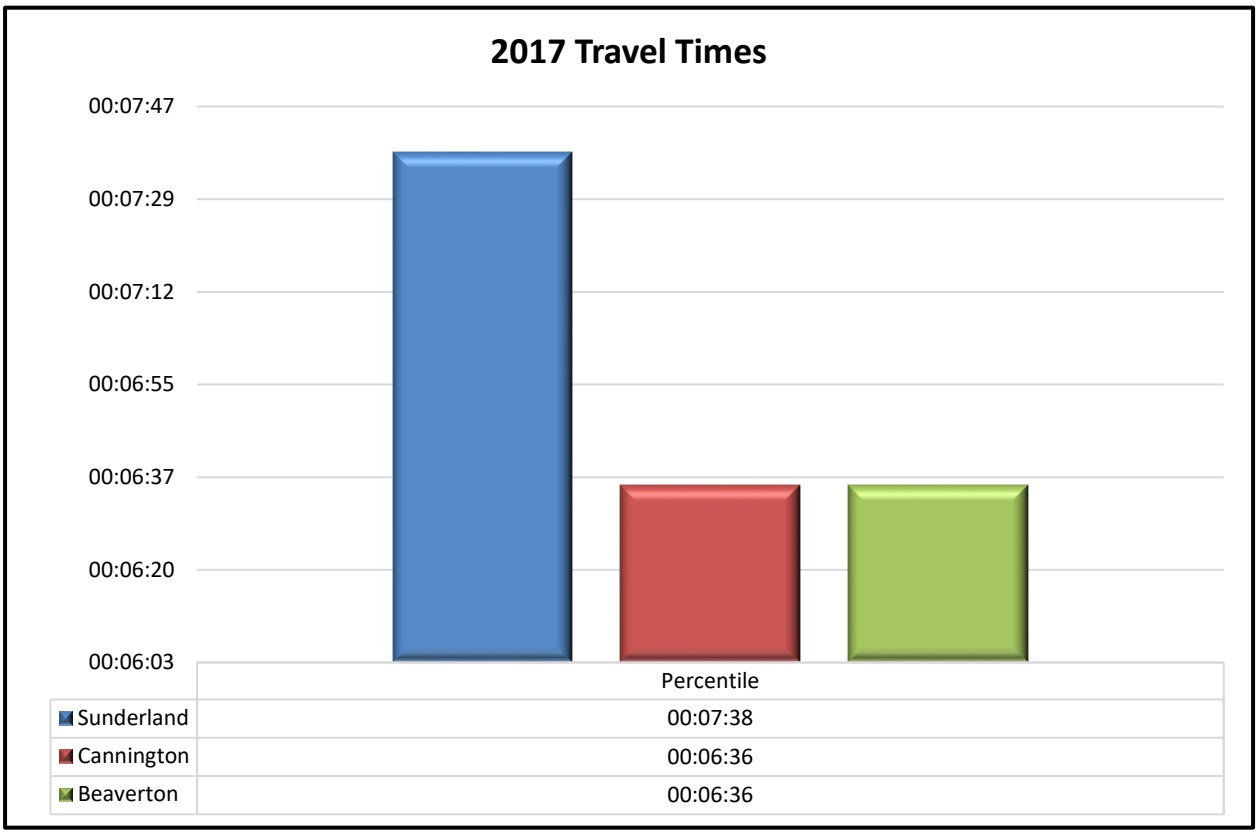




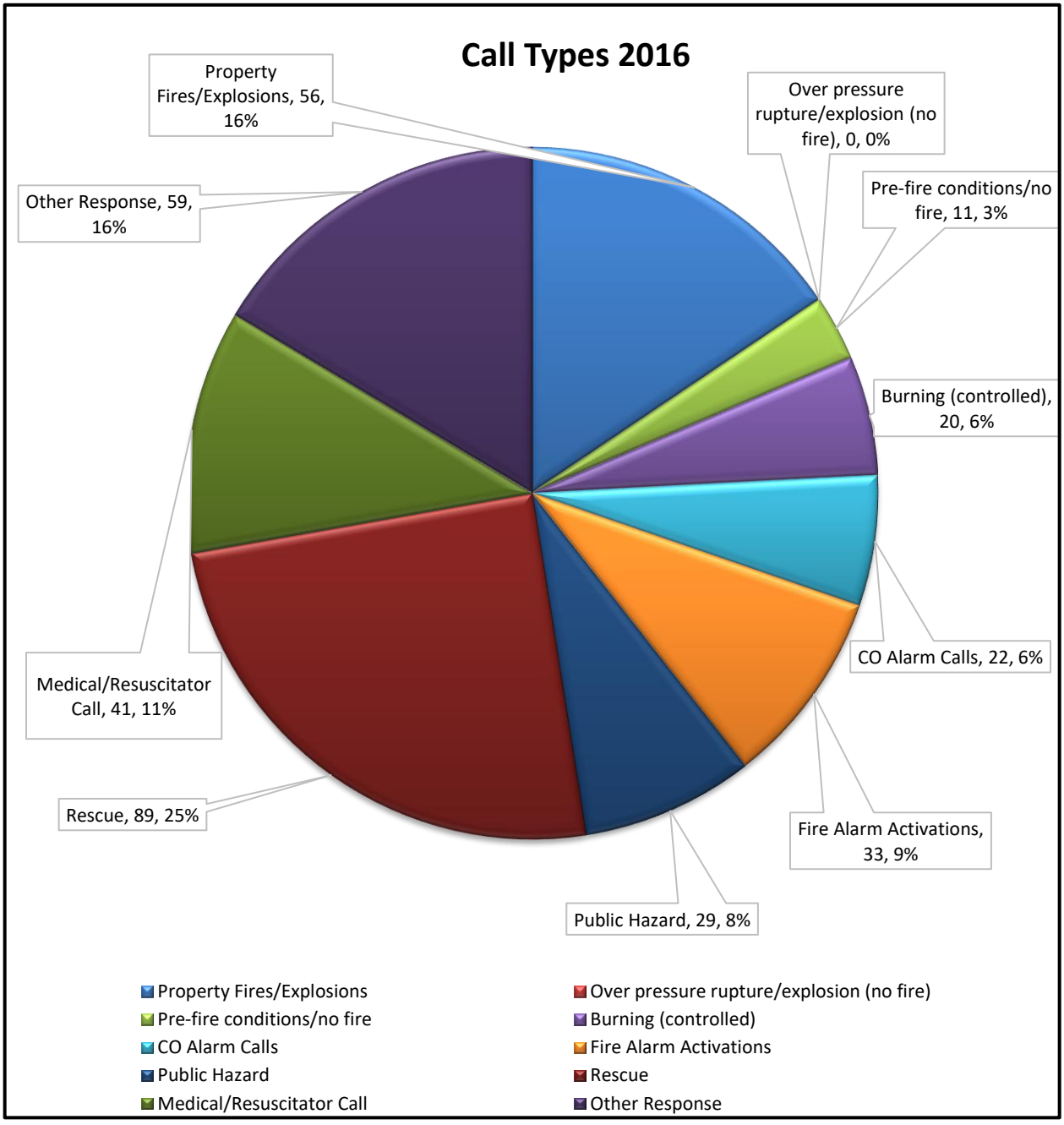
	Property Fires/Explosions	Over pressure rupture/explosion (no fire)	Pre-fire conditions/no fire	Burning (controlled)	CO Alarm Calls	Fire Alarm Activations	Public Hazard	Rescue	Medical/Resuscitator Call	Other Response
Sunderland	11	0	2	1	2	11	5	23	13	11
Cannington	2	0	3	2	5	7	4	17	7	7
Beaverton	14	0	6	12	8	12	7	44	15	19

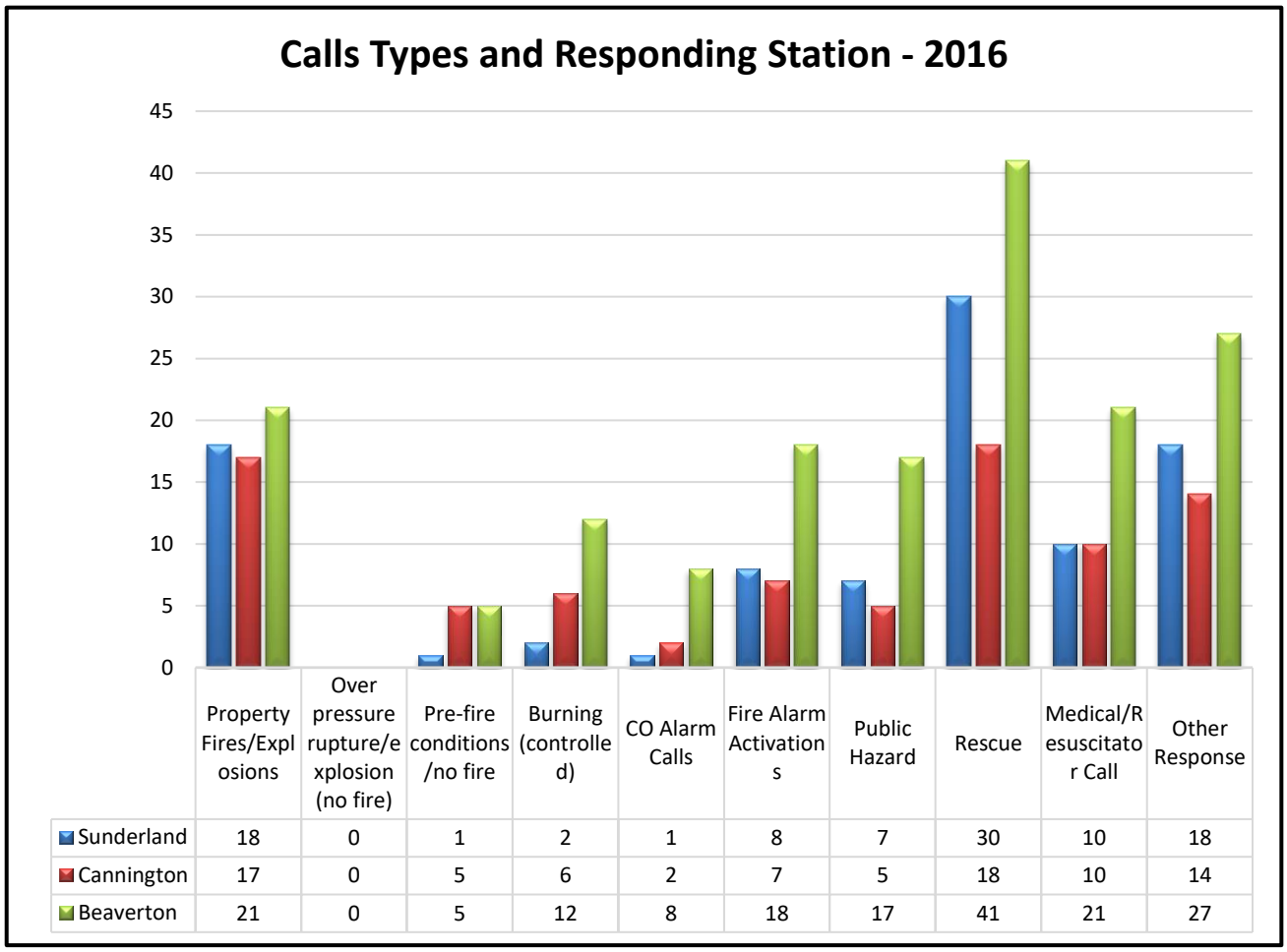

2017 Total Calls Per Station
160
140
120
100
80
60
40
20
0
79
54
137
Sunderland
Cannington
Beaverton


2017 Response Times
00:17:17
00:14:24
00:11:31
00:08:38
00:05:46
00:02:53
00:00:00
Percentile
Sunderland 00:13:53
Cannington 00:10:58
Beaverton 00:10:56

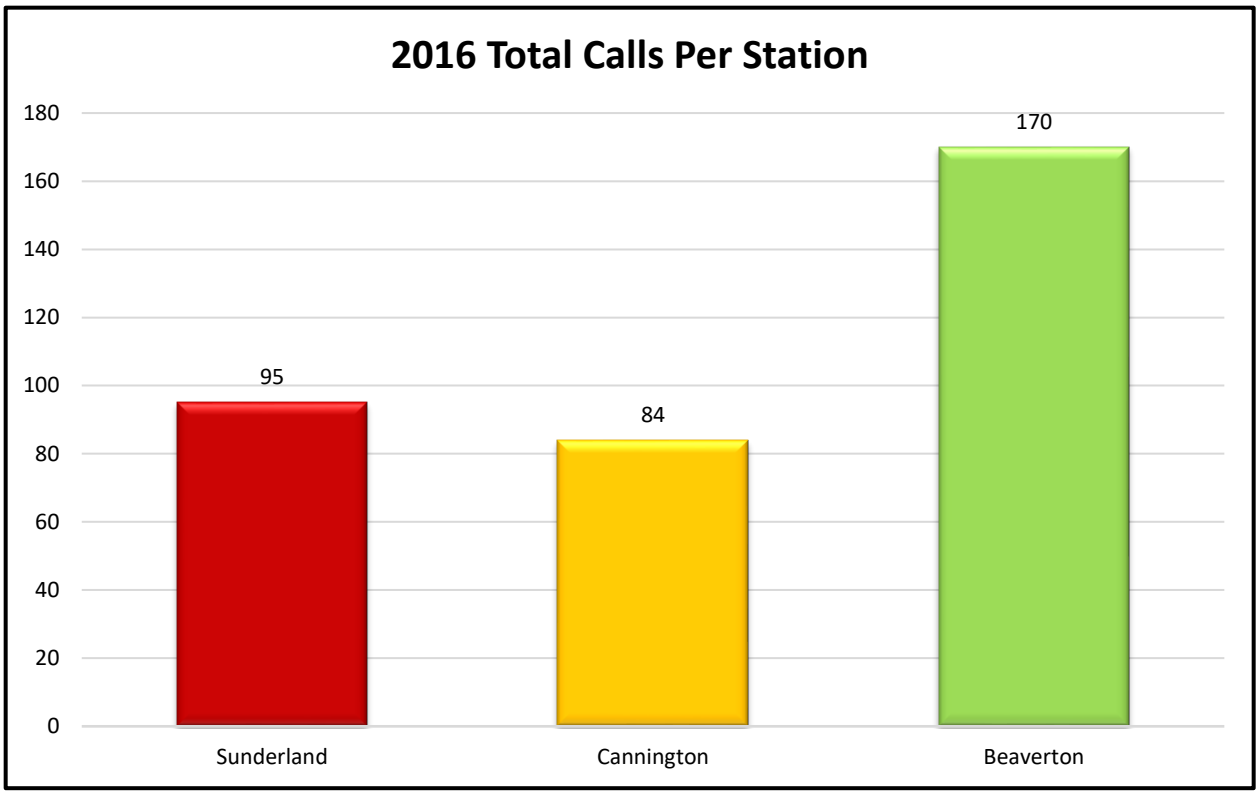

2017 Travel Times
00:07:47
00:07:29
00:07:12
00:06:55
00:06:37
00:06:20
00:06:03
Percentile
Sunderland
00:07:38
Cannington
00:06:36
Beaverton
00:06:36

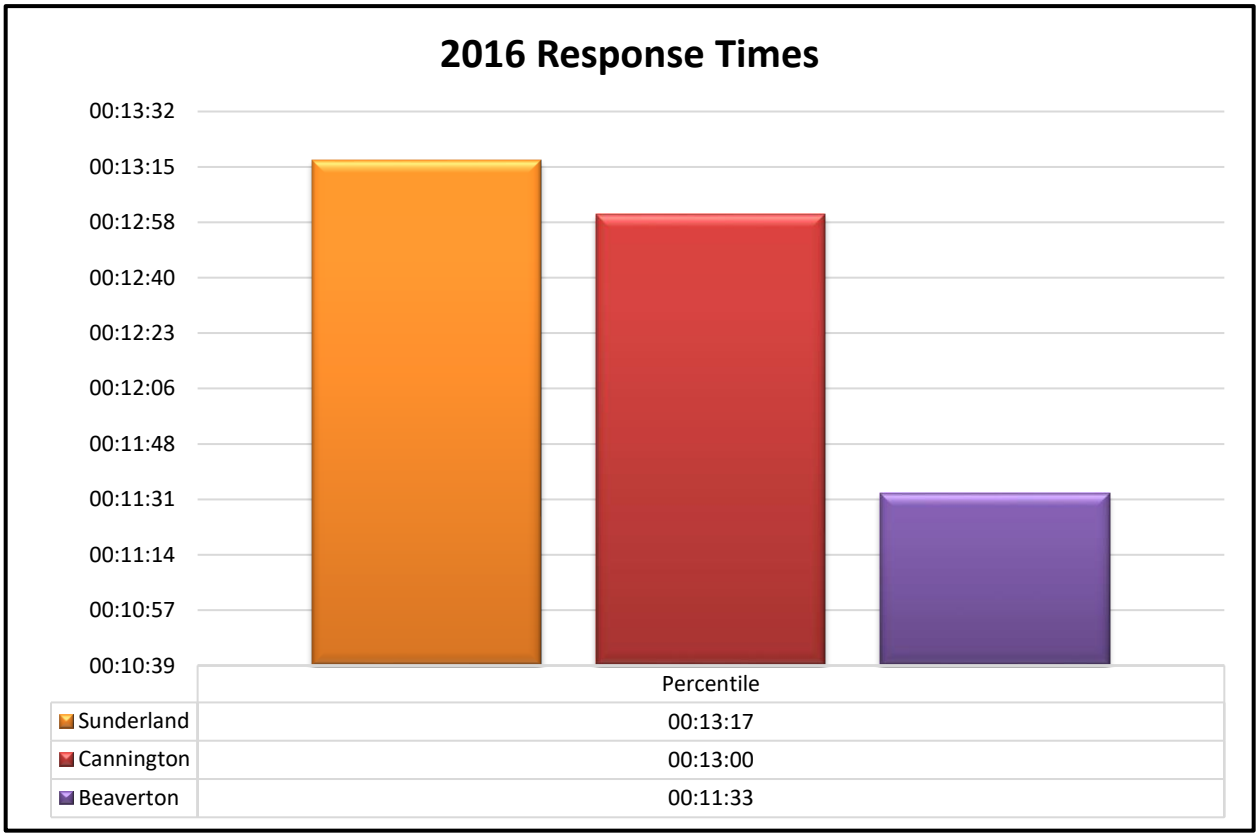
2016 Calls and Response Data

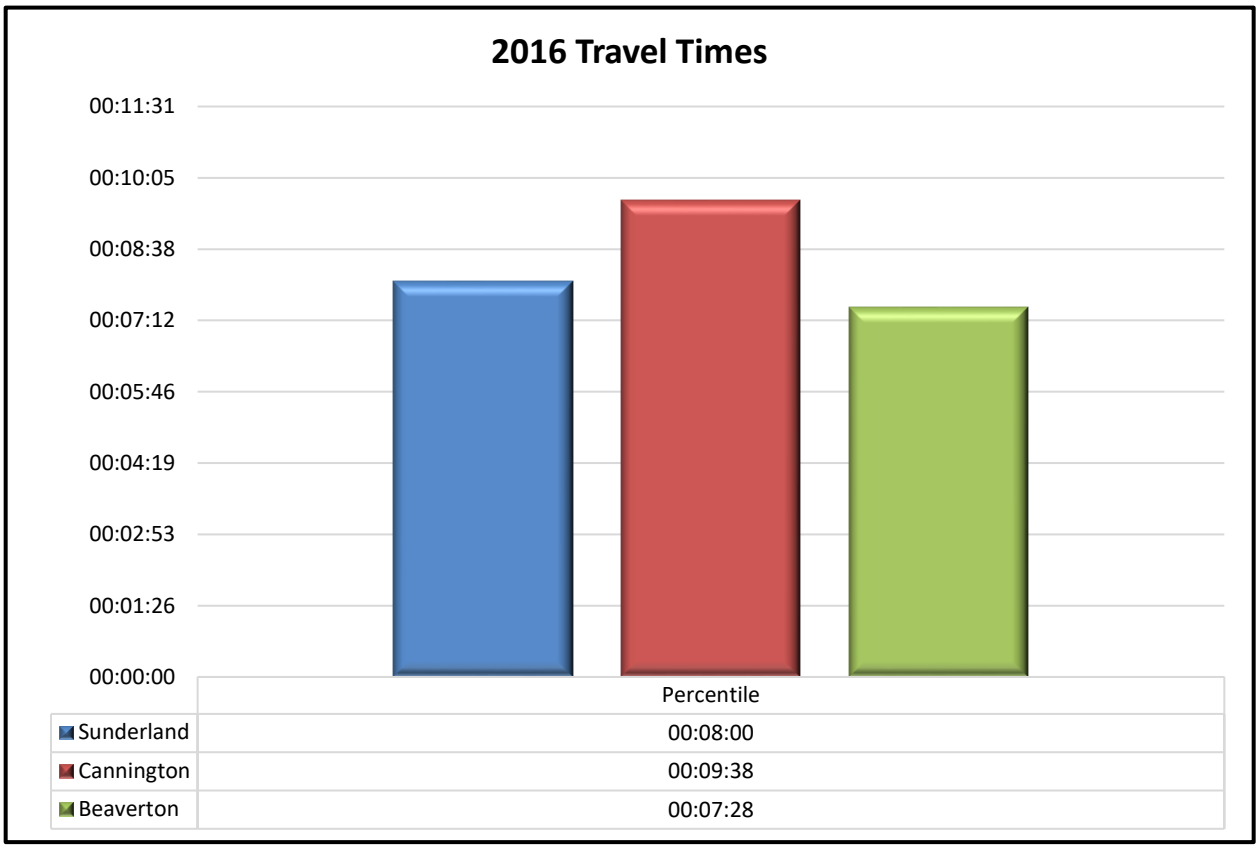




	Property Fires/Explosions	Over pressure rupture/explosion (no fire)	Pre-fire conditions/no fire	Burning (controlled)	CO Alarm Calls	Fire Alarm Activations	Public Hazard	Rescue	Medical/Resuscitator Call	Other Response
Sunderland	18	0	1	2	1	8	7	30	10	18
Cannington	17	0	5	6	2	7	5	18	10	14
Beaverton	21	0	5	12	8	18	17	41	21	27


2016 Total Calls Per Station
180
160
140
120
100
80
60
40
20
0
95
84
170
Sunderland
Cannington
Beaverton


2016 Response Times
00:13:32
00:13:15
00:12:58
00:12:40
00:12:23
00:12:06
00:11:48
00:11:31
00:11:14
00:10:57
00:10:39
Percentile
Sunderland 00:13:17
Cannington 00:13:00
Beaverton 00:11:33


2016 Travel Times
00:11:31
00:10:05
00:08:38
00:07:12
00:05:46
00:04:19
00:02:53
00:01:26
00:00:00
Percentile
Sunderland 00:08:00
Cannington 00:09:38
Beaverton 00:07:28

Appendix F – OFMEM Guidelines

Planning and Growth Practices

Public Fire Safety Guidelines	Subject Coding PFSG 04-58-12
Section Fire Administration	Date August 1998
Subject Planning and Growth Practices	Page

Under Review

Purpose:

To provide municipalities and fire departments with considerations for planning and growth practices.

Service Delivery Implications:

- Fire departments, in conjunction with council and the municipal administrators, should develop and implement a planning process.
- The process should provide information for a community wide, balanced and cost-effective fire control strategy.
- Existing conditions and anticipated community growth must be taken into consideration.
- Effective planning improves:
    - financial forecasting
    - quality and quantity of services
    - organizational performance
    - efficiency and effectiveness of the department
    - the ability to identify future service demands
- Failure to consider planning and growth will lead to confusion and an inability to maintain standards of coverage.[1]

Service Delivery Options:

- Most fire protection agencies are experiencing escalating demands for emergency response and fire prevention services, fire safety education, emergency medical services, and hazardous materials control. Resources to provide these services are often limited.
- Fire departments must take the following steps to ensure proper needs analysis:

1. Identify the nature and extent of risks.

2. Establish service levels.

3. Identify the most effective use of resources to obtain the desired service level.

4. Implement a management evaluation system to review the effectiveness of the implemented levels of service.

- This planning process should address the following:

    - master planning
    - evaluating programs and services
    - projecting station locations and re-allocations
    - determining staffing levels and assignments
    - co-ordinating with other emergency services
    - co-ordinating development with other community departments
    - co-ordinating with other counties/districts/regions
    - co-ordinating with private sector organizations

Strategic (Master) Plan

- The strategic or master plan is based upon a community risk management approach that:

    - considers the nature, extent and magnitude of the risks in the community
    - considers methods of providing protection for identified risks
    - considers alternative levels of protection
    - determines an acceptable level of risk
    - establishes objectives for the fire department and any additional requirements that are necessary for the community to limit the risk
    - develops and adopts a plan that will provide the established level of fire department services and other requirements
    - establishes a process to evaluate the effectiveness of the plan
    - establishes a process to periodically validate the plan

Policy Requirements:

- Those responsible for fire department planning should:

    - maintain an ongoing relationship with other agencies involved in community planning
    - keep the fire chief and other staff informed of community development plans, projected service demands, alternative approaches, and problems that might develop as change occurs.

- These liaisons should include budget and planning agencies, redevelopment agencies, water, street, traffic, and engineering departments, and private sector developers.

Quality Management Standards:

- The fire department should have a master plan to guide its activities. It should be:
    - long term (3 to 5 years)
    - the result of a continuous planning process
    - published and updated on regular basis
    - a companion document to the budget
    - the result of input from all stakeholders
    - approved by municipal government or authority having jurisdiction
- The fire department should have a process to assess, measure and evaluate the attainment of progress towards completion of specific objectives and overall system performance.

Quality and Performance Measures:

Evaluating Programs And Services

- Fire departments should have an evaluation system in place for programs and services.
- This program should be based on a cost/benefit analysis that:
    - determines need
    - develops objectives
    - develops the criteria for measuring effective accomplishment
    - generates alternatives
    - analyses and selects alternatives
- Any program of planning needs to encompass any or all aspects of the fire department's activities.
- The goal is to improve and maintain the efficiency and effectiveness of the fire department as well as providing for a responsive approach to the community's changing needs for service

Codes, Standards, and Best Practices:

Codes, Standards and Best Practices resources available to assist in establishing local policy on this assessment are listed below. All are available at **http://www.mcscs.jus.gov.on.ca/ .** Please feel free to copy and distribute this document. We ask that the document not be altered in any way, that the Office of the Fire Marshal be credited and that the documents be used for non-commercial purposes only.

02-02-12 & **03** Fire Risk Assessment
02-03-01 Economic Circumstances
02-04-01 & **23** Capabilities of Existing Fire Protection Services
03-01-13 Preparation of Draft Report on Existing Fire Protection Services
04-12-13 Core Services

04-39-12 Fire Prevention Effectiveness Model
04-56-12 Use of Fire Related Statistics
Additional References: *National Fire Service Accreditation Program*
[1] Standards of Coverage - a written statement that combines service level objectives with staffing levels to define how and when a fire agencies resources will respond to a call for service.

Station Training Practices

Public Fire Safety Guidelines	Subject Coding PFSG 04-81-01
Section Training & Education	Date August 1998
Subject Station Training Practices	Page

Under Review

Purpose:

This guideline provides suggested procedures regarding the delivery of station training programs.

Introduction:

- Training and educational resource programs express the philosophy of the organization they serve and are central to its mission.
- Increased fire service expectations and evolving suppression and apparatus technology have expanded the role of fire service personnel.

Service Delivery Implications:

- A key factor in the success of fire suppression activities is the performance of members of the organization.
- This performance level is achieved and maintained through a comprehensive training program.
- One critical component of this training program is training carried out within the fire station.
- Learning resources should include a library as well as audio visual material.
- Training staff should provide services which encourage and stimulate competency, innovation, and increased effectiveness.

Service Delivery Options:

- The training program content should be coordinated with the needs of department personnel and available resources in the community.
- Training officers should:
- provide performance standards
- develop training schedules
- Within the fire station an officer or other qualified person may deliver the training program.

Policy Requirements:

- The fire department should have a training program and policy that ensures personnel are trained and competency is maintained to effectively, efficiently, and safely execute all responsibilities consistent with the department's mandate.
- The training program should be consistent with the fire department mission statement and meet its organizational needs
- The program must be consistent with legal requirements for training
- Company officers should be responsible for the on-going, in-service training of members of the company assigned to them.
- Sufficient time should be spent on company (in station) training during tours of duty in full time departments, and at convenient times for volunteers, to ensure required proficiencies are met.
- Training should be in the form of self-directed learning, classroom instruction, practice drills, familiarization tours and pre-fire planning.

Quality Management Standards:

- The effectiveness of the training program should be evaluated through fire department performance at emergency incidents as well as training simulations and exercises.

This evaluation should ensure that:

- training is uniform
- fire department procedures are followed properly

Quality and Performance Measures:

- Company officers should periodically evaluate members assigned to their company to determine:
    - training objectives have been achieved
    - the training has been effective for each member
    - elements of individual performance evaluations, when required

Codes, Standards, Best Practices:

Codes, Standards, and Best Practices resources available to assist in establishing local policy on this assessment are listed below. All are available at **www.ontario.ca/firemarshal**. Please feel free to copy and distribute this document. We ask that the document not be altered in any way, that the Office of the Fire Marshal be credited and that the documents be used for non-commercial purposes only.

Additional References:

- Ontario Firefighter and Company Officer Training Curriculums
- Ontario Firefighter and Company Officer Standards

Service Providers - Volunteer Firefighter Staffing

Public Fire Safety Guidelines	Subject Coding PFSG 04-03A-12
Section Emergency Response	Date March 2001
Subject Service Providers - Volunteer Firefighter Staffing	Page

Under Review

Purpose:

To identify considerations for adequate fire department staffing using volunteer firefighters. .

Introduction:

- Most Ontario fire departments employ volunteer or part-time firefighters. They provide a provincial resource estimated to save residents more than one billion dollars annually.
- As society becomes more mobile, volunteer and part-time firefighters spend less time in their communities than has been traditional.
  Safe emergency incident operations require adequate staffing at all times.

Service Delivery Implications:

- A key factor in the ability of some municipalities to organize and operate a fire department is the opportunity to utilize volunteer or part-time firefighters.
- Adequate staffing over a 24 hour period, 7 days a week requires a significant pool of well educated trained and highly motivated personnel.
- A lack of adequately trained staff has a detrimental impact on public fire protection and firefighter safety.
- While automatic aid and mutual aid may support emergency incident operations, arrival times of external resources may be significant and will vary through uncontrollable factors.
  .

Staffing Best Practices:

Consider the following ideas used successfully by fire departments:

- Create a number of platoons within the fire department and mobilize staff based on needs established by operational policy.
- Create a daily or weekly standby list and reimburse personnel accordingly.
- Assign firefighters to particular tours of duty and reimburse personnel accordingly.

- Schedule volunteer or part-time firefighters to work on specific fire department apparatus for an assigned shift.
- Implement timely activation of automatic or mutual aid established in communications policy.
- Implement automatic aid for target occupancies during specific periods of the day when staffing levels may be insufficient.
- Establish protocols to ensure adequate resources are alerted immediately for identified high risk occupancies or properties.

Related Functions:

The continued viability of the volunteer fire service is dependent upon the successful recruitment and retention of the best qualified personnel available. The viability of volunteer or part time firefighters remains as long as there are sufficient numbers available for emergency responses at all times.
In order to demonstrate the inherent value that volunteer firefighters represent to the community, municipalities should consider should consider implementing local support mechanisms, such as:

- Fire department competency models created by the fire service
- Implementation of a mutual commitment document between the municipality and the fire service
- Define employee roles, responsibilities and expectations
- Adequate compensation with regard to roles, responsibilities expectations
- Define the benefits of belonging to the fire service
- Implementation of an exit interview policy
- Fire service recognition program

Codes, Standards and Best Practices:

Codes, Standards and Best Practices resources available to assist in establishing local policy on this assessment are listed below. All are available at **http://www.mcscs.jus.gov.on.ca** Please feel free to copy and distribute this document. We ask that the document not be altered in any way, that the Office of the Fire Marshal be credited and that the documents be used for non-commercial purposes only.
See also PFSG
See also:
04-04-12 Automatic Aid
04-09-12 Fire Protection Agreements
04-84-13 Volunteer Firefighter Recruitment and Retention

Selection of Appropriate Fire Prevention Programs

Public Fire Safety Guidelines	Subject Coding PFSG 04-40-03
Section Fire Prevention and Public Fire Safety Education	Date March 2001
Subject Selection of Appropriate Fire Prevention Programs	Page

Under Review

Purpose:

To assist in developing or selecting programs to meet the four minimum fire prevention and public education requirements of the Fire Protection and Prevention Act.

Introduction:

Municipalities must develop a fire prevention and fire safety education program that addresses their needs and circumstances, as determined by the application of sound risk management principles.

Minimum Required Services:

Section 2. (1) of the Fire Protection and Prevention Act states:
(1) Every municipality shall,

1. establish a program in the municipality which must include public education with respect to fire safety and certain components of fire prevention; and

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

Therefore, as a minimum acceptable model municipalities must provide the services listed below. The simplified risk assessment should identify the extent to which additional services may be required to meet the local needs and circumstances of specific municipalities. Municipalities may develop a different model for fire prevention and public education services provided they are able to demonstrate that their model meets the mandated requirements of the community's local needs.

3. Simplified risk assessment

4. A smoke alarm program

5. Fire safety education material distributed to residents/occupants

6. Inspections upon complaint or when requested to assist with code compliance

Simplified Risk Assessment:

A simplified risk assessment must be done for the community to determine the needs and circumstances of the municipality and to establish the level of fire prevention and public fire safety education required. Any significant risks identified through the analysis should be addressed. For example; if the risk assessment indicates a significant life or fire loss in multi-unit residential buildings, a program that will adequately improve their fire safety - such as routine inspections - would be appropriate to address the specific need of the community. The scope and extent of the remaining three required programs can be determined by the results of the simplified risk assessment.

Smoke Alarm Program:

The objective of a smoke alarm program is the provision and maintenance of working smoke alarms and home escape planning activities for all residential occupancies in the municipality. The activities associated with the program may include any combination of the following:

- community surveys
- distribution of pamphlets or other education material
- instruction to residents regarding smoke alarms
- providing smoke alarms at reduced or no cost
- installation of smoke alarms
- inspecting premises to determine compliance with the smoke alarm provisions of the Fire Code.

Fire Safety Material:

Fire safety education material may be distributed to residents and/or occupants consistent with the community's needs and circumstances by any combination of the following activities:

- distribution of pamphlets or other education material
- public service announcements utilizing the available media
- instruction to residents/occupants on fire safety matters
- presentations to resident groups
- attendance at public events

Fire safety education material addresses such issues as preventing fire occurrence, the value of smoke alarms, planning escape from fire, and being prepared to deal with a fire incident. The OFM Regional Office can provide assistance with fire safety education material for the public. Fire safety education material may also be found on the OFM website.

Public Fire Safety Education:

For public fire safety education, the following should be established:

- the audience to be targeted
- the message that needs to be delivered to improve the fire safety situation must be determined.

- an inventory of the available or required resources and programming.
- the most appropriate method of delivering the message.
- the duration or frequency of the message delivery.

Inspections:

Inspections of properties must be done, or arranged for, by the municipality when:

- a complaint is received regarding the fire safety of a property
- a request is made to assist a property owner or occupant to comply with the Fire Code and the involvement of the Chief Fire Official is required by the Ontario Fire Code

Any inspection conducted must include notification of the property owner or responsible person and appropriate follow-up with enforcement, if necessary.

Inspection Program Considerations:

For inspections, the following factors should be considered:

- The type of inspections to be conducted and the buildings to be inspected. For example: routine inspections of all multi-unit residential buildings, new construction inspections of all buildings, smoke alarm checks of single family residential buildings.
- The methods of inspection appropriate for the circumstance. This will have implications for the amount of time required to inspect, as more comprehensive inspections require more time.
- The category of buildings being inspected, and the skills and knowledge required to inspect them. The more complicated the building, the more skill and knowledge required.
- The frequency that the properties will be subject to inspection

Program Selection:

In addition to the minimum services outlined above, programs need to be selected, developed and implemented that address any risks identified through needs analysis. Programs being considered need to be effective for the type of concerns identified. For example; a routine inspection program would be effective to address concerns for the fire safety of a group of buildings that demonstrate poor performance during fire incidents. Similarly, a public fire safety education program such as Older and Wiser would be effective where there is a lack of knowledge of fire safety behaviour by the elderly and this lack causes them to suffer significant fire losses.
Each area of program activity has a number of factors which need to be considered.

Service Delivery Options:

The Fire Prevention Effectiveness Model may also assist with informed decision making about fire prevention and public education programs. Once the needs analysis component of the model has been completed, fire department managers can decide what programs are appropriate to address their identified local risks.
There are a number of options for delivery of selected fire prevention programs. They can be provided by fire department staff - personnel dedicated to fire prevention and/or fire

suppression staff. Other persons in the community may be used. Agreements with other communities may be made for provision of services. The OFM provides assistance in delivery of fire prevention programs through the Assist Program.

Policy Requirements and Other Relevant Issues:

Any selected/mandated programs must have sufficient resources, human and others, to be effectively delivered.
Persons assigned responsibility for delivering programs must be adequately trained.
Policy decisions must be made with appropriate authority and records made of the level of service decreed.
Appropriate program guidelines must be established for each program to be delivered.
Any fees for services should be discussed and decided upon at the policy level.
Legal counsel should be consulted regarding any changes to the delivery of services to the community.

Codes, Standards, and Best Practices:

Codes, Standards and Best Practices resources available to assist in establishing local policy on this assessment are listed below. All are available at **http://www.mcscs.jus.gov.on.ca/ .** Please feel free to copy and distribute this document. We ask that the document not be altered in any way, that the Office of the Fire Marshal be credited and that the documents be used for non-commercial purposes only.

See also PFSG
01-02-01 Comprehensive Fire Safety Effectiveness Model
04-12-13 Core Services
04-40A-03 Simplified Risk Assessments
04-40B-12 Smoke Alarm Programs
04-40C-12 Public Education Programs
04-40D-12 Inspection Programs

Operational Planning: An Official Guide to Matching Resource Deployment and Risk

Public Fire Safety Guidelines	**Subject Coding** PFSG 04-08-10
Section Emergency Response	Date January 2011
Operational Planning: An Official Guide to Matching Resource Deployment and Risk	

Under Review

1.0 Purpose

1.1 Municipalities are responsible for the funding and delivery of fire protection services in accordance with Section 2 of the *Fire Protection and Prevention Act, 1997* (FPPA).
In order to meet the intent of Section 2 of the FPPA, municipalities are expected to implement a risk management program.

The evaluation tool ***Operational Planning: An Official Guide to Matching Resource Deployment and Risk***, found in the Appendix, is to be used as part of a risk management program. The purpose of this guideline is to encourage municipalities and fire departments to use this tool so that they can make informed decisions regarding the delivery of fire suppression services.

2.0 Scope

2.1 This g**u**ideline applies to all municipalities.

3.0 Risk Management

3.1 In order to be in compliance with clause 2.(1)(a) of the FPPA, a fire department must have completed a simplified risk assessment, one of the four key minimum requirements for fire protection services. It is expected that this assessment be reviewed and updated periodically to support informed decision making and evaluation of program delivery.

4.0 Legislation

4.1 This guideline is issued under the authority of clause 9.(1)(d) of the FPPA.

4.2 Municipal Council, obligated by the FPPA to provide fire protection services, must

• establish levels of service commensurate with needs and circumstances; and

• provide fiscal resources for staffing, apparatus and equipment to support the established level of service.

4.3 Fire Chief
Person appointed by the council of a municipality, responsible for the delivery of fire protection services, and accountable to the council.

4.4 Fire Department
The fire department delivers the services as approved by municipal council and at the direction of the fire chief.
Operational Planning: An Official Guide to Matching Resource Deployment and Risk can help fire departments to

- assess and analyze fire risk;
- determine current capabilities: staffing, apparatus, equipment, etc.;
- find gaps; and
- work out options, develop recommendations and present them to municipal council using a standardized format.

4.5 Clause 2.(1)(b)
Every municipality shall provide such other fire protection services as it determines may be necessary in accordance with its needs and circumstances

4.6 Subsection 2.(7)
The Fire Marshal may monitor and review the fire protection services provided by municipalities to ensure that municipalities have met their responsibilities under this section and, if the Fire Marshal is of the opinion that, as a result of a municipality failing to comply with its responsibilities under subsection (1), a serious threat to public safety exists in the municipality, he or she may make recommendations to the council of the municipality with respect to possible measures the municipality may take to remedy or reduce the threat to public safety

4.7 Subsection 5.(1)
A fire department shall provide fire suppression services and may provide other fire protection services in a municipality, group of municipalities or in territory without municipal organization.

4.8 Clause 9.(1)(a)
The Fire Marshal has the power to monitor, review and advise municipalities respecting the provision of fire protection services and to make recommendations to municipal councils for improving the efficiency and effectiveness of those services.

4.9 Clause 9.(2)(b)
It is the duty of the Fire Marshal to advise municipalities in the interpretation and enforcement of this Act and the regulations.

4.10 Clause 9.(2)(d)
It is the duty of the Fire Marshal to develop training programs and evaluation systems for persons involved in the provision of fire protection services and to provide programs to improve practices relating to fire protection services.

5.0 References

OFM documents, programs and courses

- Comprehensive Fire Safety Effectiveness Model
- Public Fire Safety Guidelines
- Shaping Fire Safe Communities – Phases 1 and 2
- Essentials for Municipal Decision Makers [course]
- Essentials for Fire Service Leaders [course]

National Fire Protection Association standards

- NFPA 1710 and NFPA 1720

6.0 Appendix

Evaluation tool:
Operational Planning: An Official Guide to Matching Resource Deployment and Risk.

Workbook
(Guidelines PDF version available on request at **AskOFM**)
HTML version

Sample Establishing and Regulating By-law

Public Fire Safety Guidelines	Subject Coding PFSG 01-03-12
Section General	Date March 2000
Subject Sample Establishing and Regulating By-law	Page

Under Review

Purpose: To assist in the preparation of a by-law, which will provide clear and accurate policy direction reflecting how council wants their fire department services to function and operate.

Introduction: A municipality has responsibility to determine the types and extent of fire protection services necessary to meet their specific needs and circumstances. It is not practical to produce a sample that identifies the needs of every municipality..

Development: An analysis must be made to determine if each clause is appropriate for the particular municipality. Unless otherwise noted in the margin, the OFM regards each clause as a necessary component for a complete by-law.
In preparing by-laws, consideration must be given to the provisions of any collective agreement formulated under the Fire Protection and Prevention Act that supersedes establishing and regulating by-laws.
The municipal solicitor, prior to enactment, should review any draft by-laws prepared by council.

Related Functions: The primary issues addressed in an establishing and regulating by-law may include policy direction in these areas:

- general functions and services to be provided
- the goals and objectives of the department
- general responsibilities of members
- method of appointment to the department
- method of regulating the conduct of members
- procedures for termination from the department
- authority to proceed beyond established response areas

• authority to effect necessary department operations

Codes, Standards and Best Practices:

Codes, Standards, and Best Practices resources available to assist in establishing local policy on this assessment are listed below. All are available at **www.ontario.ca/firemarshal** Please feel free to copy and distribute this document. We ask that the document not be altered in any way, that the Office of the Fire Marshal be credited and that the documents be used for non-commercial purposes only.
See also PFSG
02-02-12 Fire Risk Assessment
02-03-01 Economic Circumstances
04-01-12 Selecting a Fire Suppression Capability
04-02-01 Service Delivery Considerations

fire department
SAMPLE ESTABLISHING AND REGULATING BY-LAW
corporation of the Town of Anywhere
By-Law No.

Whereas the Municipal Act, R.S.O. 1990 c., as amended, and the Fire Protection and Prevention Act, 1997, S.O. 1997, c.4 as amended, permits the council to enact a by-law to establish and regulate a *fire department*;
BE IT THEREFORE ENACTED by the Municipal council of the corporation of the Town of Anywhere, as follows:

1. In this by-law, unless the context otherwise requires,

Definitions: define any terms or positions which may be of concern to users of the by law

   a. **approved**
   means approved by the council

   b. **chief administrative officer**
   means the person appointed by council to act as chief administrative officer for the corporation

   c. **corporation**
   means the Corporation of the Town of Anywhere

   d. **council**
   means the council of the Town of Anywhere

   e. **deputy chief**
   means the person appointed by council to act on behalf of the fire chief of the fire

department in the case of an absence or a vacancy in the office of fire chief

f. **fire chief**
means the person appointed by council to act as fire chief for the corporation and is ultimately responsible to council as defined in the Fire Protection and Prevention Act

g. **fire department**
means the Town of Anywhere fire department

h. **fire protection services**
includes fire suppression, fire prevention, fire safety education, communication, training of persons involved in the provision of fire protection services, rescue and emergency services and the delivery of all those services

i. **member**
means any persons employed in, or appointed to, a fire department and assigned to undertake fire protection services, and includes officers, full time, part time and volunteer firefighters

j. **volunteer firefighter**
means a firefighter who provides fire protection services either voluntarily or for a nominal consideration, honorarium, training or activity allowance

2. A fire department for the Town of Anywhere to be known as the Town of Anywhere Fire Department is hereby established and the head of the fire department shall be known as the fire chief.

3. The *fire department* shall be structured in conformance with the *approved* Organizational Chart, **Appendix A**, forming part of this by law.

Approved Organizational Chart

4. In addition to the fire chief, the council shall appoint a deputy chief and such number of other officers and members as may be deemed necessary by the council

Identifies appointment of other officers and members without listing all specifically

5. The *fire chief* may recommend to the *council* the appointment of any qualified person as a *member* of the *fire department*, subject to the *approved* hiring policies of the Town of Anywhere	***Appointment via approved Hiring Policy***
6. Persons appointed as *members* of the *fire department* to provide *fire protection services* shall be on probation for a period of 12 months, during which period they shall take such special training and examination as may be required by the *fire chief*.	***Probationary Members***
7. If a probationary member appointed to provide *fire protection services* fails any such examinations, the *fire chief* may recommend to the *council* that he/she be dismissed.	
8. The remuneration of the volunteer members shall be as determined by the *council*.	***Remuneration and working conditions***
9. Working conditions and remuneration for all firefighters defined in Part IX of the Fire Protection and Prevention Act shall be determined by *council* in accordance with the provisions of Part IX of the Fire Protection and Prevention Act.	
10. If a medical examiner finds a member is physically unfit to perform assigned duties and such condition is attributed to, and a result of employment in the *fire department*, *council* may assign the member to another position in the *fire department* or may retire him/her. *council* may provide retirement allowances to members, subject to the Municipal Act.	***Other employment, retirement options and/or allowances***
11. The *fire chief* is ultimately responsible to *council*, through the (insert appropriate position for the municipality) for proper administration and operation of the *fire department* including the delivery of *fire protection services*.	***Chief ultimately responsible to council through FPPA (via chief administrative officer, clerk, fire committee or specify appropriate position)***
12. The *fire chief* shall implement all *approved* policies and shall develop such standard operating procedures and guidelines, general orders and departmental rules as necessary to implement the *approved* policies and to ensure the appropriate	***Developing SOP's, guidelines, rules and regulations***

care and protection of all *fire department* personnel and *fire department* equipment.

13. The *fire chief* shall review periodically all policies, orders, rules and operating procedures of the *fire department* and may establish an advisory committee consisting of such members of the *fire department* as the *fire chief* may determine from time to time to assist in these duties. ***Advisory Committee***

14. The *fire chief* shall submit to the (insert appropriate position) and *council* for approval, the annual budget estimates for the *fire department*; an annual report and any other specific reports requested by the (insert appropriate position) or *council*. ***Budgets and reports***

15. Each division of the *fire department* is the responsibility of the *fire chief* and is under the direction of the *fire chief* or a member designated by the *fire chief*. Designated members shall report to the *fire chief* on divisions and activities under their supervision and shall carry out all orders of the *fire chief*. ***Divisional responsibilities designated by chief***

16. Where the *fire chief* designates a member to act in the place of an officer in the *fire department*, such member, when so acting, has all of the powers and shall perform all duties of the officer replaced.

17. The *fire chief* may reprimand, suspend or recommend dismissal of any member for infraction of any provisions of this by law, policies, general orders and departmental rules that, in the opinion of the *fire chief*, would be detrimental to discipline or the efficiency of the *fire department*. ***Discipline***

18. Following the suspension of a member, the *fire chief*shall immediately report, in writing, the suspension and recommendation to the (insert as appropriate) and *council.* ***Suspension of members***

19. The procedures for termination of employment prescribed in Part IX of the Fire Protection and Prevention Act shall apply to all firefighters defined in Part IX of the Fire Protection and Prevention Act. ***Termination procedures***

20. A volunteer firefighter shall not be dismissed without the opportunity for a review of termination, ***Provides volunteers with the same***

if he/she makes a written request for such a review within seven working days after receiving notification of the proposed dismissal. A person appointed by the municipality, who is not employed in the *fire department*, shall conduct the review.

opportunity for review as full-time members

21. The *fire chief* shall take all proper measures for the prevention, control and extinguishment of fires and the protection of life and property and shall exercise all powers mandated by the Fire Protection and Prevention Act, and the *fire chief* shall be empowered to authorize:

Prevention, control and extinguishing fires

    a. pulling down or demolishing any building or structure to prevent the spread of fire

Pulling down structures

    b. all necessary actions which may include boarding up or barricading of buildings or property to guard against fire or other danger, risk or accident, when unable to contact the property owner

Boarding up or barricading

    c. recovery of expenses incurred by such necessary actions for the *corporation* in the manner provided through the Municipal Act and the Fire Protection and Prevention Act

Recovery of expenses

22. The *fire department* shall not respond to a call with respect to a fire or emergency outside the limits of the municipality except with respect to a fire or emergency:

    a. that, in the opinion of the *fire chief* or designate of the *fire department*, threatens property in the municipality or property situated outside the municipality that is owned or occupied by the municipality

Authority to leave municipal limits

    b. in a municipality with which an *approved* agreement has been entered into to provide *fire protection services* which may include *automatic aid*

    c. on property with which an *approved* agreement has been entered into with any person or *corporation* to provide *fire protection services*

d. at the discretion of the *fire chief*, to a municipality authorized to participate in any *county, district or regional* mutual aid plan established by a fire co-ordinator appointed by the fire marshal or any other similar reciprocal plan or program

e. on property beyond the municipal boundary where the *fire chief* or designate determines immediate action is necessary to preserve life or property and the appropriate department is notified to respond and assume command or establish alternative measures, acceptable to the *fire chief* or designate

AN APPROVED ORGANIZATIONAL CHART FORMS PART of THIS BY LAW AS Appendix A

Goals and objectives of the fire department may also be added as an appendix to the By-law

This by-law comes into effect the day it is passed by council, in the manner appropriate to the municipality.

Comprehensive Fire Safety Effectiveness Model Considerations

Public Fire Safety Guidelines	**Subject Coding** **PFSG 01-02-01**
Section **General**	Date **January 1998**
Subject **Comprehensive Fire Safety Effectiveness Model Considerations**	Page

Under Review

Comprehensive Fire Safety Effectiveness Model Considerations For Fire Protection & Prevention In Your Community

Fire Protection & Prevention In Your Community

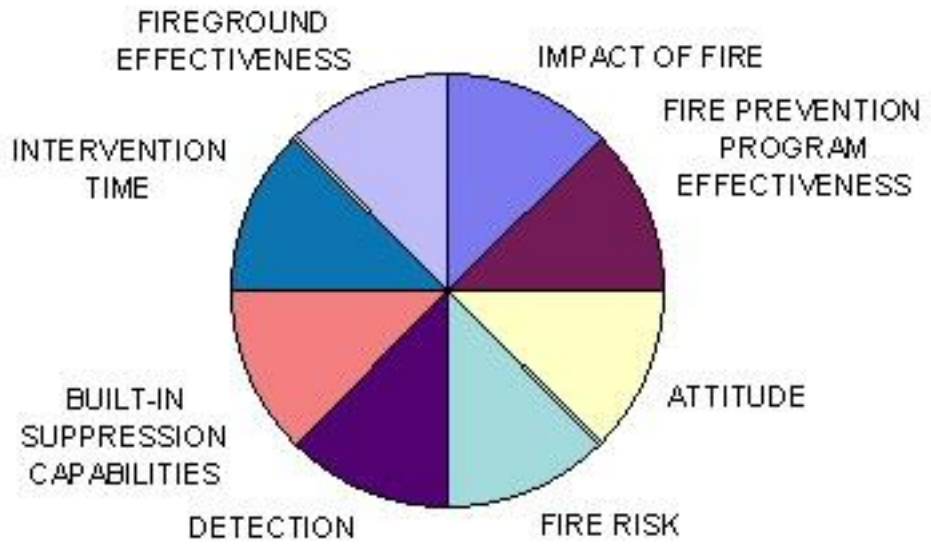
Every day, local elected leaders, managers and fire chiefs are faced with decisions relating to the provision of fire and other related emergency services for their community. Now, more than ever there are constant pressures of doing "more with less". Many government officials are hard-pressed to justify any increase in expenditures unless they can be attributed directly to improved or expanded service delivery in the community. This effort has often been hampered by the lack of criteria by which a community can determine the level and quality of fire and other related emergency services it provides to its residents. The *Comprehensive Fire Safety Effectiveness Model* is a document which can assist communities in evaluating their level of fire safety.

The provision of fire protection in Ontario is a municipal responsibility. The level and amount of fire protection provided is determined by the residents of the community through decisions made by and support provided by the local municipal council. Due to a wide variety of factors, the Ontario fire service finds itself in a period of change. Increased community expectations coupled with reduced financial resources are forcing all communities to critically assess their fire protection needs and to develop new and innovative ways of providing the most cost effective level of service. A refocus on fire protection priorities is providing progressive fire departments and communities throughout Ontario with an exciting opportunity to enhance community fire safety. There is more to providing fire protection than trucks, stations, firefighters and equipment.

The Office of the Fire Marshal has developed the *Comprehensive Fire Safety Effectiveness Model* which can be used as a basis for evaluating fire safety effectiveness in your community. This model looks at community fire protection as the sum of eight key components, all of which impact on the fire safety of the community. Deficiencies in one of the components can be offset by enhancements in another component or components.

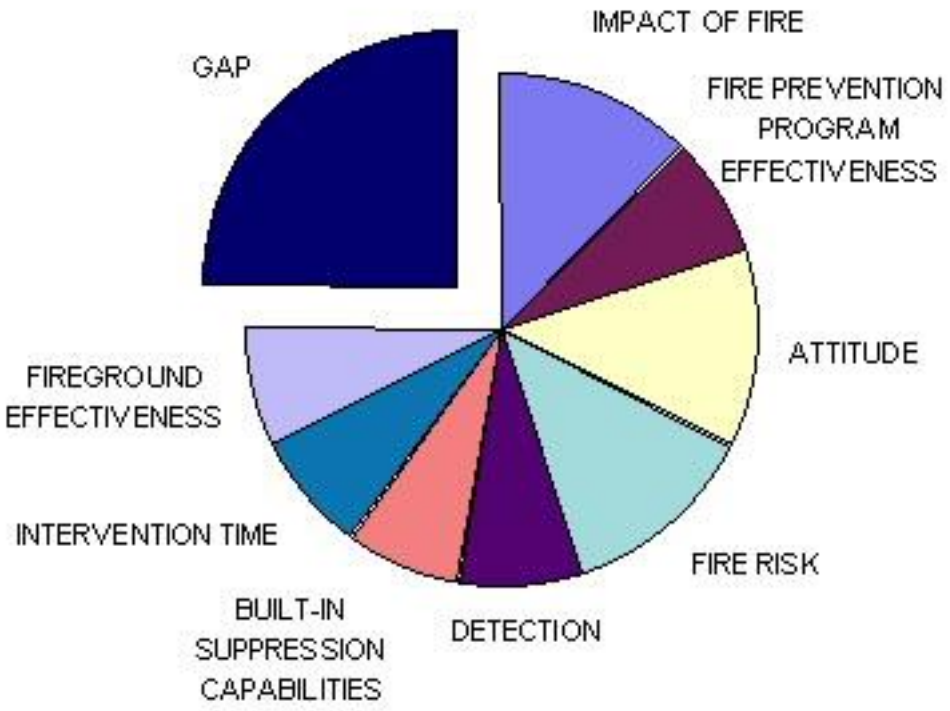
Community Master Fire Protection Plan

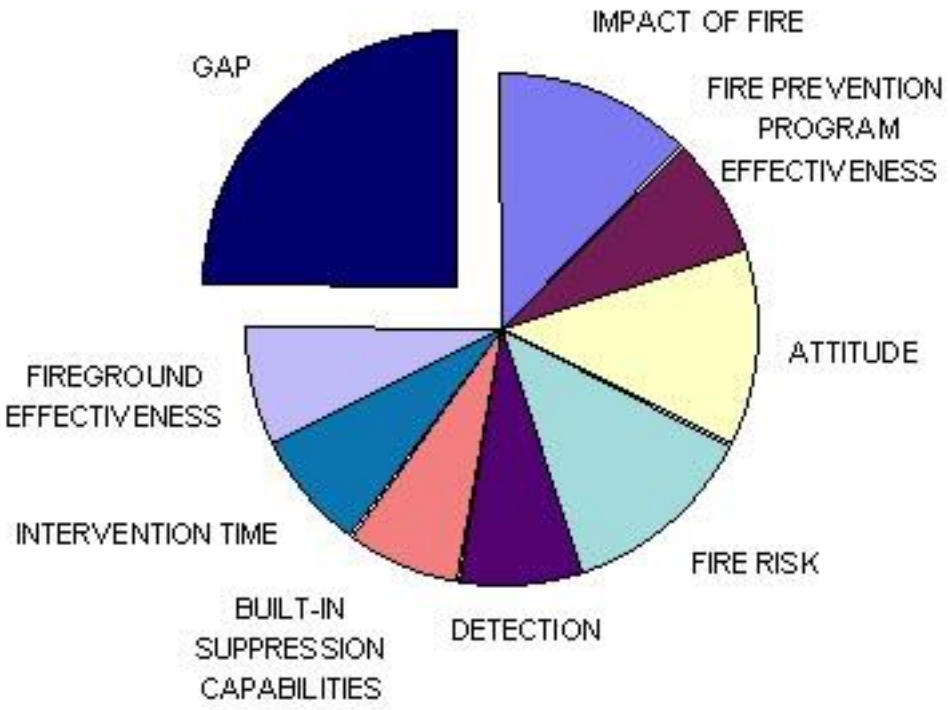
Every fire department should be guided by a master or strategic plan. This *Community Master Fire Protection Plan* traditionally focused on the identification of fire hazards and planning an appropriate suppression force response. Today, hazard or risk assessment has expanded well beyond the fire problem in the community to include emergency medical incidents, hazardous materials incidents and many other emergency situations. Paradigms are being shifted to emphasize the concept of fire prevention and control systems as communities attempt to effectively reduce losses experienced. This document should include plans for human resources and program financial support as well as the many external influences that impact on the fire service. The information contained with the *Community Master Fire Protection Plan* should provide a clear and concise overview of the most recently adopted organizational goals and objectives, budgetary commitments, mission statements and assessments of organizational activity. The document should cover a long range planning period of five to ten years.



This chart shows each of the factors which make up the comprehensive model. Although the chart is divided equally, each factor will in reality contribute differently to the total level of protection provided to a community.

This chart shows how the comprehensive model can be applied to a typical fire department. The "gap" depicts the difference between the existing level of protection and the ideal.





This chart shows how the "gap" can be reduced by strengthening a number of factors in order to increase the overall level of protection provided to the community.

It is critical that the fire department be guided by a written philosophy, general goals and specific objectives which are consistent with the legal mission of the department and are appropriate for the community it serves. These should all be integral components of the Community Master Fire Protection Plan.

Application of the Comprehensive Fire Safety Effectiveness Model will enable municipalities to make informed choices by providing an objective and innovative approach to public fire protection - a new way of thinking. Communities are able to determine if the level of service provided matches the risk in the community.

1. **Impact Of Fire:**

The impact of fire in any community can be significant with far reaching consequences. Not only do fires result in deaths and personal injuries but they also cause substantial property and environmental loss. Often overlooked are factors such as the historical value of unique local properties as well as the potential for lost tax assessment. There are many communities in Ontario where the loss of a particular occupancy will have a serious impact on the local economy. Involvement in fire often has a negative psychological impact on those affected.

Every community should carefully assess the total impact of fire. This assessment should be used as a basis for a Community Master Fire Protection Plan that addresses all areas of community fire safety including fire prevention and life safety as well as the delivery of suppression and rescue services.

- Does your community have a property whose loss would result in a significant financial burden to the community?

- Does your community have a property whose loss would result in a significant impact of local employment?
- Does your community have a property which if involved in fire would pose a significant environment risk?
- Does the master fire protection plan adequately consider the impact of a major fire?

2. **Fire Prevention Program Effectiveness:**

- Perhaps the most important component of and community's fire protection services is the effectiveness of it's fire prevention program. Legislation, regulations and standards pertaining to fire safety focus primarily on fire prevention. Enforcement of these codes is one of the most effective ways of reducing the loss of life and property due to fire. In addition, public fire safety education programs have the potential to substantially reduce the loss of life and property due to fire.

  Every community should strive to provide an adequate, effective and efficient program directed toward fire prevention, life safety, risk reduction of hazards, the detection, reporting of fire and other emergencies, the provision of occupant safety and exiting and the provisions for first aid firefighting equipment.

- Does your community have a fire prevention and public education policy that adequately addresses:

  - inspections?
  - public education?
  - code enforcement?
  - investigation?

- Does your community provide inspections upon request?
- Does the fire department respond to complaints?
- Does your community's fire prevention program address public life safety in structures from pre-construction planning until demolition through application of the Building Code and Fire Code?

3. **Public Attitude:**

North Americans tend to be more complacent about fires and the resulting losses than other parts of the industrialized world. Communities often accept the consequences of fire and provide community support. Comprehensive insurance packages are available to mitigate damages.

Communities need to assess the resident's attitudes toward fire to determine what role it plays in determining the extent of fire losses. Properly designed public fire safety education programs will significantly improve public attitudes toward the prevention of fire. This will result in lower fire losses.

Every community should assess public attitudes toward fire and life safety issues. This assessment should be used to develop and deliver public fire safety education programs to enhance community fire safety.

- Do the residents of your community demonstrate an interest in public fire safety?
- Is there a general awareness of fire safety in your community?
- Is there a sense of personal responsibility for one's own safety within the community?

4. **Fire Risk:**

The characteristics of your community affect the level of fire risk that needs to be protected against. Older buildings pose a different set of problems than newer buildings constructed to current construction codes. High rise, commercial and industrial occupancies each present unique factors, which must be considered. Construction, occupancy type, water supply, exposure risks, furnishings and the risk which the combination of these factors pose to the occupants must be assessed. The presence of effective built-in suppression and/or protection measures can reduce the fire risk.

36% of all structural fire alarms and 46% of all structural fire deaths in Ontario during the period 1990-1994 occurred in single family, detached, residential occupancies.

Every community should carefully assess its fire risk. The results of this risk assessment should be used as a basis for determining the level, type and amount of fire protection provided and should be a critical factor in the development of the community master fire protection plan.

- Has your community assessed the fire risk?
- Does your community have a master fire protection plan which takes into account the results of your fire risk analysis?
- Has the fire department identified all the possible actions it could take to reduce the number of fire incidents that occur in the community?
- Does your community planning process consider the impact of new developments and industries on the fire department?

5. **Detection Capabilities:**

The presence of early warning detection capabilities notifies occupants and allows them sufficient time to escape. It also allows for earlier notification of the fire department. Communities who encourage the widespread use of early warning detection systems have the potential of significantly reducing notification time, which, when coupled with effective fire department suppression, results in a corresponding reduction of loss of life, injuries and damage to property from fire.

Every community should develop and implement programs that promote the use of early warning detection systems in all occupancies. These programs should be a fire protection priority.

- Does your community have a program to ensure that all occupancies are provided with adequate early warning detection devices?

- Does your community have a program to ensure that residents are familiar with the importance and proper maintenance of early warning detection devices?
- Does your community promote the use of direct connect early warning detection devices in residential as well as commercial, industrial and assembly occupancies.

6. **Built-In Suppression Capabilities:**

Traditionally, the use of built-in suppression has been limited to fixed fire protection systems associated with assembly, commercial, industrial and manufacturing occupancies. Application of this concept has been limited in the residential environment. These systems, particularly the use of automatic sprinkler systems play an important role in minimizing the effects of fire by controlling its spread and growth. This enables the fire department to extinguish the fire more quickly and easily.

Although effective in newer buildings, it is often difficult if not impossible to provide for built-in suppression systems that effectively control fires in wall cavities and concealed spaces associated with certain older types of construction or reconstruction.

The use of built-in suppression systems should be a fire safety priority in all communities. Programs should be developed and delivered that promote the advantages of built-in suppression systems for residential, commercial, industrial and assembly occupancies.

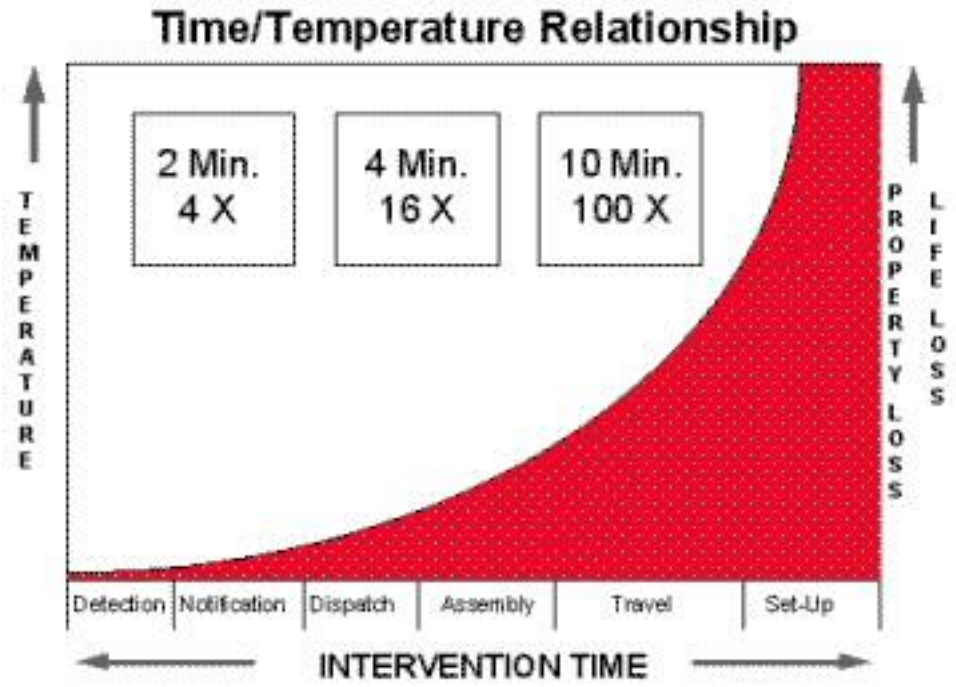
- Does your community promote the use of built-in suppression devices in all types of occupancies
    - residential?
    - commercial?
    - industrial?
    - assembly?
    - institutional?
- Does your community consider built-in suppression devices and early warning detection as an alternative to traditional concepts of fire protection?

7. **Intervention Time:**

This is the time from ignition until effective firefighting streams can be applied to the fire. There are many factors influencing this component of the model:

- the time required to detect the fire
- notification time from the public
- notification time to the firefighters
- preparation time for the firefighters to leave the station
- the distance between the fire station and the response location
- the layout of the community
- impediments such as weather, construction, traffic jams, lack of roads, etc.
- set-up time

Fire department intervention time is crucial in determining the consequences of a fire in terms of deaths, injuries and loss of property and damage to the environment. Effective fire prevention and public education programs can reduce intervention time which will result in increased fire department effectiveness.



Every community should develop and implement a range of programs and initiatives that reduce intervention time. These programs and initiatives should address all aspects of intervention time from the time required to detect the fire to the set-up time of the fire department.

- Are all occupancies in your community equipped with suitable smoke alarms and provided with fire emergency escape plans?
- Do all residents in your community know how to report a fire or other emergency?
- Does your community have a common fire emergency reporting number?
- Is the fire department dispatched by an appropriate dispatch facility?
- Does the community's master fire protection plan consider the different turn-out times for volunteer and/or full-time firefighters?
- Has the department instituted an appropriate fire department training and education program?
- Are all structures within the community clearly identified using an accepted numbering system?
- Has the department instituted a policy of having the closest fire department respond even though that fire department may be from another municipality?

8. Fireground Effectiveness:

The fireground effectiveness of the fire department has a wide range of benefits for your community. Not only does the fire department's performance affect the degree of damage to the environment and property, it also has a direct relationship to personal injury and death from fire. Many factors influence the effectiveness of any fire department. Included in these factors are:

- fire department organization
- community support of fire department
- firefighter availability
- firefighter and fire officer training
- adequate resources which are properly maintained
- time effective response to emergency incidents

The fire department should strive to provide an adequate, effective and efficient fire suppression program designed to control/extinguish fires for the purpose of protecting people from injury, death or property loss.

- Does your fire department have a comprehensive training program and evaluation system for all positions?
- Does the fire department have a system to ensure that an adequate number of trained personnel respond to all emergencies within a reasonable time period?
- Is your fire department provided with adequate resources to safely and effectively handle the risks it will be called upon to mitigate?
- Does the fire department use standard operating guidelines to define expected fire department actions for the wide variety of situations it might encounter?
- Does your fire department have automatic response agreements to guarantee an adequate level of personnel at all times?

The answers to the questions in this document will provide you with some indication of the level of fire safety in your community, however this is only the start. Application of the OFM Comprehensive Fire Safety Effectiveness Model will permit you to develop a plan for the safe, effective and economical delivery of fire protection services in your community.

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Further assistance is available from your local OFM representative